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“ADVANCING INCLUSIVE RURAL DEVELOPMENT AND
TRANSFORMATION IN A CHALLENGING ENVIRONMENT”

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7th RRPB International Conference and Field Study in Malaysia 2016 (RRPB7)



Centre for Innovative Planning & Development
Universiti Teknologi Malaysia



Bait Al-Amanah (House of Trust)
Johor

Advancing Inclusive Rural Development and Transformation in a Challenging Environment

The challenges of uncertainties in economic growth, increased globalisation, political conflicts and climate change has made sustainability, and inclusivity of development to become more pressing. The new global development agenda 2030 and Sustainable Development Goals (SDGs) requires more commitment for inclusive development. However, given the need to foster economic growth and competitiveness, concentration of development in core regions seems to be a common strategy adopted by many governments in developing countries. This would further increase the development gap in the rural areas.

In the light of the challenges facing the world today this conference is a perfect opportunity for scholars and practitioners gathered to examine and discuss how inclusivity and sustainability could be the driving force in rural development. This would synergise efforts to develop a more resilient rural community, eradicate rural poverty, and achieve a balanced and equitable development in the rural areas.

RRPB7 with its prime aim of bringing together stakeholders, policy makers, prominent figures, leading academic scientists, researchers and the public to explicitly discuss and expand our understanding of issues related to rural transformation, inclusive rural development and resilient rural environment. This conference will feature leading figures in various fields of sustainable rural development, community empowerment, local economic development and communitybased disaster risk reduction as well as resilient rural community studies.

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COMMUNITY-BASED TOURISM MODEL IN KALISUCI YOGYAKARTA

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ABSTRACT

Gunungkidul Regency is one of the regions in the Special Region of Yogyakarta Province in Indonesia hosts so many attractive natural tourism destinations which are divided into karst geological tourism destination and coastal tourism destination. The adoption of tourism based economy by Gunungkidul Regency has sparked the spirit of people within the scope of the natural tourism destination. Tourism as emerging sector leads to some changes in the community's lives in both social and economic sectors. The community attempted to manage the potential natural features as the tourism destination before the government's involvement. The development of community participation in tourism sector then grows rapidly in line with the booming of tourism visits. One of the tourism destinations which still experiences the development and improvement process is Kalisuci which is located in the Semanu Sub-District. The main selling point of tourism activities in Kalisuci is the experience of cave tubing which is the adventure alongside the stream and caves in Kalisuci. This study presents a review of the community participation within the rural tourism management in the Kalisuci Cave Tubing. The object of the research is located within the Pancarejo Village, Sub-District of Semanu, Gunungkidul Regency. The main focus of the research is about how the local community (Pokdarwis) pioneered the management of this particular tourism destination and their roles in managing and maintaining Kalisuci as a natural tourism destination. The method of the research is qualitative-descriptive. The main topic is that aside from the local community's participation in developing Kalisuci as a tourism destination, there need to be more stakeholders involved. Government as the mediator should be able to further assist the development and management in Kalisuci and also help to prevent the potential conflict between stakeholders by formulating some particular policies. The local community in Kalisuci is also expected to be able to manage the conducive situation in Kalisuci by providing required facilities and also by maintaining the existing ones.

Key words: Community, Kalisuci, Tourism, Yogyakarta

INTRODUCTION

Gunungkidul Regency is located between 7°46' - 8°09' South Latitude and 110°21' - 110°50' East Longitude. This region is bounded by Klaten Regency and Sukoharjo Regency of Central Java Province at the north side, Wonogiri Regency at the east side, Indonesia Ocean at the south side and Bantul Regency, Sleman Regency of DI Yogyakarta Province at the west side. The area of Gunungkidul Regency is 1.485,36 km² which consists of 18 sub-districts and 144 villages/wards which cover 46.63% of the territory of Yogyakarta Special Province. This regency is famous for beautiful white sand beaches stretching along the southern region. The coastal region is the longest in the province with a length of 70 km with an area of about 300 ha. Semanu Sub-district is the largest sub-district, with an area of about 108,39 km² or 7,30% area of Gunungkidul Regency.

Although most of the land in Gunungkidul area consists of karst barren land, this region has a lot of potential for natural, cultural, and special interest attractions. Well known natural tourist attractions are a row of beaches along the southern coast which are Baron Beach, Kukup Beach, Krakal Beach, Drini Beach, Wedi Ombo Beach, Sepanjang Beach, Ngrenahan Beach, Indrayanti

Beach, Watu Kodok Beach and much more. Natural tourism attractions other than beach tourism are Ancient Volcano Nglanggeran, Pindul Cave, Gelatik Cave, Sri Gethuk Waterfall, and Kalisuci. Other cultural attractions include Sokoliman Archeological Sites, Gejog Lesung in Nglanggeran Village, Pulutan Temple Site, and much more.

The interesting circumstance is the number of tourists in Gunungkidul continues to increase significantly over the last 4 years due to the designation of Gunungkidul as tourism based economy region (See Table 1). One of tourism object which contributes to this is Kalisuci in Pacarejo Village, Semanu Sub-district.



Figure 1. Location of Kalisuci
Source: Kalisuci Local Community Group

Table 1 Tourists Visit in Gunungkidul Regency 2010-2014

Year	2010	2011	2012	2013	2014
Number of Visitor	548.857	616.696	1.000.387	1.337.438	1.955.817
Number of Tourism Revenue	1.717.973.708	2.186.912.571	3.932.090.845	6.118.756.600	15.420.475.427

Source: Gunungkidul in Figures 2015

The origin name of Kalisuci is because there are springs located on the upper stream of the river which remains clear despite the murky river water during the rainy season. The springs were once the only source of life of local communities to meet the water needs of everyday life such as for drinking, bathing, washing and others. Without boiling process, the water from Kalisuci can be directly Kalisuci consumed without the fear of disease since the water sources have not been contaminated with any waste. According to the story from the village elders, Kalisuci spring is believed to cure the disease although the truth has not been proven.

In 1993, after some researches being conducted, the International Union of Speleology proposed for Gunungsewu karst area including Kalisuci to be one of the world's natural heritage. Gunungsewu karst region covers three regencies which are Gunungkidul, Wonogiri and Pacitan. Gunungkidul karst region itself has an area of 13,000 km² which includes 10 sub-districts in Gunungkidul. Furthermore, President Susilo Bambang Yudhoyono launched the region as eco karst region on December 6, 2004.

Kalisuci possesses 5 connected caves which can be explored continuously at a time, namely Glatikan Cave, Suci Cave, Buri Omah Cave, Gelung Cave and Brubug Cave. Underground river flowing in these caves have a width varying between 5 to 10 meters with very clear water. Ornaments of nature and the ecosystem in the cave is a beauty to be enjoyed by the explorers along the river. The uniqueness of this beautiful river meandering with decorative shrubs and bats hanging adds to the appeal of its own.

Kalisuci tourism destination offers Kalisuci Cave Tubing to the tourists since the current in Kalisuci is quite safe for tourists. Kalisuci karst region is the pride of Indonesia in the field of tourism because

this place is considered the best cave tubing in the world after Mexico and New Zealand. Tourists can follow the underground river stream with low current, so this place is suitable for novice explorers. Since it's location being in the underground, tourists are to use tubes as a replacement of boat. Enjoying the scenery, playing around and tracking down above the river are as exciting as doing cave tubing. Heavy water flow will bring the tubes in carrying tourists drifting down toward the stop point. The depth of the water is shallow therefore tourists who are unable to swim will still be able to experience the cave tubing in Kalisuci. This place is also often used as educational tourist area which studies about Speleology (knowledge about the cave and its surroundings), and Speleogenesis (the study of the origin of the formation of a cave and the morphology of the limestone region).

MATERIALS AND METHODS

The development of tourism requires the support and involvement of all stakeholders in the field of tourism. Society is one of the essential elements of the stakeholders to work together with the Government and the business/private in synergy to implement and support the tourism development. Therefore, tourism development should put more attention to the position, the potency and the role of community as either a subject or perpetrators and beneficiaries of development, as communities support can determine the long-term success of tourism development. Stakeholders may include three parties, namely: government, private and public, with each role and functions. Each of these stakeholders cannot stand alone, but they must be synergized and walk together to achieve and realize the agreed development goals and objectives.

There is a synergy between the stakeholder in tourism development and each of them has role and function as follows (See Figure 2):

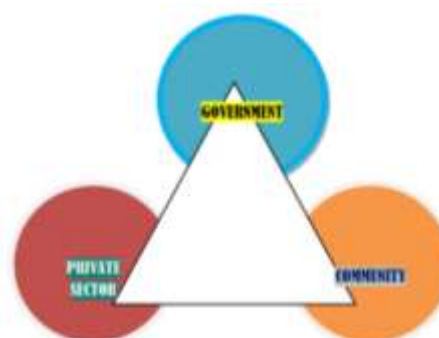


Figure 2. Stakeholder in tourism development
Source: Murphy, 1990

1. The government; doing the role as a facilitator and regulator in tourism development;
2. The private sector; with all sources they have, capital, networking and any other sources has a role as a developer or a manager of tourism activities;
3. The community; with their sources like culture, nature, or tradition and also their capacity, has a role as a host, but they also have chance as actors in tourism development

The explanation above shows that the community has an important role in supporting the success of tourism development. The increasing of local community role in tourism development needs some empowerment efforts. So, the community not only can be more actively and maximal but also they can get the positive impact from the tourism activities to increase their welfare. The community empowerment in the context of tourism development could be defined as "An efforts to strengthen and increase the capacity , role and community initiatives as one of the stakeholders interests, to be able to participate and play an active role as subjects or actors as well as a benefits receiver in the development of tourism in sustainable" (Strategic Plan of Community Empowerment, 2010). This definition confirms the important position of community development activities, the community as a subjects or agents of development; and community as beneficiaries of development.

The community as subjects or actors of development implies that the public has become important actors which should be actively involved in the planning process and the development of tourism, together with other relevant stakeholders from both government or private. In its function as subject or actors, the community has roles and responsibilities to jointly drive the success of the development of tourism in the region. The community as a beneficiary, means, that the community is expected to gain significant economic benefits value from development activity tourism to improve the quality of life and social welfare of the community.

One of the fundamental aspects for the success of tourism development is the creation of a conducive environment and atmosphere that encourages the growth and development of tourism activities in one place. The conducive climate or environment can be associated with the embodiment of "Tourism Awareness", which consistently develops among the people who live in nearby tourism destinations. The concept of tourism awareness in briefly can be described in two ways as follows:

- The community realizes the role and responsibilities as a good host for guests or tourists who visit, so as to bring about an environment and atmosphere that is comfortable, safe and enjoyable for tourists
- The community recognizes the rights and needs become actors or become tourists to travel to a tourism destination, as a form of basic needs for recreation and getting to know the environment

The presence of Local Community Group/ Kelompok Sadar Wisata (POKDARWIS) in a tourism destination is the embodiment of an environment and atmosphere that is conducive to local attractions. The Local Community Group has acted as a driving factor in enhancing local tourism activities that contribute positively to the welfare of local communities, and in the long term, foster the development of tourism industry in the area.

RESULT AND DISCUSSION

Management of Kalisuci tourism destination since its inception has involved the local community even though there were some worries regarding the transformation of Kalisuci to become a tourism destination. It becomes interesting to study because it is one of the alternative approach used in empowering people to build the village. Empowerment is emphasised as a means and a goal to acquire basic human needs, education, skills and the power to achieve a certain quality of life (Parpart et al., 2002). Rowlands (1997: 14) clearly states that 'empowerment is more than participation in decision-making; it must also include the processes that lead people to perceive themselves as able and entitled to make decisions'. Conversely, participation underpins empowerment through an individual's inclusion in an organization and its organizational decision-making (Rocha, 1997). Tourism development in Kalisuci is preceded by Kalisuci Local Community Group supported by the Department of Culture and Tourism of Gunungkidul Regency as well as Indonesian Association of Speleology Activity/Himpunan Kegiatan Speleologi Indonesia (HIKESPI). The Local Community Group received training in exploring and scouting the cave under the guidance of HIKESPI with its important figure Cahyo Alkantana as the private stakeholder. The training was conducted in Jomblang Cave as it was already an established tourism destination in the Pacarejo Village.

Finally, following of the official establishment of Kalisuci Local Community Group on October 4th 2009, Kalisuci Cave Tubing was launched in October 2009 and offered to the general public with the tariff per person Rp 25.000. The activity was getting a pretty good response from the public. This was evident from the number of tourists visiting Kalisuci from October until December 2009 as many as 5,335 tourists.



Figure 3. Kalisuci Tourism Destination
Source: Private documentation, 2016

At the very first time, most of the equipments needed for the tourism activity were all rented for 1 month by the help of HIKESPI. Therefore, there was no revenue for the Local Community Group in the subsequent three months in order to rent the equipment. However, because of the increasing number of tourists especially since 2010, Kalisuci Local Community Group was able to afford their own equipments. To deal with the medical aspects especially regarding the incidents during cave tubing, the management has cooperated with local Community Health Center/ Pusat Kesehatan Masyarakat (Puskesmas) and also several clinics in order to ensure the handling of first aid.

The position of Kalisuci in two locations which are Semanu Village and Pacarejo makes it potential for both village communities to manage the tourism destination. In the beginning of the Kalisuci management, there were actually two separate managements in The Local Community Group. The first one is under the leadership of Muslim Winarto from Pacarejo Village and the other one is under the leadership of Warsito from Semanu Village. So basically, each village used to have each management committee in handling Kalisuci tourism destination. However, in the process, it turned out that the management committee from Semanu Village tend to be indifferent regarding the tourism activities hence they become passive committee. Until finally, the Local Community Group from Pacarejo Village took over the whole management of Kalisuci under the leadership of Muslim Winarto with a total of 50 active members (See Figure 4).



Figure 4. Current Organizational Structure of Kalisuci Local Community Group
Source: Kalisuci Local Community Group

Tourism activity in Kalisuci gives positive impacts to the local people's welfare. Before working in the tourism industry, the local people used to work in the agricultural sector mostly focusing on crops especially in the rain-fed field. However, due to the characteristics of natural tourism destination which is based on water activity, there are only six months per year in which the tourism activity in Kalisuci can be performed. This is mainly due to the high water level and disaster vulnerability in the

rainy season. Therefore, most of the local people who work in Kalisuci tourism destination still also work in the agricultural sector as a side job. The transformation occupancy from agriculture to tourism is proven to significantly raise the revenue of local people.



Figure 5. Stalls in Kalisuci Tourism Destination
Source: Private documentation, 2016

There are basically several job opportunities sparked by the existence of Kalisuci Cave Tubing. Regarding the provision of the accommodation in Kalisuci, there are 30 homestays in the area in which the tourists are able to stay in the house of Kalisuci local residents. The rate to stay in homestay per night is about Rp 60.000 per person including breakfast. At this time, Kalisuci Local Community Group also involves members of Women's Empowerment Group/Pembinaan Kesejahteraan Keluarga (PKK) in Pacarejo Village in the provision of food for the tourists as well as local youth to assist tourism activities caving and parking management. There are also local residents who are interested in managing of a total of five stalls which provide traveler needs such as food stall, souvenirs kiosk, and other types of the stall (See Figure 5). Despite this circumstance, it is to be noted that these workers are not to contribute a portion of their income to the Local Community Group. However, the stalls operators are required to pay the rental fee of the place.

Kalisuci tourism attraction now has 20 guides with a minimum education of high school to guarantee the safety of tourists during the cave tubing tourism activities in Kalisuci. From those guides, among 15 of them have been certified by certain standards set by HIKESPI. The certification and the training of the guides take place in Jomblang Cave as it is actually an inspiration towards the establishment of Kalisuci as a tourism destination. The starting point of the cave tubing is from Semanu Village to finish point in Luweng, Pacarejo Village. The standard operational procedure regarding the tourism activity includes briefing to the tourist, the availability of first aid kit, rescue team, and also oxygen tube. The guides will accompany the tourists for more than 500 meters with a travel time of approximately 1,5-2 hours with an interlude about 25-30 minutes to ensure the comfort of the tourists (See Figure 6). Old people and children will usually need more additional guides to confirm the safety. After doing cave tubing, the tourists will then be transported by car to the starting point.



Figure 6. Cave Tubing Activity in Kalisuci
Source: Private documentation, 2016

The number of tourists in Kalisuci is estimated to reach 20.000 tourists/year with the proportion of domestic and foreign tourist is 75% and 25%. There is a minimum limit for each trip which is three tourists, and there is a mandatory option to make a reservation via phone/email for a group more than 20 tourists. Most of the tourist visit is estimated less than three days since most tourists tend to consider this as one-day tourism. The cost for each tourist to experience Kalisuci Cave Tubing is about Rp 70.000 including insurance from Jasa Raharja Putera. Tourists will also get a complimentary snack and drink from the food stall. From that figure, there is a retribution for about Rp 5.000 entitled

to Gunungkidul Regency Government as local revenue. The remainder of the figure is then divided by the Local Community Group: management (20%), guides (25%), and operational cost such as equipment and maintenance (55%).

The government as one of the important stakeholders help to assist the Local Community Group in some aspects even though they are only actively involved since the establishment of Gunungkidul as tourism based economy region since 2010. Since then, the government has actively promoted the tourism by also making several policies to simplify the tourism procedure. The Ministry of Culture and Tourism conduct training in both the tourism management and also the guides skill despite the guide skill training from the government is deemed not suitable for Kalisuci tourism activity as special interest eco-tourism. They also help the Local Community Group to build several facilities such as pendopo. While Gunungkidul Regency Government, in the beginning, helped the land acquisition of Sultan Ground alongside Kalisuci to help the further tourism development. The Regency Government also helps to establish facility like the bathroom. Due to the monitoring from the government, Kalisuci Local Community Group is assigned to give a monthly report to Gunungkidul Regency Government.



Figure 7. Guides Certification and CCTV to ensure the safety of Cave Tubing activity
Source: Private documentation, 2016

Another interesting aspect of the tourism management of Kalisuci is that the Local Community Group is very environmentally aware. The Local Community Group believe that the impacts of tourism are commonly linked with each other; when the mass visitation occurs, it does not only affect the local culture and tradition at the same time this also has greater negative impacts on the local environment (Pandey et al. 2016.). From the beginning of the management, they agreed that the management of Kalisuci tourism destination is based on eco-tourism which put emphasis on special interest. The special interest aspect means that the tourists who wish to do cave tubing must have no health issues and physically capable since the terrain is quite challenging. The eco-tourism aspect encourages the management to specify the maximum number of tourists for cave tubing which is about 200-250 tourists per day based on the environmental carrying capacity to accommodate the tourist while still considering environmental sustainability at the same time. Kalisuci Local Community Group together with the community, the village government, Ministry of Culture and Tourism and the Department of Forestry and Plantations has carried out reforestation activities by the number of seedlings \pm 750 seedling plants around Kalisuci tourism destination in April 2010 in accordance with the conditions of the land in the region the Kalisuci.

In addition, they also routinely perform environmental monitoring activities in the area of Cave tubing activities. The management conduct observations of the underground river water flow, and the condition of existing trees around the cave. In addition, they also monitor the turbidity level and quality of the underground river water as well as monitor conditions in the cave ornaments. The monitoring is performed with the cooperation of Gadjah Mada University/ Universitas Gadjah Mada (UGM) which provides early warning system in the form of several CCTVs installed in the upstream and downstream (See Figure 7). All results of monitoring activities are then discussed in regular meetings held every month by the management of Kalisuci Local Community Group.

To preserve the natural environment of Kalisuci, in addition to offering a natural cave tubing, Kalisuci Local Community Group has also begun to develop local cultural attractions such as Karawitan, Dancing Jathilan, Campursari Arts, Puppet and forth involving local youth. Cultural

tourism activities are expected to increase tourist attraction in Kalisuci and provide complete tourism packages to tourists. With increasing selection of tourism packages, Kalisuci Local Community Group management expect the natural environment in Kalisuci to be sustainable as well as to deliver other positive effects such as increasing the length of stay of tourists in Kalisuci which will have an impact on the economy of the local community.

The promotion of Kalisuci itself is considered quite advanced since Kalisuci Local Community Group has used several media to promote the tourism activity such as leaflet and booklet. The online promotion of Kalisuci can be accessed by website (<https://kalisucicavetubing.com>), Facebook (<https://www.facebook.com/kcavetubing>), Twitter (<https://twitter.com/KalisuciCaveTub>), and other medias.

The major problem regarding the management in Kalisuci is the lack of awareness regarding tourism especially from local people who are not involved in the management of Kalisuci. There is a difficulty to reach Kalisuci tourism destination since it is only accessible by private vehicle because there is still yet public transportation to access the spot. Some of the local residents who own vehicles which are potential as tourism transportation are even still not interested in joining Kalisuci tourism activity.

Some of the local people own the land located surrounding Kalisuci which can actually be a potential capital in developing the tourism further. Unfortunately, many of them are not keen on the idea to relinquish their land to develop tourism activities. The reason is that the land they own is an inheritance from parents so they find it hard to sell the land due to either the psychological attachment or long term investment. It remains a challenge for Kalisuci Local Community Group in relation towards the ownership of land which still belong to those individuals. The limited land possessed by Kalisuci Local Community Group makes it hard to optimally provide the facilities for tourists. Gunungkidul District Government can act as a facilitator in the development of tourism-related Kalisuci ownership of the land as proven by the willingness of the government to provide Sultan ground alongside Kalisuci for the initial development of Kalisuci tourism destination. Facilitators play a key role in a conflict setting (Ashley & Jones, 2001; Jamal & Getz, 1995, 1999). They transform destructive conflict into constructive dialogue. Facilitators in a community setting, usually hired consultants, non-governmental organizations (NGOs) or government representatives, can promote the building of respectful relationships by empowering the stakeholders, especially the community members and their representatives.

CONCLUSION

Natural tourism potential in Kalisuci tourism destination is interesting to be developed further. In addition, there remains the potential of local culture in the form of local arts and customs that have the ability to attract tourists. As a region with unique geographical contours, the local communities in Kalisuci are required to be considerate to the potential that could be developed as a tourism destination and to attract tourists to come visit Kalisuci.

Kalisuci Local Community Group must be more creative in packaging tourism activities which are offered to tourists. The offered tourist attractions in Kalisuci are supposed to have different sale value from other regions that have similar tourism activities (Eq. Pindul Cave). In addition to tourism package, another aspect that needs attention from Kalisuci Local Community Group is providing facilities for tourists. The limited availability of land is also a major constraint for the development of Kalisuci tourism destination which should be a top priority for Pokdarwis to find a solution. Management shall request assistance from Gunungkidul Regency Government as a facilitator in terms of land ownership.

Another interesting matter that has been performed is the involvement of local communities as direct developers and implementers in Kalisuci tourism destination. Tourism development Kalisuci is one example of alternative forms of rural development. Pokdarwis management involves local youth and women to manage the tourism destination. This clearly delivers positive impacts in driving the rural economy and also providing employment for the local youth. Support from Gunungkidul

Regency Government to facilitate the development in Kalisuci tourism destination will greatly lever the wheels of development in Pacarejo Village and improve the living conditions of local people.

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EMPOWERMENT POTENTIAL KASANG LOPAK ALAI VILLAGE

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ABSTRACT

The Indonesian government develop community empowerment program nationally to build Indonesia from the periphery to strengthen these areas and villages within the framework of unity and improve the quality of human life in Indonesia by enhancing the quality of education and training. Kasang Lopak Alai Village located in Ulu Kumpeh Subdistrict, Muaro Jambi District, Jambi Province, is one of the villages that will be developed through the empowerment programs of the villages. The Kasang Lopak Alai Village has the potential for regional development and the economic development of the region is very large because of irrigation located by the Kumpeh River, but the potential is not fully utilized. The method used is a qualitative research with determination information by using purposive sampling technique. Data collection methods used were observation, interviews, and documentation obtained directly in the field. Data were analyzed descriptively qualitative. Research found that Kasang Lopak Alai Village is a village area that began to grow, because the location of the village there is a road that connects the city of Jambi alternative to Kumpeh Ulu Subdistrict. Kasang Lopak Alai Village is a village that is heterogeneous, both from the aspect of ethnicity, and type of work. Things about empowerment and innovation, marketing of the crop is very less and not optimal utilization of natural resources and artificial. To overcome these problems, there are several alternatives that can be used by local communities with an understanding of innovation, marketing crops and optimization of natural resources. In addition, to improve the economy of the people, especially in integrated agricultural business; Kasang Lopak Alai Village has potential in agriculture, plantation, farming, fishing and tourism.

Key words: regional development, innovation, agriculture

INTRODUCTION

The Kasang Lopak Alai Village, is a village located in Ulu Kumpeh Subdistrict, Muaro Jambi District, Jambi Province, which became a pilot village in this study. In the Spatial Plan for the region Jambi Muaro strategic area map, Kasang Lopak Alai Village is an area food crops horticulture and fisheries. Sumatra is one of five major islands in Indonesia, Sumatra is divided into 10 Provinces. Sumatra Island has abundant natural wealth and plenty. Jambi Province located in the middle of Sumatra Island, there is a large river that runs namely Batang Hari River. Indonesia is an agricultural country which is developing the potential of natural resources one of them for agriculture.

Agriculture is the activity of use of biological resources by humans to produce food, industrial raw materials or energy sources, as well as to manage the environment. Event utilization of biological resources included in the farm is commonly understood to be the cultivation of crops or crop cultivation and raising animal as a cattleman, although its scope may also be the use of microorganisms and bioenzim in the processing of advanced products, such as cheese making and tempeh, or simply extraction alone, such as arrests fish or forest exploitation. Irrigation is the provision and regulation of water to meet the needs of agriculture and can used for other purposes such as raw water, drinking water supply, power generation, industrial use, fisheries, or for flushing.

Economic growth and the preservation of nature are not two opposites. Sustained economic growth requires a very natural balance is maintained. The ecological crisis facing various regions in Indonesia should be able to overcome. Social and ecological crisis is ecological functions and natural

decline, which in turn have an impact on social life. The crisis is not limited to mere physical damage but has reached the social aspects and have affected people living in crisis areas. The awareness villagers have been shaped by this crisis. Residents even have to live with the crisis and become a part and the main support for the ongoing destruction of nature. To overcome the problems of ecological crisis then conducted further research in the Kasang Lopak Alai Village.

MATERIALS AND METHODS

Rapid Assessment Appraisal (RRA) is a method of inspection in the social sciences that seek to collect, analyze, and evaluate information about the various conditions in the countryside and local knowledge that is in it. The information generated through close cooperation with the local population in village areas. Methods of research of this approach should be adapted to local conditions, simply RRA in labeled as initial mapping. In general, what is meant by social ecology refers to the perspective of ecology/ nature that is comprehensive, and is not limited to physical factors of nature alone, but look at the environment that is associated with power relations is hierarchical, and certain mental rooted in the social structures, Social and ecological crisis then is the situation of natural destruction caused by power relations are hierarchical and authoritarian mentality of man. Relation of power and authoritarian mentality is accompanied by human greed for profit through the expansion of industrialization, and the perspective of what is referred to as "progress" or progress, focused on aspects of the materialistic and self-centered man alone. Murray Bookchin is one of the important figures who conceptualize this approach. Social ecology is developed in the concept of irrigation in Kasang Lopak Alai Village, how natural and human resources.

The Kasang Lopak Alai Village, situated in Ulu Kumpeh Subdistrict, Muaro Jambi District, Jambi Province. (Fig. 1). Geographically the village of Kasang Lopak Alai is located in the southern part of the district capital Muaro with an area of ± 700 ha (± 7 km²) consisting of rice land ± 100 ha, garden soil ± 300 ha of farmland ± 150 ha, and the dry land ± 150 ha, Kasang Lopak Alai Village boundary system is as follows: North side bordering the Kumpeh River, the East with the village of Solok, the south by the Village of New Kasang Lopak Alai Village (Sungai Gelam Subdistrict), the west borders with Coral City Village (Kasang Coral City Subdistrict).

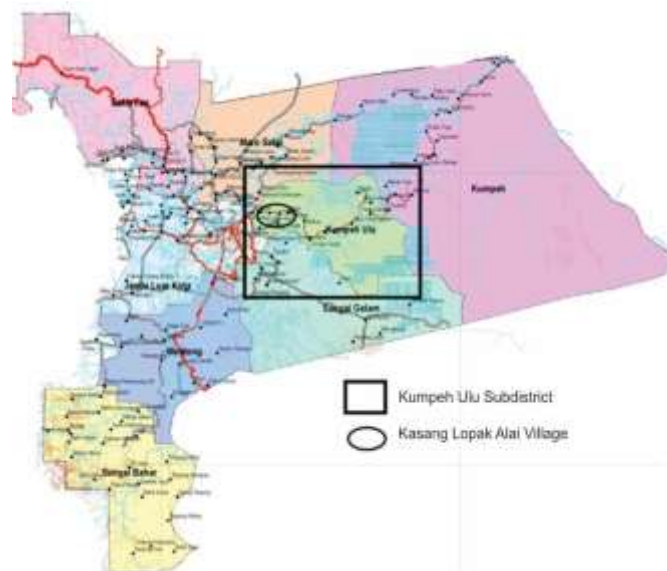


Figure 1 Map of Regency Muaro

RESULTS AND DISCUSSIONS

The Kasang Lopak Alai Village is located close to the provincial capital of Jambi namely Jambi City which is only 14 km, the distance from the capital city of 63 km and the distance to the Kumpeh Ulu Subdistrict is 4 km. The Kasang Lopak Alai Village area tropical climate with rainfall amounts average is 186.14 mm, and the day of rain an average of 16 days of rain. The average air temperature 26,75oC with an average humidity of 86.58%. Wet months between 8-10 months and 2-4 months dry months, according to data from the Medium Term Plan 2015. There is a village bridge spanning over the Kumpeh River which can accelerate the journey from Jambi City headed to the Kumpeh Ulu Subdistrict.

Many land in the Kasang Lopak Alai Village are used as agricultural land or plantations. Almost Kasang Lopak Alai Villagers work as farmers and plantation. The village is located directly adjacent to the Kumpeh River which is tributary from Batang Hari River. Some locations of the village land affected by Kumpeh River discharge, that when the dry season comes, the land used as agricultural land or plantations, but when the rainy season comes, the land will be submerged in water. In 2014 the population of Kasang Lopak Alai Village is 1,919 heads of family with the number 513, with details of the number of males as many as 1016 people, 903 female soul. Population distribution of the population in a relatively evenly distributed, which is 50 inhabitants per km². Qualification in the village is not very high, the majority of the highest education level of high school, 10% of the villagers go to college. Young villagers that do not go to college chose to work as a laborer in the of Kasang Lopak Alai Village or a neighboring village, and even the Jambi City but do not wish to become farmers is a major potential for this village. The majority of ethnicity of villagers are Javanese, in addition to several ethnic Malays (Jambi), Bugis, and Minang. Some of the people there already from birth in the village, there are some newcomers who are married or looking for work.

The potential of natural resources in Kasang Lopak Alai Village according by the types are biotic and abiotic resources, while by its nature can be divided into natural resources, renewable natural resources that is not renewable. Kasang Lopak Alai Village area in spatial plan strategic areas map of Muaro Jambi included in the Strategic Area producer of Agriculture Horticulture and Fisheries, where nearly 30% of the Kasang Lopak Alai villagers worked as a farmer. Land in the Kasang Lopak Alai Village is still very large and spacious, so it can be utilized by the villagers to work on. The Kasang Lopak Alai Village has some property or asset village which is very potential to be developed, the type of assets held villages have not been fully utilized and managed optimally, village assets can be seen in Table 1.

Table 1. Assets of Kasang Lopak Alai Village

Types of Asset	Volume (m ²)	Condition
Land Village Properties for oil palm	50.000	Productive
Land for Mosque and yard	800	Used
Land for office complex	800	Utilized
Graveyard	10.000	Utilized
Empty land	20.500	Yet utilized
Land for Football	10.000	Utilized

In addition to the natural resources Kasang Lopak Alai Village has artificial resources which is currently still the only one in the Jambi Province. The village has Semi Technical Irrigation System where there small reservoir (embung) which have name “Lingkar Naga” with the area of 0.5 ha (Fig. 2), the buildings of water and irrigation canals are permanent (Fig. 3). The water reservoir was built in 2012 and was completed in 2013. The building water reservoir and the water has not been used optimally, and there are some unused land and managed properly and for the purposes of joint, especially for irrigation and can be used for tourism. The Lopak Kasang Alai village has fertile soil and benefited due close to the Kumpeh River and Kua River.



Figure 2. Lingkar Naga Small Reservoir



Figure 3 Irrigation building (a) water gate (b) channel

Agriculture and farming is the greatest potential to sustain daily life of villagers communities, farms and plantations located close to home, and some are in the neighboring village. Crop agricultural land managed by the community, among others, papaya, corn, potato, cucumber, oil, areca nut and chocolate (Fig. 4). Some of the land used by the people is the land owned by another person who used the system agreement with the owner. The term of land use depends on the agreement of others, typically ranging from 3-5 years. Land managers in this regard were not given the obligation to pay the rent or for the results because the owner wanted only owned land can be cleaned and can be put to good use.

The existence of a companion crop can increase household income. Agricultural activity is generally done in a simple and traditional. One of the obstacles people face in managing the farm that is the lack of access to capital. Change in ownership of agricultural land and plantations in the village. Some farmers work the land in a way "passengers", namely the farmers working on land that is not theirs with an agreement with the land owners. Land worked by farmers were held by entrepreneurs from the city of Jambi and from other towns.

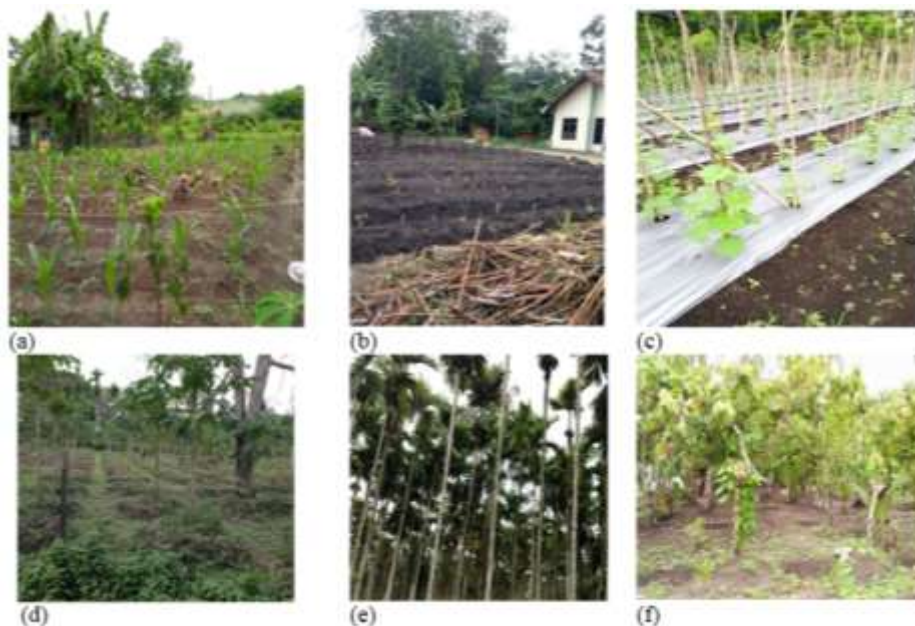


Figure 4 Picture of farming (a) corn (b) cassava (c) cucumber (d) papaya (e) areca nut (f) cocoa

Some villagers have jobs as cattleman, some people make cattle as the main occupation and there are some people make the farmers as a job. Raising cattle not only breed of cattle, but also just as fattening and as a distributor. One beef cattle farms and large distributor for Jambi City area and the surrounding region are in this village. People can find different types of cows are very diverse depending on demand can be found in the village. Even when the beef crisis hit Indonesia, Jambi Province experienced no shortage of supply due assured cattle, some cattleman in collaboration with cattlemen in other islands. For a second job in a small-scale farming, the community has an enclosure which is in the yard of a house near the main house or the main house (Fig. 5). Cows and goats obtained from the surrounding area and can be obtained on empty land, to clean up agricultural land and plantations. For farms, cows dung, goats manure some already collected to a mixture of manure for plant, there are some that are used alone or sold. The urine of cattle by the residents have been collected to be sold to be mixed with water that can be to mixture irrigate of palm trees.



Figure 5 livestock cage (a) cows (b) goat



Figure 6 Gurame Pond

Fisheries Gurame also exist, these fisheries an artificial pond made of planks bamboo with by tarpaulins (Fig. 6). To reduce evaporation in the pool then given water hyacinth plants were taken from the river. Food was given in an gurame derived from papaya leaves that come from their own gardens. For replacing fisheries is still done manually by removing and filling using water pipes, and not done with drainage and irrigation system. Fisheries do not use running water, so the owner had to clean the pond with a way to drain manuell for several time.

ANALYSIS AND DISCUSSIONS

The conditions and the potential of Kasang Lopak Alai Village, be it agriculture, plantation, fishery, farms, and the industry is able to develop the local economy and society for the village and villagers. This is evident from the increasing economic activity in village areas. People in the study area largely dependent on the agricultural sector. Therefore, the economic resources of society, especially the revenue is dominated by the agricultural sector, especially growers of vegetables and crops. The income level of the people is highly dependent on household income source community. Therefore the majority of the population rely on agriculture and fisheries for the domestic economy, especially then everything related to agriculture and fisheries conditions will affect the local economy. As conditions of price fluctuations will affect the purchasing power and consumption patterns.

Based on observations and interviews with community leaders both formal and informal leaders in the village stated that the general economic condition of the villagers have made some progress compared with previous years. This situation is partly due to several factors such as farm

produce production is getting better but it is felt not maximized. Another factor that provides support to the economic conditions of society is a commodity whose price is constantly increasing public accessibility and more smoothly with the repair of roads to the location of human settlements. Stratification or social levels in the villagers viewed not only from an economic standpoint as the level of ownership of the garden, the house and appliances household or vehicle alone, but seen from the level of mastery of the knowledge and dedication to community members so that the population belonging to the scholars and the village government officials got respect from society. With the economic development continues to increase, more people vote based on economic aspects so that people who know much more respected economic assets.

Farming is the highest potential in Kasang Lopak Alai Village, almost all villagers have the land for gardening. Some villagers followed the farmer groups, some working alone. Some farmers can only be for taking aid from the parties involved, but can not develop into better. Many of them can only surrender to the circumstances but do not want to change the situation. Consistency villagers yet, so of them are changeable to farm to run its business. Society has not been planted with planting pattern system and class system adapted to the conditions of irrigation field and plants will be planted. People are still planted with the traditional system and the trend of the market, there is no division between the community planting pattern. People usually planted crops of the same type, so that at the time of the harvest will be bountiful harvest and resulted in crop prices in the market down. No technical irrigation system although found the buildings technical irrigation among other buildings such as the reservoir, water gates, the drains in the field. The irrigation structures left dormant and unused or used properly. Villagers did not know how to operate and maintain the building. Small reservoir lies in the middle of an agricultural area and not at the highest elevation. Irrigation channels that are not fully completed and the channel bottom elevation lower than the elevation fields. During the dry season irrigation system can be done even if not optimal. In the rainy season can not be done, because during the rainy season, the overflowing from Kua River would inundate fields or plantations.

Some farmers not to plant when the dry season due to the lack of water for watering plants. Some point of wells during the dry season there is no water, but there are some particular point of water during the dry season. Uneven spread of water causes the few farmers who grow, there are some who do not grow. Farmers sell agricultural produce directly to traders in the market or to middlemen who come to the garden at harvest, they sell in bulk. No processed products that are the result of the village. The absence of farmers who can penetrate the crop to the supermarket, because the supermarket has high requirements for the quality and quantity of the products they sell. Vegetables sold in the supermarket has an interesting shape and uniform, like for example the demand of beans, which are required length of the long beans uniform. Not found utilization on a river bank Kumpeh and Kua River for agriculture and fisheries, along the river which is a tidal area. The definition of tidal area in river, is during the rainy season, the water river will overflow and inundate areas that were in the around river, and during the dry season then the area will be dry. Villagers do not yet know about the tidal farm in accordance with conditions of village areas, and there is no knowledge that can support building the system. Society has not harness the flow of Kumpeh River and Kua River for fisheries, how to take advantage of the area in accordance with the system sustainable and love the environment, to increase the income of the community's economy.

CONCLUSION

Rapid assessment of the initial process to find a crisis level village. This process resulted in the findings relating to the socio-ecological crisis, especially in the agricultural sector is happening in society, especially in Kasang Lopak Alai Village, District Kumpeh Ulu, Muaro Jambi, Jambi Province. In addition, this process also identified potential solutions to the problem out of the crisis. But the crisis and the solutions found potency need further study, so it is necessary to continue with advanced process is more intensive.

Recommendation after conducting rapid assessments in Village of Kasang Lopak Alai. Mapping areas that do not exist so it can do a follow-up to the analysis of regional potential and the

potential of human resources. Mapping the characteristics of the soil in the village is needed, because the land in the village, point to each other is different. Maximizing the potential of natural resources such as agricultural land, the land around the river. Maximizing the potential of natural resources dry season and the rainy season. Maximizing profits split the village's main road linking the city of Jambi and district Kumpeh Ulu. Utilization of the buildings in the village water functionalized and used for the benefit of the village. Maximizing the potential of natural resources in the village, especially small reservoir in village and agricultural areas that are around small reservoir. Implementation of networks technical irrigation systems, agricultural and plantation area because they can be processed and worked for the application of the system network. Maximizing the potential of human resources who feel life as a farmer would be enough and would not develop, and provide the knowledge to develop and update, the system of planting and irrigation system. Maximizing agricultural business people to develop the main plant and the second plant that can be planted near the house, and having high sell value. Maximizing the potential of fisheries that can take advantage of the proximity to the river. Get briefing entrepreneurship in the village itself so that the villagers can work in their own areas. The Villagers can make a higher potency of crops and plantation crops so that the goods are sold not only harvest yield (papaya, cocoa, kale etc). The villagers can make a new thing from harvest yield, then processed to having high sell value.

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ENTREPRENEURIAL ORIENTATION ON MICRO AND SMALL CULINARY ENTREPRENEURS BASED ON LOCAL WISDOM IN UNGARAN RURAL AREA, CENTRAL JAVA, INDONESIA

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ABSTRACT

In Indonesia, there are many businesses in group of micro and small businesses. The recent data published by the official website of the Ministry of Cooperatives and SMEs shows that in 2013 the number of micro and small businesses as much as 57,843,615 units (99.89% of all businesses in Indonesia). That number increased by 2.4% over the previous year. Based on a survey conducted in 2014, more than 60% of micro and small businesses in food and beverage sector. They choose this sector because the repetitive consumers purchase pattern, so it tends to accelerate the cycle of working capital. Similarly, as well as micro and small businesses in Ungaran rural area. As a rural area bordering the city of Semarang (Central Java provincial capital), many micro and small entrepreneurs in Ungaran developing culinary products (food and beverage) based on local wisdom (traditional culinary). Their efforts were able to grow the tourism sector in the field of culinary rural area specialties. Thus micro and small businesses in the culinary field is capable to grow the economy of the community in Ungaran rural area. Due to the relatively large market potential as the rural area became the main access from the southern region of Semarang city. Therefore, the study to examine how entrepreneurial orientation (Lumpkin and Dess, 1996) in the Ungaran rural area entrepreneurs to develop their business, in order to contribute the economy of the community in this rural area. This paper presents the results of research on entrepreneurial orientation entrepreneurs. Samples that are used by 30 entrepreneurs, with a qualitative descriptive analysis techniques from the amount of the scale range. The results showed that the variables most powerful entrepreneurial orientation in a row are: Proactiveness amounted to 127.7 (very strong), Autonomy amounted to 127.3 (very strong), Competitive aggressiveness amounted to 114 (strong), Innovativeness amounted to 112.3 (strong), and Risk Taking amounted to 111.7 (strong). Overall, the average value of the entrepreneurial orientation of the respondents amounted to 118.7 (strong). The results of this study prove that with a strong entrepreneurial orientation, micro and small entrepreneurs in Ungaran rural area are able to enhance the culinary sector based on local wisdom to increase the economy of the local community.

Key words : micro and small businesses, Ungaran rural area, entrepreneurial orientation, culinary sector, local wisdom

INTRODUCTION

As the district capital of Semarang, Ungaran is a rural area located in the southern city of Semarang. Most of its population has a job that is closely related to agriculture; due to there are still many farms in the region. To sustain the family economy, many people prefer to be an entrepreneur. However, due to the lack of education and managerial skills, the business is limited only to a small size business. As other small business profiles that exist in Indonesia, most of the business sectors chosen by the entrepreneurs are the areas of food (culinary). In Semarang regency, the proportion ranges of small-scale business are as follows: 36% for business in food / culinary, 20% for wood, 13% for woven, and 22% for other business sectors.

The reasons for the entrepreneurs and other small-scale entrepreneurs to choose the food sectors / culinary due to the consumer purchasing pattern which is relatively high. Thus, the working capital turnover is relatively fast. Its entrepreneurial perceive that working capital turnover, which is relatively fast, will be more flexible to use. This condition can be understood because there are many

small-size entrepreneurs who cannot separate the business finance with finance for personal purposes. Moreover, for them, being the small-size entrepreneurs is based on their lack of education and knowledge, which is not achieved from the real field of work. Nevertheless, despite they do not have the knowledge and adequate managerial skills in managing the business (Soekesi, et al 2014); it does not mean that small-size entrepreneurs do not have the desire to develop their business. Based on research (Agustini, et al, 2007 and 2008), the productivity performance of small business tend to increase. The entrepreneurs also have the ability to control the product quality (Soekesi, 2012) and concern to the product development (Untari, et al, 2009). How the business developed is influenced by the entrepreneurs' entrepreneurial orientation themselves. This paper presents the results of surveys of the small-size entrepreneurs on entrepreneurial orientation.

The business sectors of the small-size entrepreneurs who become the survey's respondents are in the areas of food / culinary, especially traditional food. The traditional food is becoming the characteristic of the local area, so that the potential customers are more to tourists, even though there are still more domestic tourists around. The traditional food products are expected to lift the local wisdom of the local area in order to have a selling value-based culture for tourists. By putting the selection products of food that elevate the local knowledge, it is necessary to identify how strong entrepreneurial orientation of an entrepreneurship. Thus the results of this survey is expected to provide inputs for various related institutions, both government and private sectors to provide guidance. Therefore, their business, which is currently classified into a small-size business, will be growing as a hope of the entrepreneurs.

THEORITICAL REVIEW

A. THE CONCEPT OF ENTREPRENEURSHIP

Entrepreneurship reflects an independent effort in achieving a result to take advantage of business opportunities that existed. Entrepreneurial do an activity that uses various resources optimally. The method chosen is not always in line with the theory of functional management, but can also be innovative by combining several concepts.

B. ENTREPRENEURIAL ORIENTATION

Entrepreneurial orientation reflects a person's ability to be able to take advantage of opportunities in business. This capability would then be a principle. Lumpkin and Dess (1996) stated that there are five dimensions formulated in the entrepreneurial orientation:

1. Proactiveness : an action of the entrepreneurial ability to see opportunities in the future to introduce products resulted. In this case, it required the ability to anticipate changes in demand in the future.
2. Autonomy: it demonstrates an entrepreneurial ability to act and take decisions independently, are not depending on the parties in running the business.
3. Competitive aggressiveness: it is associated with competitors, so that the entrepreneurs are prosecuted aggressively in facing the competitors that will reach an excellence.
4. Innovativeness: a tendency of entrepreneurs to be able to create something new related to the products and businesses that we run. In this case, it also covers processes and the used of technologies.
5. Risk Taking: an entrepreneurial attitude, who dares to use its resources to achieve a goal. In this case, it contained meaning of risk failure, so that these resources can be sacrificed.

C. SMALL BUSINESS

Small businesses in this context include micro and small-scale enterprises, as defined in the Regulation of the Republic of Indonesia number 20 of 2008 on micro, small and medium enterprises (www.depkop.go.id accessed on October 18, 2015) are as follows:

Micro Business criteria are as follows:

- a. have a net worth of at most Rp50,000,000.00 excluding land and buildings; or
- b. has annual sales results of Rp300,000,000.00

While the Small Business criteria are as follows:

- a. has a net worth between Rp 50,000,000.00 - Rp.500,000,000.00 excluding land and buildings; or
- b. has an annual sales turnover between Rp300,000,000.00 - Rp 2,500,000,000.00

SURVEY METHOD

A. POPULATION AND SAMPLE

The population in the survey whose results were published in this paper are: Entrepreneurs that is located in Ungaran, Semarang regency, which has a food business / traditional cuisine (typical) with an maximum average sales revenue each year of Rp 2,500,000,000.00. The criteria is simply using the average sales, because in general, the small-size entrepreneurs do not yet have the ability to carry out adequate financial records, so it cannot determine how much the net worth is. The samples used were 30 small-size entrepreneurs with purposive technique.

B. DATA COLLECTION TECHNIQUE

The data, which is used, are primary data using questionnaires of 5 variables in entrepreneurial orientation, with using three indicators for each variable. So in total there are 15 statements in the questionnaire. It also used the interview method to confirm the answer given.

C. DATA ANALYSIS METHOD

Data analysis method used is a scale range, which then interpreted using the qualitative descriptive analysis techniques. It is previously conducted a measurement scale of data (data from questionnaires) by using a Likert scale. The results of the grouping of scale range are as follows:

Table 1. Scale Range

Interval value	Interpretation
126.01 – 150.00	Very strong
102.01 – 126.00	Strong
78.01 – 102.00	Medium
54.01 – 78.00	Low
30.00 – 54.00	Very low

Sources: primary data (processed) 2016

DISCUSSION

Based on a survey that has been conducted, the obtained data is as follows;

A. PROFILE OF RESPONDENTS

The general profiles of respondents in the survey are as follows:

Table 2. General Profile of Respondents

Product resulted	Age of the Entrepreneurs (year)				Total
	20 -30	30- 40	40-50	Above 50	
<i>Jamu</i>	1	0	3	0	4
<i>Meatballs tofu</i>	2	2	6	1	11
<i>Wingko babad</i>	1	2	3	0	6
<i>Tempe kripiik</i>	1	3	0	2	6
Others	0	0	2	1	3
Total	5	7	14	4	30

Sources: Primary Data (processed) 2016

From Table 2, it can be interpreted that the majority of entrepreneurs aged between the ages of 40-50 years are 14 people or 46.47%. While the least is the entrepreneurs who are aged over 50 years, it is only 4 people or 13.33%. The age of entrepreneurs among 40-50 year showed a productive age, in which the results of the interview can be confirmed, that on average they have been through the efforts of more than 10 years. Nevertheless, their enterprises are still small in size. While looking at the products produced, mostly they produce meatballs tofu. There are 11 entrepreneurs or 36.67% produced the meatballs tofu. Based on the interview, it can be confirmed that the product of meatballs tofu are specific food products of Ungaran that are many consumers demanded not only from outside but also the residents of the region Ungaran themselves. This product is becoming the typical souvenirs of Ungaran, which is viewed from the consumers who are from various regions outside Ungaran.

Nevertheless, some entrepreneurs know the meatballs tofu produced have the particularity of each kind of tastes, ingredients, and packaging. In its development, the meatball are well-known as the characteristic souvenirs of Ungaran rural area. Other specific food products are also relatively many and produced by small-size entrepreneurs in Ungaran rural area is *tempe kripiik* and *wingko babad* of 6 entrepreneur or as much as 20%. *Tempe kripiik* are foods that have a relatively long shelf life of about one month, while the *wingko babad* shelf life of no more than 3 days. From 6 entrepreneurs who produce *tempe kripiik*, 4 of them produce its raw tempe themselves for the material. The reason given by the entrepreneurs is in addition to keep the quality of *tempe* maintained and has a specific taste and texture as the identifier. Meanwhile, two other entrepreneurs buy the raw tempe from suppliers.

B. ENTREPRENEURIAL ORIENTATION

From the data that has been collected through questionnaires and interviews, the obtained results as follows:

Table 3. Entrepreneurial Orientation

Dimension	Score	Interpretation
Proactiveness	127.7	Very strong
Autonomy	127.3	Very strong
Competitive aggressiveness	114.0	Strong
Innovativeness	112.3	Strong
Risk Taking	111.7	Strong
Average Values	118.7	Strong

Sources: Primary Data (processed), 2016

From Table 3, it can be interpreted that the dimensions of the most powerful entrepreneurial orientation is proactiveness (127.7). This indicates that small scale entrepreneurs who produce typical food / culinary of Ungaran have the ability to see the opportunities that existed. They can readily identify potential markets by looking at opportunities to produce food products that showed the

hallmark of Ungaran region. They perceive that the typical food bought by consumers in the region of origin will give a strong impression to the consumer, especially for tourists the main targeted consumers. Therefore, they strive to maintain the quality of the specific food products produced that are not easily imitated and produced in other regions. It is feared that it will release the hallmark of the region Ungaran. Some entrepreneurs have even tried to make the peculiarities of the packaging products, both in terms of design shapes and colours as a special specific identity. By some entrepreneurs this is believed to be a media campaign, add the address and phone number on the packaging.

The second dimension of a very strong entrepreneurial orientation is owned by small entrepreneurs producing typical food products in Ungaran is Autonomy (score 127.3). This dimension indicates that these respondents were able to make their own decisions in running the business as a whole. Starting from defining the concept of products, production processes, promotion, financial arrangements, and cooperation with partners, especially suppliers both major raw material suppliers and supporting raw materials. They do not depend on others even though the other party comes from a family. Based on the interviews, they perceive themselves to experience a relatively long process of doing business that has experience in dealing with various problems. This condition hones their soul's autonomy in running their business today.

Although still relatively strong, but the dimensions of Risk Taking had the lowest score (117.7). This dimension is the courage of the entrepreneurs in using the resources as cost to conduct business, although there is the risk of failing. According to the survey, small-size entrepreneurs who produce specialties in Ungaran rural area have had the courage to face the risk of failure due to the experience which has been undertaken. They have the perception that the failure actually make them realize what and how the weaknesses. For example, when they open an outlet in the forum exhibition. The longer they understand the kinds of exhibitions that have market potential or not.

Overall, entrepreneurial orientation is relatively strong in the survey. However, if until now their business is still relatively small in scale, it is perceived as the inability of those in facing competitors who already belong to the middle and large scale. Thus, in terms of promotion and market access capabilities tend to be less competitive. In addition to the production capacity is relatively small; they cannot supply their products in a relatively large amount. From the procurement side outlet is also an obstacle, because they tend to be simple outlet buildings blend with the production house. As well as the strategic location, this is not always easily accessible to consumers, especially tourists.

But even so, based on the interviews, the entrepreneurs have the perception that their enterprises had been able to improve the economic condition of the family. Cumulatively, it can also improve the economic conditions of the people in the region Ungaran. Over the typical foods business is then also develop related industries, both upstream and downstream. Such as increasing the resulting product suppliers and distribution services, as well as increasing the potential of culinary tourism in the region Ungaran.

CONCLUSIONS AND RECOMMENDATIONS

From the results of the survey of 30 small entrepreneurs producing traditional foods in Ungaran, it can be concluded as follows:

1. Most entrepreneurs aged between the ages of 40-50 years as many as 14 people or 46.47%. While the least is the entrepreneurs who are aged over 50 years are only 4 people or 13.33%.
2. A total of 11 entrepreneurs or 36.67% are produced out of meatballs.
3. The results showed that the variables most powerful entrepreneurial orientation in a row are: proactiveness amounted to 127.7 (very strong), Autonomy amounted to 127.3 (very strong), Competitive aggressiveness amounted to 114 (strong), Innovativeness amounted to 112.3 (strong), and Risk Taking amounted to 111.7 (strong). Overall, the average value of the entrepreneurial orientation of the respondents amounted to 118.7 (strong).

In order to increase the presence of specific food products of small businesses in the Ungaran rural area, it is much needed guidance from the government and relevant institutions. Material development is not only related to engineering the production process, but also the ability of managerial and financial records. Supporting of access to the market is also expected to help promote the specific food products more widely known, for example through a web-managed intensively.

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AGRICULTURAL AND TOURISM INTEGRATION TO SUPPORT SUSTAINABLE AGRICULTURAL DEVELOPMENT: A CASE STUDY ON KINTAMANI ECOTOURISM SITE, BANGLI

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ABSTRACT

Objective of this research was to design a model of optimal marketing strategy to increase numbers of tourist visits to Kintamani ecotourism spot, Bangli, Bali Province. On the basis of marketing strategy, it was found that attribute of Kintamani ecotourism' site, promotion, and individual characteristics positively and significantly influenced tourist image and decision to visit. On the other hand, it was also found that in the effort of increasing numbers of tourist visit to Kintamani ecotourism site, ecotourism attributes, promotion, as well as individual characteristics of the visitors must be examined by the traditional village of Batur and Department of Tourism in Bangli regency since both of them are managers of the site. The traditional village of Batur and Department of Tourism in Bangli regency showed commitment to increase and maintain attributes of the Kintamani ecotourism object especially tourist attraction in order to attract more tourists' visit. The site consists of many potential biodiversity such as various plants (e.g. coffee, orange, fern, pine tree, orchids, onion, tomato, chilli, cabbage, and mustard) which presents panoramic scenery. Kintamani ecotourism object has a wide territory including mountains, hills, valleys, lake Batur, and Batur natural hot spring (Toya Bungkah) make it even more beautiful. There is also a fish farming for Nila fish in the lake Batur, giving richer biodiversity and more attractiveness of Kintamani ecotourism site. On the contrary, convenience factor needs to be examined as trucks from sand excavation contributed to terrible traffic circulation on the way to Toya Bungkah and traditional village of Trunyan. Another findings are production of souvenirs about Kintamani and good service to the tourists have to be increased. The managers of Kintamani ecotourism site have promoted it through website and this endeavour aims at introducing it to a wider international network. Furthermore, individual characteristics of the visitors has definitely encouraged more visits to the site. Image of Kintamani ecotourism site in the visitors' eyes were satisfactory as it has convenient, cool, and fresh ambience, except for hygiene and safety which obviously need more concerns. Most of the tourists decided to visit the site based on several factors namely encouragement from family, friend, neighbours, acquaintance, effective promotion, and absence of visit experience to Kintamani ecotourism site. Awareness of the absence of the needs was the second factor on visiting-decision and mainly influenced by needs of social factor especially self-esteem, recognition, social status as well as condition of oneself (e.g. work, economic ability, and lifestyle). Post-visit evaluation was the third factor on decision-making of visiting Kintamani ecotourism site where evaluation of attraction entrance fee, accommodation, souvenirs, and site's convenience, cleanliness, and safety were taken into account.

Key words: ecotourism, attributes, promotion, consumer image, decision-making visit

INTRODUCTION

Tourism business refers to a service business which aims at giving advantages for tourists, local society, and government. Tourism can give a standard living for the local society through economic profits which are gained from its destination. For the local government, the development of tourism business can make a significant contribution to local revenue. Business of tourism is reflected in Article 1 paragraph 5 of Law No. 9 1990 that defines it as an activity which aims at providing tourism services or arranging objects and attractions, facilities of tourism and other business related to the

field. Based on these limits the tourism business can be divided into three groups namely (1) service provider in tourism, (2) business of tourism destination, and (3) business of tourism facilities. The focus of the discussion in this study is business of tourism destination. According to Marpaung (2002), natural tourism attractions can be distinguished into scenery, beaches, parks, mountains, flora/fauna, and remote islands. Furthermore, Fandeli (1995) states that there are two important factors which affect the tourist visit in tourism destinations, namely (1) motivating and (2) pull factors. For instance, factors that make tourist go travelling are a desire to escape from their daily routine, polluted environment, speed of traffic, and the hustle and bustle in the city. Meanwhile, factors that attract tourist arrivals to the tourist attractions are related to popular tourism destinations, places where loads of people are talking about, and being on the recent news.

Policy of destination development in Indonesia is about developing environmental-based tourism, so that it becomes an obligation for stakeholders and actors of tourism development in a tourist destination to always strive for synergic relationship between tourism and environment starts from its planning, implementation, monitoring, and evaluation. This is done to create mutualistic symbiosis in terms of interaction and linkage between tourism and environment in a tourism destination or is usually known as Sustainable Tourism Development.

Ecotourism development, often called Nature Tourism, refers to a variant of implementation of the sustainable and environment-friendly tourism development model which is essentially a blend of environmental conservation approaches and development of tourism (Whelan, 1991). One of important principles that is required for the development of this ecotourism model is a policy of levying a percentage of gained revenue from the tourism industry which has to be returned towards environmental preservation. Some tourist destinations which are famous for successfully implementing user fees for environmental preservation are Mountain Gorilla Project (MGP) in Rwanda, Saba Marine Park (SMP) in the Netherlands Antilles, Chitwan National Park (CNP) in Nepal, and some of tourism resorts in Bali. In Indonesia, one of these best practices has been done by some resorts in Bali. They have been cooperating in mutualistic symbiosis with surrounding land owner farmers for years. The land owners have been given concession fee by employers of the resorts with an expectation that the land owners will not cut trees around the resorts, plow fields with machines, and convert agricultural lands into other purposes but allow guests of the hotels to use their rice fields as jogging tracks. Pattern model of this cooperation is advantageous to both the hotel, i.e. satisfaction rating of the natural beauty and authenticity of the rural environment brings a positive effect on the increase in the number of repeaters, and the farmers, where gaining additional income outside of their harvests in a form of concession fee from the hotel is possible.

A study of the sustainable and environmental-based tourism development model has been conducted in the Kintamani ecotourism spot in Bangli where a combination of attributes, promotion, and individual characteristics as well as tourist's image and their impacts on travellers and decision-making were examined. Findings of the study is a model of marketing strategy for ecotourism places such as Kintamani, Bangli.

DISCUSSION

Potentials of Kintamani as an Ecotourism Destination

Flora and fauna in the Kintamani tourist destination have high potential. They consist of various types of agricultural and horticultural crops, and forestry as well as a wide variety of birds and other animals. Some of Kintamani's excellent crops are orange and coffee. The majority of Balinese society know Kintamani oranges as the ones that have distinctive shape and taste. Orange plantation has become an appealing tourism object when the oranges turn yellow. This dazzling scenery attracts the visitors. In addition, coffee plantation which are located on hills and valleys charm them to come again and again for enjoying the ambience and tantalising aroma of coffee.

In addition to citrus and coffee, Kintamani has many different types of shrubs and ferns, tubers, orchids and other ornamental plants, pine, and so on. All kinds of plants and animals live well here whether cultivated or not. The pine forests present breathtaking panoramic views seen from all

directions. Forest in Kintamani has its own meaning. It has special function not only for society in Kintamani but also for those in the area underneath. The forest becomes a main component of ecotourism in Kintamani and it is currently in a stable condition. The forest that becomes a major component of ecotourism Kintamani are in stable condition. Likewise, a green expanse of vegetable crops such as onions, tomatoes, peppers, cabbage, and mustard greens add a magnificent view for the ecotourism site. Onions are planted on sidelines of rocky land showing an incredibly beautiful scenery for the travellers.

Kintamani also has potential fauna which increased value and dignity of its society. Floating fish cages are used to support business in cultivating nila fish in Lake Batur which dominates economic activities in the area. This fish farming activity positively gives contribution toward regarding object diversities and attracted tourists to come to the site. Moreover, raising cattle also gives a special ambience for the ecotourism destination. Cattle are kept in a colony cage provide conservation system of natural resources which got two-fold dimension. Its multiplier effect are distributed proportionally on the crop land. The vast area of forests in the area of Kintamani ecotourism site has invited birds and that enriches the biodiversity. Birds that fly with various echoing chirps are outstanding attractions for bird watchers and enthusiasts.

The potency of Kintamani's natural resources has been proven as an attraction for domestic and international tourists. Kintamani ecotourism site has a hilly mountain, ravine, valley, and lake which were unique component of ecotourism site. An existence of Toya Bungkah hot spring also bring a special atmosphere for the ecotourism site. An ability to wrap these resources into a package of ecotourism with high competitiveness value is a challenge as well as opportunity for increasing society's prosperity. A policy which could foster innovation for developing the site is surely needed. Furthermore, anticipation toward globalisation and dynamic of tourists' preferences are important demands to response in the effort of developing Kintamani as a world class tourist destination which is worth to visit.

Descriptive Analysis

Descriptive analysis was conducted to determine the perception of tourists to attributes of Kintamani ecotourism object, promotion, traveler's characteristics, image rating as well as the decision-making visit.

a. Description of Attribute Variable of the Kintamani Ecotourism Destination

Based on Table 1, percentage of marking-category from 40 visitors toward Attributes of Kintamani Ecotourism Site can be calculated.

Table 1. Percentage of Marking-Category from Visitors toward Attributes of Kintamani Ecotourism Site

Marking-Category	Numbers of Visitor	Percentage
Not Very Good	0	0
Less Good	2	5
Good Enough	17	42.5
Good	19	47.5
Very Good	2	5
Total	40	100

Based on the results above, it was found that 47.5% of the visitors gave good assessment toward attributes of Kintamani ecotourism site which consists of attraction, easy-access, price, accommodation, and souvenirs. The visitors who chose good enough were 42.5% and very good were 5%. Five per cent of the respondents believed that the attributes were less good.

b. Description of Promotion Variable of the Kintamani Ecotourism Destination

Table 2. Percentage of Marking-Category from Visitors toward Kintamani Ecotourism Site Promotion

Marking-Category	Numbers of Visitor	Percentage
Not Very Good	1	2.5
Less Good	2	5
Good Enough	8	20
Good	25	62.5
Very Good	4	10
Total	40	100

Considering the results above, it can be seen that 62.5% of the respondents gave good assessment toward promotion of Kintamani ecotourism site which consists of publication, word of mouth, advertisement, and e-commerce. There were 20% of the tourists who believed that the promotion was good enough and 10% of the respondents chose very good. Visitors who said less good were 5% and not very good were 2.5% which means that the promotion of Kintamani ecotourism object should be intensively done specifically through publication, advertisement, and e-commerce.

c. Description of Individual Characteristic Variable in the Kintamani Ecotourism Destination

Table 3. Percentage of Marking-Category from Visitors toward Individual Characteristics of Tourists Visiting Kintamani Ecotourism Site

Marking-Category	Numbers of Visitor	Percentage
Not Very Good	0	0
Less Good	1	2.5
Good Enough	6	15
Good	26	65
Very Good	7	17.5
Total	40	100

From the table above, it can be concluded that 65% of the tourists gave good assessment toward individual characteristics which consists of motivation, experience, life style, social and economic condition. In a nutshell, most of people who visited Kintamani ecotourism site were driven by own individual characteristics. The tourists who believed that the characteristics was very good were 17.5% and 15% for good enough option. There were 2.5% of the respondents who said less good and none of them chose not very good.

d. Description of Consumer Image Variable from Visitors of the Kintamani Ecotourism Destination

Table 4. Percentage of Marking-Category from Visitors toward Consumer's Image Visiting Kintamani Ecotourism Site

Marking-Category	Numbers of Visitor	Percentage
Not Very Good	1	2.5
Less Good	0	0
Good Enough	7	17.5
Good	25	62.5
Very Good	7	17.5
Total	40	100

Based on the results above, it can be seen that 62.5% of the respondents choose good for consumer's image which consists of comfortable, cool, fresh, enjoyable, clean, and safe environment. Thus, most of the tourists who visited Kintamani ecotourism site felt that this tourist destination was suitable with the consumer's image itself. There were 17.5% of the visitors who chose very good and 15% for good

enough. It was found that 2.5% of the visitors chose not very good especially for safety and cleanliness of the ecotourism object, less satisfying service from souvenirs' sellers which sometimes disturbed them, and bad traffic congestion in Penelokan ecotourism site that needed serious attention from the managers.

e. Description of Decision Making of Tourist Visit Variable in the Kintamani Ecotourism Destination

Table 5. Percentage of Marking-Category from Visitors toward Decision-Making of Visit to Kintamani Ecotourism Site

Marking-Category	Numbers of Visitor	Percentage
Not Very Good	1	2.5
Less Good	0	0
Good Enough	9	22.5
Good	25	62.5
Very Good	5	12.5
Total	40	100

It was found that 62.5% of the visitors who believed that decision-making of visit which consists of need awareness factor, information search, visit decision, and post-visit evaluation was good. The visitors who said very good were 12.5% and 22.5% for good enough. Meanwhile, there were 2.5% of them who chose not very good for this factor.

Results of the Confirmatory Factor Analysis

Loading factor which was found from the analysis of confirmatory factor can be used to define which indicator gives the strongest effect toward latent variable. The indicator which resulted the biggest loading factor is determined as the strongest indicator affecting aforementioned latent variable. Complete results of confirmatory factor analysis is provided as Figure 1 (PLS Diagram). Results of confirmatory factor analysis for Attributes variable of Kintamani ecotourism site can be seen as follows (X1).

Table 6. Results of Confirmatory Analysis Factor toward the Attributes of Kintamani Ecotourism Site

	Indicator	Loading Factor
X1.1	Attraction	4.537
X1.2	Easy Access	1.872
X1.3	Price	14.668
X1.4	Accommodation	6.271
X1.5	Souvenirs	1.615

Based on the table above, it was found that the strongest indicator that affected Attributes variable of Kintamani ecotourism site was price with 14.668 for its loading factor then followed by accommodation and attractions as well as easy access. Meanwhile, the weakest factor was souvenirs with 1.615 for its loading factor. Results of confirmatory factor analysis for Promotion of Kintamani Ecotourism Site variable (X2) can be seen in Table 7.

Table 7. Results of Confirmatory Factor Analysis toward Promotion of Kintamani Ecotourism Site

	Indicator	Loading Factor
X2.1	Publication	18.800
X2.2	Word of mouth	10.039
X2.3	Advertisement	24.801
X2.4	E-commerce	3.666

The table above shows that advertisement was the strongest indicator which affected Promotion with the loading factor of 24.801 then followed by publication and word of mouth. On the other hand, the weakest indicator found was e-commerce with 3.666 for its loading factor. Results of confirmatory factor analysis for Individual Characteristics variable (X3) is presented in the Table 8.

Table 8. Results of Confirmatory Factor Analysis toward Individual Characteristics (X3)

	Indicator	Loading Factor
X3.1	Motivation	6.345
X3.2	Experience	30.170
X3.3	Lifestyle	11.051
X1.4	Social Condition	5.598
X1.5	Economic Condition	12.264

The table above shows that experience was an indicator which gave the strongest impact toward Individual Characteristics with 30.170 of loading factor. Then, it is followed by economic condition, lifestyle, and motivation. The weakest indicator influencing Individual Characteristics is social condition with loading factor of 5.598. Results of confirmatory factor analysis for Visitor's Image (Y1) can be seen in Table 9.

Table 9. Results of Confirmatory Factor Analysis toward Visitors' Image (Y1)

	Indicator	Loading Factor
Y1.1	Comfortable environment	24.926
Y1.2	Cool and fresh ambience	9.192
Y1.3	Enjoyable atmosphere	10.736
Y1.4	Clean environment	5.854
Y1.5	Safe condition	4.334

The table above describes that comfortable environment was the strongest indicator affecting Visitors' Image with loading factor of 24.926. This indicator is followed by enjoyable condition, and cool and fresh ambience. Cleanliness and safety were two weakest indicators that gave impact toward Visitor's Image with loading factor of 5.654 and 4.334. Results of confirmatory factor for Decision-Making Visit variable (Y2) is presented in Table 10.

Table 10. Results of Confirmatory Factor Analysis toward Decision-Making Visit (Y2)

	Indicator	Loading Factor
Y2.1	Awareness of needs	12.368
Y2.2	Search for information	7.018
Y2.3	Decision to visit	14.185
Y2.4	Post-visit evaluation	9.242

Based on Table 10, decision to visit was the strongest indicator that affected Decision-Making Visit with loading factor of 14.185. Following it, awareness of needs and post-visit evaluation on the next place. Lastly, the weakest indicator was search for information with loading factor of 7.018.

Results of the Path Coefficient Analysis

Based on the PLS diagram (Figure 1), estimation result shows that T-Statistic value were above 1.96 which can be concluded that all ways were significant. Path coefficient of relationship between Attributes of Ecotourism Site (X1) to Consumer's Image (Y1) was 2.919 while Promotion of Ecotourism Site (X2) to Consumer's Image (Y1) was 3.965 and Individual Characteristic (X3) to Consumer's Image was 8.382. Path coefficient between Consumer's Image to Decision to Visit (Y2) was 7.119.

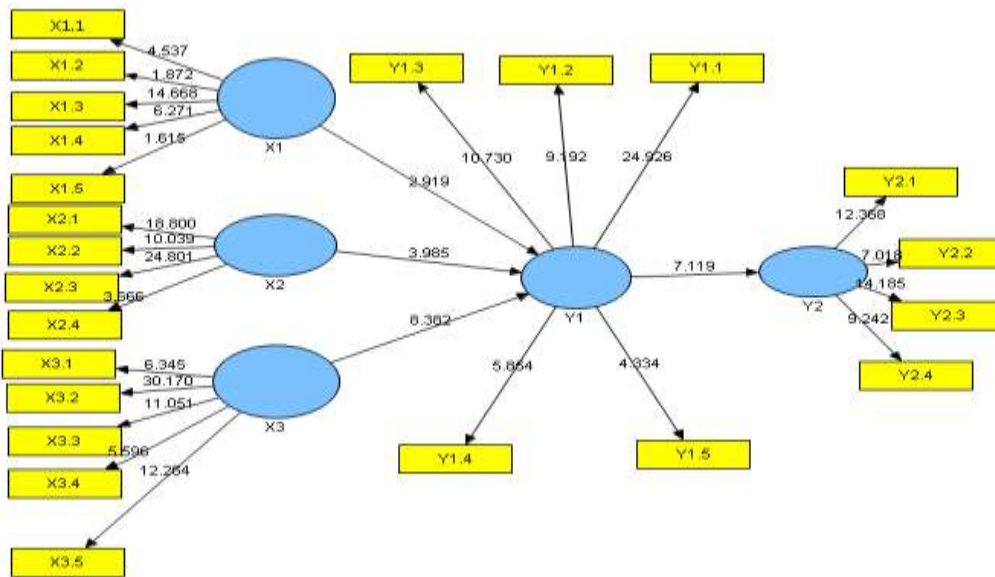


Figure 1: PLS Diagram

Based on results of integrated study and Focus Group Discussion in the first year above with managers of Kintamani ecotourism site, Kintamani, Bangli namely the traditional village of Batur, Kintamani, and Department of Tourism of Bangli regency, a Marketing Strategy Model for Kintamani ecotourism site was created. Goal of Marketing Strategy Model application in Kintamani ecotourism site, Bangli, is to create positive influences of Attributes of Kintamani ecotourism site, Promotion, and travellers' Individual Characteristics toward Tourists' Image and Decision to Visit. It is expected that numbers of visitors who come to Kintamani ecotourism site in the upcoming years will increase significantly. Based on results of the study in the first year by using SEM analysis with PLS method, it can be determined that Attributes of Kintamani ecotourism site, Promotion, and Tourists' Individual Characteristics affected Tourists' Image positively and significantly. In addition, Tourists' Image also gave positive and significant effect toward Decision of Visit to Kintamani ecotourism site.

In sum, to increase numbers of visitors to Kintamani ecotourism site, Bangli, factors which influenced Promotion and Individual Characteristics of Tourists, Tourists' Image, and Decision to Visit have to be noticed by the traditional village of Batur, Kintamani, as well as Department of Tourism of Bangli regency as managers of Kintamani ecotourism site, Bangli.

a. Factors which determine Attributes of the Kintamani Ecotourism Destination in Bangli

Strongest factors which influenced Attributes of Kintamani ecotourism site are price, accommodation, and attraction. Two weakest indicators affecting Attributes of Kintamani ecotourism site are easy-access and souvenirs. These results indicated that price factor which consists of entrance fee to the site, price of food and drink in the restaurants and fee for toilet were not too expensive and affordable for the visitors. The next strong factor is accommodation where Kintamani ecotourism site has well suited hotel and inn facilities for the visitors' needs. Furthermore, attraction is a strong factor which gave impact to the Attributes of Kintamani ecotourism site. This result shows that the attractions of Kintamani ecotourism site lies on its potential flora and fauna which consist of variety of crops, farms, forestry, and diversity of birds and many other animals. Orange and coffee are two excellent horticultural crops from Kintamani. The majority of Balinese society know Kintamani oranges as the ones that have distinctive shape and taste. Orange plantation becomes an appealing tourism object when the oranges turn yellow. This dazzling scenery attracts the visitors. In addition, coffee plantation which are located on hills and valleys charm them to come again and again for enjoying the ambience and tantalising aroma of coffee. In addition to citrus and coffee, Kintamani has many different types of shrubs and ferns, tubers, orchids and other ornamental plants, pine, and so on. All kinds of plants and animals live well here whether cultivated or not. The pine forests present breathtaking panoramic

views seen from all directions. Forest in Kintamani has its own meaning. It has special function not only for society in Kintamani but also for those in the area underneath. The forest becomes a main component of ecotourism in Kintamani and it is currently in a stable condition. The forest that became a major component of ecotourism Kintamani are in stable condition. Likewise, a green expanse of vegetable crops such as onions, tomatoes, peppers, cabbage, and mustard greens has added a magnificent view for the ecotourism site. Onions are planted on sidelines of rocky land showing an incredibly beautiful scenery for the travellers.

Kintamani also has potential fauna which increases value and dignity of its society. Floating fish cages are used to support business in cultivating nila fish in Lake Batur which dominates economic activities in the area. This fish farming activity positively gives contribution toward regarding object diversities and attracts tourists to come to the site. Moreover, raising cattle also gives a special ambience for the ecotourism destination. Cattle are kept in a colony cage provides conservation system of natural resources which got two-fold dimension. Its multiplier effect are distributed proportionally on the crop land. The vast area of forests in the area of Kintamani ecotourism site has invited birds and that enriched the biodiversity. Birds that fly with various echoing chirps are outstanding attractions for bird watchers and enthusiasts.

The potency of Kintamani in terms of natural resources has been proven as magnificent attraction for both domestic and international tourists. Kintamani ecotourism site with its beautiful view of lake and Mount Batur can be seen from Penelokan and is stunning for domestic and international visitors. The Kintamani ecotourism attraction is even more interesting with an existence of hot spring facility, Toya Bungkah, which is well-known as Batur Natural Hot Spring and is the only one natural spa in Bali (The Only One Healing Spa in Bali) situated in the Lake Batur, Kintamani.

On the other hand, there were found some unsupportive elements of the Attributes of Kintamani ecotourism site i.e. easy-access and souvenirs. The easy-access factor from Kintamani ecotourism site did not affect the Attributes of Kintamani ecotourism site since obviously its location was hard to reach by visitors, especially Toya Bungkah (Batur Natural Hot Spring) as well as the traditional village of Trunyan located in Kedisan village. These two tourist destinations are located far underneath Penelokan and Lake Batur. To reach them, a long winding road heading downhill of Kintamani must be passed. Besides, traffic along the way to these locations were bad and too crowded as trucks carrying sand taken from rocks and lava of Mount Batur passed by.

This problem has gotten attention from the Department of Tourism of Bangli regency and traditional village of Batur as managers of Kintamani ecotourism site that is by limiting traffic of the trucks carrying sand and prohibiting operations of big machines which were used along the location of sand excavation. The effort of prohibiting the operations of big machines in the sand excavation has been optimally done with the help of Kodam IX Udayana as well as police headquarters of Bali province located in Denpasar since government of Bangli regency gave up trying to handle this problem. The recent traffic condition was not too crowded as no big sand excavation machine was operated and less trucks passed the road. The next effort done was controlling operation time for the trucks carrying sand where they only can take the road before 10 a.m. and after 4 p.m. Nevertheless, this effort was not successfully done because many trucks were still operated during the day and, of course, gave negative impact to the traffic around Kintamani ecotourism site. Another attempts taken by government of Bangli regency was built a ring road on the northern part of Yeh Mampeh village as an alternative way for these trucks. Unfortunately, it did not work as land owners wanted to put retribution for trucks passing the area.

Apparently, the efforts to overcome traffic jam in this village need to be enforced by creating awig-awig or village regulation in Batur about these trucks carrying sand so that the drivers obey the rule that states operation only can be done before 10 a.m. and after 4 p.m. It is expected that the traffic would be better and would not disturb tourists' activities during their visit in Kintamani ecotourism object. This is extremely important for us to consider since Batur ecotourism site, Kintamani, has been recognised as Batur Global Geopark by UNESCO. Thus, attempts to preserve this area should be our priority. It is possible in the future to prohibit sand excavation business in the area of Batur Geopark to prevent trucks operation.

Souvenir is another factor which did not give impact toward the Attributes of Kintamani ecotourism site. This result indicates that more endeavours from managers of Kintamani ecotourism site are necessary to encourage souvenirs' sellers in giving their best services to visitors. Forcing visitors to buy their products or use their services are not suggested. Department of Tourism in Bangli regency as managers of Kintamani ecotourism site especially Penelokan and traditional village of Trunyan, Kedisan, has provided stalls for souvenirs' sellers as well as tattoo artists. The aim was minimising annoying action of them such as approaching and forcing visitors who are enjoying panorama of the Kintamani ecotourism site. Besides, Department of Industry and Trade of Bangli regency are suggested to more intensively develop current cooperation with Industri Kecil Kaos C 59 or Small Industry of C 59 T-Shirt in producing souvenirs of Kintamani specifically t-shirts with beautiful view of Mount Batur Geopark and its lake on it.

b. Factors which influence Promotion of the Kintamani Ecotourism Destination in Bangli

Based on the result of the first-year research, particularly about promotion about the Kintamani ecotourism site which consists of advertisement, publication, word of mouth, and e-commerce, it was found that three factors which gave big effects toward promotion of Kintamani ecotourism site are advertisement, publication, and word of mouth. The weakest factor affecting the promotion of Kintamani ecotourism site was e-commerce. This result indicates that the promotion of Kintamani ecotourism site was effective enough through advertisement and publication. Publication which was done by the Department of Tourism in Bangli regency was in forms of brochure and special events (e.g. tourism exhibition in Malaysia). The government found out that most of Malaysian were not fully informed of the existence of Kintamani ecotourism site in Bangli. Moreover, promotion in form of word or mouth was effective enough to introduce Kintamani ecotourism site. It means that the visitors of Kintamani ecotourism site have actively involved in promoting Kintamani ecotourism site via cell phone, video, social network (e.g. family and friends) as well as online media namely website, blog, and message. On the other hand, e-commerce was the weakest indicator affecting the promotion of Kintamani ecotourism site and therefore needs to be widened to expand international networks through website, for example online advertisement, retail website, and online mall service.

Department of Tourism in Bangli regency actually has prepared a promotion of ecotourism object through a website with the following addresses: www.disbudparbanglikab.go.id and www.globalbaturgeopark.com. Besides, the traditional village of Batur, Kintamani, as a manager of Batur Natural Hot Spring has done some promotion through this website: www.baturhotspring.com. Thus, promotions for Kintamani ecotourism site has reached international networks.

c. Factors which affect the Visitor Individual Characteristics

The individual characteristics of travellers consists of motivation, experience, lifestyle, social and economic conditions are also factors which determined numbers of tourist visits to Kintamani ecotourism site. Four powerful indicators which gave big influences on Individual Characteristics of tourists are experience on travelling, economic condition, life style, and Motivation. The least influencing factor was social condition.

Tourists' experience was the strongest factor affecting individual Characteristics of the tourists. It means that own experience or families', neighbours', and colleagues' experiences as well as other social network regarding visit to Kintamani ecotourism site were good or satisfying. Bangli is one factor which needs attention of Department of Tourism in Bangli regency and society of Batur village so that visitors' satisfaction about preservation and scenery in Kintamani ecotourism site can be maximised. More concerns should be given to preservation of environment, environment around lake and mount Batur, cultural attractions, cool and convenient surrounding, and pleasing services from managers and society in Kintamani ecotourism site.

Economic condition of the tourists, with good earning that can afford tertiary needs such as needs for recreation or travelling, also affected numbers of visit to Kintamani ecotourism site. Furthermore, lifestyle of the tourists which shows that they love beautiful scenery and interesting sociocultural life of our society also supported numbers of tourists' visit. Then, motivation factor of the tourists to come to Kintamani ecotourism site included recreation, wants and needs to escape from work, city life, hustle and bustle, and crowded traffic were in line with motivation of tourists who like

to enjoy natural beauty of environment and attractive cultural life of society in Kintamani in particular and Bali in general. Social factor was the weakest indicator affecting Individual Characteristics because the tourists who visited Kintamani ecotourism site never intended to show their social status off but more into a priority of enjoying magnificent view of lake and mount Batur, staying in a preserved environment, and seeing unique cultural life.

d. Factors which form the Tourist Image

Tourists' image which consists of comfortable environment, cool and fresh air, enjoyable condition, and safe and clean surrounding is also a factor that gave big effect toward Decision-Making of visiting Kintamani ecotourism site. Comfortable environment was the biggest factor affecting image of tourists since Kintamani ecotourism site has splendid scenery overlooking lake and mount Batur and life of flora and fauna which is naturally preserved as well as attractive traditional art and culture of the society with the existence of Trunyan site and Kedisian traditional village in Kintamani, Bangli. Kintamani ecotourism site has cool and fresh air. This condition influence tourists' image who come to this site. Cool and fresh air in Kintamani ecotourism site is caused by its location in a plateau and supported by its preserved nature. This condition absolutely needs government's attention so that Kintamani ecotourism site's natural beauty could be maintained.

Kintamani ecotourism site with its enjoyable ambience gave big effect toward tourists' image who come to this destination. Travelling to Kintamani ecotourism site is amusing as its scenery is grandeur with the view of lake and mount Batur. Its environment is still safeguarded and its culture is attractive. Safe and clean environment are two factors which had less effect toward image of tourists coming to Kintamani ecotourism site. Cleanliness of its environment needs special attention from the managers particularly in Penelokan site. One effort that can be done is providing more rubbish bins in strategic place with a sounding slogan Kintamani clean and green. It will motivate the visitors to participate in keeping Kintamani ecotourism site clean. The rubbish bins should be kept by the society of Kintamani ecotourism site, Bangli, including souvenirs' sellers, thus plastic rubbish can be managed well.

A safe environment of Kintamani ecotourism site also needs to be initiated by its managers so that visitors will feel secure since they are protected by some security staffs such as traditional police (pecalang) and local guides who recognise this place better than anybody else. Also, they will be safeguarded from risks of getting accident on the street. Moreover, tourist police have to be ready to create a hassle free environment in the Kintamani ecotourism site. It is hoped that irresponsible parties who aim at disturbing the site security system would be afraid. Travellers who feel safe to visit Kintamani ecotourism site and when the site has good environment is an effective promotion or word of mouth to increase travellers' visits to Kintamani ecotourism site.

e. Factors which shape the Decision Making of Tourist Visit

The decision-making of tourists' visit to Kintamani ecotourism object were influenced by some factors such as awareness of the need, searching for information, decision to visit, and post-visit evaluation. A main factor that influenced the decision-making of tourists visit is driven primarily by personal motivation namely encouragement from family, friends, neighbours, acquaintances, and effective promotion as well as past experience of visiting the ecotourism object. Awareness of their own needs was a second factor influencing the decision-making and it was driven by their social needs, especially self-esteem, recognition and social status as well as the condition of themselves concerning employment, economic status, and lifestyle.

Post-visit evaluation was the third factor influencing the decision-making visit which consists of an evaluation of the tourist attractions, price, accommodations, souvenirs, easy-access tourism object, clean and safe environment. Searching for information was the least factor giving influence on the decision-making visit. It covers information of tourists who have visited the Kintamani ecotourism object and other social networks. These results suggest that the Department of Tourism in Bangli regency and traditional village of Batur to publicise Kintamani ecotourism object more intensively through website so that it can reach out international networks.

CONCLUSION

As managers of Kintamani ecotourism object, the traditional village of Batur and Department of Tourism in Bangli regency have to intensively regulate traffics of trucks carrying sand in the Toya Bungkah and Traditional Village of Trunyan Kedisan, Kintamani. Besides, handicrafts training about Kintamani should be done so that this kind of souvenir can be provided in a bigger number. Promotion of this ecotourism site needs to be optimised through website thus could effectively reach international networks. Meanwhile, the individual characteristics of visitors are satisfactory to increase numbers of visit to the Kintamani ecotourism site. Thus, service for the visitors need to be enhanced especially experience factors of the tourists after visiting the site. Satisfaction will surely lead to next visits.

Tourists' image toward Kintamani tourism object was great especially for enjoyable, cool, and fresh environmental factor except for the cleanliness and safety of it which still needs to be managed well. The cleanliness of the ecotourism site can be maintained by providing more garbage cans in some strategic spots with Kintamani clean and green as its slogan. This effort will encourage the visitors to participate in keeping the Kintamani ecotourism object clean. On the other hand, the safety should be created by tourist police, traditional police from the village, and local guides who know more about the site. It is also expected that risk of accident caused by undisciplined traffic users can be decreased. As a result, the tourists will feel safe and comfortable to visit Kintamani ecotourism object. Clean Kintamani would be an effective promoting of word of mouth.

Looking at a role plays by the traditional village of Batur and Department of Tourism in Bangli regency as managers of Kintamani ecotourism object, it is expected that the attributes of ecotourism especially the ones that invite more visitors to come are maintained. However, easy access still needs to pursue by controlling traffic of trucks carrying sand which passed the way to Toya Bungkah tourism object and traditional village of Trunyan, Kedisan, Kintamani. The other factor i.e. souvenirs production obviously needs an intensive management so that more handicrafts about Kintamani could be sold. Good service for tourists also need to be enhanced. Kintamani ecotourism object managers has optimally promoted it specially through website which resulted in effectiveness of reaching international networking. Moreover, tourists' individual characteristics were appropriate that contributed visits to Kintamani ecotourism object. Tourists' image toward Kintamani ecotourism object was of a good standard for the most part of comfortable, cool, fresh, and enjoyable environment except for cleanliness of the tourist destination and safety factor — which apparently needs more efforts.

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ENTREPRENEURSHIP ORIENTATION OF JAMU GENDONG'S ENTREPRENEUR IN THE VILLAGE OF NGUTER SUKOHARJO DISTRICT CENTRAL JAVA INDONESIA

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ABSTRACT

Sukoharjo districts, especially the village of Nguter often referred to as jamu village, is one of the districts in Central Java which has a big potential in the development of jamu. Jamu traditional is a herbal medicine made from natural materials, such as from plants which have special properties, then blended into a powder of Jamu and an herbal (Jamu) drinks. The skills to make Jamu Gendong became the livelihood of the people in the area. The business of Jamu Gendong is included in the category of small-scale businesses. Jamu is one of the products of cultural heritage that is priceless, so the existence of herbal medicine cannot be separated from the culture of the local community whether to create or to concoct it. The challenge in Jamu business is the safety, quality and benefits which can be justified scientifically, another challenge is the lack of pride and confidence level of the Indonesian people to consume Jamu. Based on the existing potential, a support from the instigators of Jamu or local governments which have the entrepreneurial orientation is needed. Jamu Gendong entrepreneurs with high entrepreneurial orientation is expected to face a dynamic environment. The purpose of this study is to identify the entrepreneurial orientation of Jamu Gendong entrepreneurs in Sukoharjo district Nguter village in a dynamic environment, with dimensions of risk taking ability, innovativeness and proactiveness which is able to drive the entrepreneur to remain optimistic in facing the challenges and exploit new opportunities. This study is based on empirical exploratory research results of the Jamu Gendong entrepreneurs in the village of Nguter Sukoharjo district, Central Java Indonesia. The results showed that the orientation of the entrepreneur that include innovativeness, personal proactive, and risk taking of entrepreneurs is still in a moderate. Support from local government and other parties are necessary to assist in the management of Jamu business in relation to product hygiene, expiration period and business development.

Key word: entrepreneurial orientation, innovativeness, personal proactive, risk-taking, Jamu Gendong businesses, products of cultural heritage, the village of Nguter

INTRODUCTION

Jamu industry became one of the potential products that need to be developed, because it has a promising market potential in both the local and global markets. However, it is necessary to find a joint solution with regard to the constraints of industrial development of Jamu industry, jamu so far include the development based on safety, quality, and efficacy that can be justified scientifically, in addition, the lack of pride and confidence level of Indonesian people in consuming jamu and traditional medicines, although awareness of the use of natural products / herbal with minimal side effects is also a chance of its own as a counterweight to chemical drugs that are more able to be accepted in society. (<http://www.republika.co.id/berita/nasional/umum/13/07/11>).

The business actors of jamu industry in Indonesia currently reaches 1,247 traditional medicine industry which include 129 traditional medicine industry, while the rest are small businesses of traditional medicine and micro-enterprises of traditional medicine (<http://www.suara-merdeka.online/berita/21/04/14>). Seeing this potential, it is not wrong if the necessary activists in this jamu

industry with high ability in entrepreneurship orientation. Jamu entrepreneurs with high entrepreneurial orientation are expected to have high-performance levels for adequate capability, dynamic environment.

Sukoharjo district, especially Nguter village, often referred to as the village of jamu, is one of regencies in Central Java which has the big enough potential for the development of traditional jamu medicine. Traditional jamu is a jamu made from natural materials, such as from plants which have special merit, then blended into a powder of jamu and jamu drinks. The skills of making Jamu Gendong become their livelihood. Jamu Gendong enterprises is included in the category of small-scale businesses. Jamu is one of the products of cultural heritage that is priceless so the existence of jamu cannot be separated from the culture of the local community whether to make or to concoct it, it is necessary to identify the entrepreneur orientation of Jamu Gendong business, so that they are able to deal with the growing and dynamic business environment.

LITERATURE REVIEW

The concept of entrepreneur orientation refers to the ability of creative and innovative, in which there are dimensions; the ability of taking the risk (risk taking), the ability to innovate (innovativeness) and the proactive nature (proactiveness) which will help the company to put events and activities to acquire and exploit new opportunities (Abebe, 2014). In addition to the dimensions of entrepreneurial orientation which has been mentioned, there is an additional dimension of the researchers who present variations of the constituent construct. Knight (2000) added two dimensions of autonomy and aggressive competition. Some of the research literature about entrepreneurial orientation construct, all of it did not file the opposition to these three dimensions namely innovative attitude, the attitude of looking for opportunities, and the attitudes to take the risks.

Risk Taking Ability

An entrepreneur is expected to have the courage to take risks in business activities, but still put forward a realistic calculation. The courage to take the risk of which associated with a trend to launch new products, restructure the company, or the courage to enter new market segments (Morris et al., 2007). In general, an entrepreneur is a risk taker. The courage to take risks is marked with a choice to make efforts which is more challenging in achieving objectives, compared with the choice of risks that are too high or too low. Although the selection of the risks taken was moderate, the businesses have a tendency to look at the elements of risk more optimistic by making entrepreneur efforts.

In a hypercompetitive business environment today, the company is expected to have a breakthrough in the effort of decision-making more aggressively and risky, as part of efforts to maintain the position in the industry by beating another competitor. The courage to take risks focuses on efforts to face environmental change and seek to exploit the opportunities created by the changing business environment that are very volatile and needs to be followed up (Morris et al., 2007).

The ability to find opportunities (proactive person)

The act of looking for opportunities looked at the potential opportunities to subsequently show initiative, take action and strive to achieve the results that can affect the process of environmental change (Jintong et al., 2007). This attitude contrasts with the reactive pattern which is waiting for the changes occur and then react to it. The ability to seek opportunities aggressively sought to take the initiative, to compete and push the company ahead of their competitors and enable the company to address ever-changing environment changes.

With the ability to search for these opportunities, the company is expected to move and become The 'first mover' in response to the desires and needs of the future, by working to stay ahead of the hypercompetitive business competition. The tendency to look for opportunities could potentially be an important factor in improving corporate performance. The more vigorous and

persevering entrepreneurs in looking for opportunities in the face of environmental challenges, the better the performance of the company (Knight, 2000).

The ability to explore innovative ideas (innovativeness)

The tendency to always be actively involved in the exploration of new ideas, doing the creative processes which may be different from the existing standard, this attitude reflects the strength in exploring innovative ideas. A Creative and innovative process which is supported with fresh ideas, a willingness to do the experimentation, which result could be new products, new processes, new services, new markets, new segments targets or the new techniques (Knight, 2000). Companies tend to implement marketing strategies that are responsive and anticipatory (Covin and Miller, 2014).

Varying forms of innovation, these results are an important factor in organizational innovation. The entrepreneur regarded as the main catalyst for growth and change to the natural progress of the company. The main characteristics of an entrepreneur with a willingness and ability to seek creative and innovative ideas has a personal characteristic that is open to the experience, have the ability to work with full imaginative, competent and have confidence in the assessment of him/herself and steadfast attitude, have the duty and responsibility to have more achievement, as well as energetic and intelligent (smart) (Morris et al., 2007).

METHODOLOGY

Respondents in this study are 7 micro and small businesses in the village Nguter, Sukoharjo regency, Central Java. The type of data in this research is the primary data on entrepreneurial orientation in terms of the ability of risk taking (risk taking), the ability to innovate (innovativeness) and the proactive nature (proactiveness). Data is collected by in-depth interviews and the analysis techniques used are descriptive.

RESULTS AND DISCUSSIONS

The General Picture of Small and Micro-Scale Jamu Enterprises in Nguter.

Seven respondents were small micro enterprises 'carrying medicinal' in Nguter, 4 respondents were female and 3 were male. They've long had this business, 5 respondents own a business over 30 years, while two respondents only about 6 months. Respondents who have a business more than 30 years inherited the business from their parents and the 6 months ones, they are interested in jamu business run by their relatives. The jamu that are made is beras kencur, kunir asem, kunci suruh, cabe puyang dan paitan. In one day the respondents approximately made 10-15 bottles jamu, which are then sold in the Nguter market and the area around their home. At the present time they are no longer carrying bottles of jamu as before but already using a large basket and using bicycles and 3 respondents use a motorcycle, however they're still called jamu gendong. Each respondent states that the advantage on each of the products is almost the same, namely beras kencur and kunir asem. Respondents self-producing herbs that they will sell, the number of personnel which help them on average 2-3 people which still their relatives such as husband / wife, brother and nephew. They get the raw materials from the Nguter market and plants that exist around them such as lime, betel leaves.

The ability to take risk (risk-taking)

As described above that an entrepreneur is expected to have the courage to take risks in business. In terms of risk-taking the respondents stated that they are ready to face the risks in the business. 2 Respondents who have the business for 6 months is ready to take risks with the life choices to become jamu gendong seller, they previously worked in a factory outside the Nguter village. They chose to become jamu seller as because they see that their brothers, and sisters live better as a jamu seller.

Another thing is, two respondents tried to create a new concoction that did not previously exist such as making herbal medicine with the basic ingredients of mangosteen peel and soursop leaves. They make these herbs based on information from both printed and television media, so that the product could be sold they told the customers. Initially, the product was only sold a little, over time there is a person who always looking for it even though not many. Another breakthrough is done is to find new markets, there are 3 respondents who tried to find new markets by entering into the housing in the vicinity of the Nguter village, at the beginning of their product sold only a little, but now their sales is increased, there is a tendency of customers to buy jamu at the traders who they already know.

The ability to find opportunities (proactive person)

The act of looking for opportunities looked at the potential opportunities to subsequently show initiative, take action and strive to achieve the results that can affect the process of environmental change (Jintong et al., 2007). The more vigorous and persevering entrepreneurs in looking for opportunities in the face of environmental challenges, the better the performance of the company (Knight, 2000). In search of opportunities, 3 respondents did a good relationship with the customer, the product beraskencur and kunirasem which is respondents' flagship had been presented at the event organized by the Sukoharjo local government and even beyond Sukoharjo. While one other respondents seeking opportunities through communication with customers and try to make jamu in accordance with the wishes of the customer. Other respondents only conduct their activities on a regular basis.

The ability to explore innovative ideas (innovativeness)

The tendency to always be actively involved in the exploration of new ideas, doing the creative processes which may be different from the existing standard, this attitude reflects the strength in exploring innovative ideas. A Creative and innovative process which is supported with fresh ideas, a willingness to do the experimentation, which result could be new products, new processes, new services, new markets, new segments targets or the new techniques (Knight, 2000). The main characteristics of an entrepreneur with a willingness and ability to seek creative and innovative ideas has a personal characteristic that is open to the experience, have the ability to work with full imaginative, competent and have confidence in the assessment of him/herself and steadfast attitude, have the duty and responsibility to have more achievement, as well as energetic and intelligent (smart) (Morris et al., 2007).

Respondents who already have a business more than 30 years stated that they are always looking for new ideas. Two female respondents tried to make herbal medicine for colds or the flatulence with traditional ingredients, respondents got the idea from a customer complaint which is they feel bloating or the colds, by concocting from an existing traditional materials. This attempt makes the respondent get more order. Similarly, another respondent which seeks to make a concoction of the soursop leaves and the mangosteen leaves based on the information they get from the media. Another innovation made in service to customers, respondents received orders of jamu desired by customers and deliver it, even on new customer they ask the customers to taste the jamu that they do not buy. The hope is that they were impressed and will buy it at some point.

CONCLUSION

Based on the above analysis it can be known that the entrepreneurial orientation in micro and small enterprises is not yet maximum (is still medium) either from the risk taking ability (risk taking), the ability to innovate (innovativeness) and the proactive nature (proactiveness). This is because information is limited, the making process of jamu is still hereditary based. It is also in accordance with the will of consumers who still want a taste of typical jamu which they tasted. Product development is still a habit that has been patterned from a long time ago, although there are some respondents which willing to make products according to customer orders for the medicinal purposes

such as stomach ulcers and colds, as well as the manufacture of jamu which raw material are soursoop leaves and the mangosteen peel. The weakness which often appears on micro and small scalejamu business is the ability in product innovation, sanitation, expiration, and the use of safe materials that are not-contaminated to ensure hygiene products for a jamu which save life and not contaminated. Limitation of Nguter herbal medicine businesses is the level of education, creativity , innovation is low, the ability to find opportunities, so that they have more entrepreneurial orientation, guidance needs to be done by the local government to the micro and small entrepreneurs by providing insight into the development of products, hygienic and knowledge.

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DEVELOPING VILLAGE FROM ARTS AND THE CITIZENS' ACTIVITIES

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ABSTRACT

Dago Pojok is an area located in Dago Pojok Street, Coblong district, Bandung, West Java. In this area, there is a village which is full of arts both the decoration and the citizens' activities. Because of its unique, this village is called "Kampung Kreatif Dago Pojok". In the past, this village was one of troubled region because of motorcycle gang existed there. In 2003, a community called Taboo Community came to Dago Pojok for making art training to its citizens. The arts are mural, painting, wall decoration, statue, photography, traditional music instruments, and traditional games. In making this paper, the data is collected by interview to the initiator of "Kampung Kreatif Dago Pojok" and literature studies from articles in several media. The data were analyzed by referring to the theories of innovation diffusion, social exchange, social learning, and organizational communication. "Kampung Kreatif Dago Pojok" has already success in changing, from a troubled area became a tourism destination that still in development in Bandung. Many tourists both domestic and foreign come to see the unique of this village, participate in arts program and stay in citizens' house. Those activities support the citizens to start a business and grow in economics. This paper discusses how 'Kampung Kreatif Dago Pojok' has developed by its creativity. The management of this village and communication between the citizens, organizers of "Kampung Kreatif Dago Pojok", and Taboo Community became a key factor that made the village people understand the important of area developing, so Dago Pojok which was common village became a creative village that get a lot of attention.

Key words: arts, citizens, community, creative, tourism

INTRODUCTION

Dago Pojok is a village located in Dago Pojok Street, Coblong district, Bandung, West Java. This village which is full of arts both the decoration and the citizens' activities. Because of its unique, this village is called "Kampung Kreatif Dago Pojok". That was from 2003, when a community called Taboo Community came to Dago Pojok for making art training to its citizens. Previously, this village was one of troubled region because of motorcycle gang existed there. Make an art training is actually one of Taboo Community's activities. The arts are mural, painting, wall decoration, statue, photography, traditional music instruments, and traditional games. From that, the people in Dago Pojok can improve their creativity and become stand alone in making arts for their area. Right now there are several programs held in Dago Pojok that open for public. The programs are organized by Kampung Kreatif Dago Pojok organization that consists of people of Dago Pojok and members of Taboo Community. There are open trip, Ulin Day (playing out with children), experiment class, art training, and festival kampung kreatif. Dago Pojok also become lead of other kampung kretaif developed in Bandung.

LITERATURE REVIEW

In discuss about changing phenomenon in a society, the relevant theory is innovation diffusion (Rogers, 1983). Innovation diffusion explain how new idea, things, or concept delivered to a society in certain time by communication channels for being adopted. This theory assumed that innovation's characteristics that considered by people in a society determine how the rate of adoption. This case also related with social exchange and social learning. Social exchange (Homans, 1958). Homans said 'all actions did by someone, more often certain actions get benefits, so that person have more tendency to do the action'. It refers to people in Dago Pojok. They do art actions and get benefits from that. More often they get good impacts, more often they do the action. Social learning (Bandura, 1977) is learning process with observe, do and rise expertness from imitate or learning from action of other people. This theory explain how people Dago Pojok learn about art and public who visit Dago Pojok learn about Dago Pojok. Related with interaction, this paper will discuss about the communication between Taboo Community and people of Dago Pojok and also their own communication in their circle. The communication can be analyzed with organization communication (R Wayne Pace, 1998). This concept tell how communication occur in organization and how it should happen.

MATERIALS AND METHODS

Data of this paper were collected by interview to the chairman of Taboo Community. The data is fitted with other sources, such as newspaper articles, blogs and so forth. The collected data were analyzed by referring to the theory of innovation diffusion, social exchange, social learning, and organizational communication. Dago Pojok was mediocre village and now become a creative village which public call 'kampung kreatif'. That development came from revolution of people itself. They were trained about arts by Taboo Community that changed them from marginal into creative people.

RESULTS AND DISCUSSIONS

Taboo Community Profile

Taboo Community is a community called 'Pusat Kegiatan Belajar Masyarakat (PKBM)' or a center for public learning. Taboo etymologically means 'not allowed to not study'. That word becomes philosophical base for Taboo Community. The motto of this community is everyone is not allowed to not study/learn. Members of Taboo Community are from many circles, they are artists (majority), activists, researchers, educators, and many more. Taboo Community has administrators. The chairman right now is called Rahmat Jabaril, he is also initiate the form of Kampung Kreatif Dago Pojok. They run their activities with their own cost and also from donator. This community focused in education, especially for children. Taboo Community teaches in some methods with free cost, one of them is by teaching arts. Taboo Community has a library as facility that store many books in many genres. Because of there are many arts that can be taught by Taboo Community, especially, traditional arts and people start to interested in arts, Taboo Community begin teach and make training in several areas in Bandung, one of which is Dago Pojok.

Activities for Dago Pojok

At the beginning, Taboo Community started to make arts training for some people. Then they found Dago Pojok as an area that need the training too. Before held the training, Taboo Community did detail mapping of Dago Pojok. They mapped the houses, land, people, and the activities. After that they arranged the programs. They planned to teach some fine arts such as mural, painting, wall decoration and also traditional music instruments.



Figure 1: Kampung Kreatif Dago Pojok Development

Kampung Kreatif Dago Pojok started developed in 2003 until now. The people start to decorate their walls, street, and house then they began to make sculpture, traditional music instruments, etc for sale. Kampung kreatif Dago Pojok held many programs and also have organizers. They are: chairman, secretary, treasurer, arts, public relation, workshop officer, and logistics that consist of youth in Dago Pojok and some members of Taboo Community. The kampong is often visited by tourists both domestic and foreigner. They usually attend some programs and just seeing the kampong. There are also tourists who come for doing research. Most tourist visit Dago Pojok on weekend. Because of the high enthusiasm from public, some of them want to stay longer in Dago Pojok to see more activities. To satisfy them, people of Dago Pojok now start to develop homestay. They prepare and rent their houses for guests.

Innovation Diffusion Process

Taboo Community approached the opinion leader, and local youths that have power in Dago Pojok for supporting their activities. Some people welcomed them. But they also get barrier from religious leaders there. The religious leaders worried that Taboo Community's plan might give negative impacts for the people and also misdoubt them as good people. Then Taboo Community explained that they come to teach the people politely without any hidden plan. They reassured that this arts training could make positive to the people.

Then slowly most of the Dago Pojok society accustomed with their activities and also get learned from them. Furthermore, the children are also invited to preserve traditional games. Now the kampong is full with arts and activities. People can make arts themselves and children play outside.



Figure 2: Mural in Dogo Pojok

Those activities show applied innovation diffusion (Rogers, 1983). Taboo Community is the innovation giver which will be adopted or rejected by a society. People of Dago Pojok is a society that will adopt innovations given to them, there are also change agents: youths, and opinion leaders. They communicate directly with interpersonal and organizational methods and do that in a long time (over

than a year). Now the members of Taboo Community often come to Dago Pojok to do some programs together with the people and Rahmat Jabaril still live there too.

Social Learning and Social Exchange Process

Dago Pojok now become a creative environment and the people is become creative too. Their learning process of people in Dago Pojok is called social learning. They got trained by Taboo Community members and also doing it, like learning by doing method. Some people of Dago Pojok who were initially hesitate, start to see the others. Saw their circles doing arts can influence them to do the same. The greater change that happened in their social environment, the stronger they get learned and affected. That is how social learning work. It also related with social exchange theory. People who will do something considered what they will get from doing that. Citizens of Dago Pojok thought that by making arts they can get benefits in ability and economically so they do that.

Dago Pojok Programs

Programs in Dago Pojok such as:

- Ulin Day: Ulin is Sundanese means playing. This program offer public to play traditional games and activities with modified psychological before. At the beginning, they were being treated on their mind to become children psychologically so they will play freely like children.
- Creative Experiment Class: This is a class of make some creative experiments like mask, sculpture, photograph, painting, etc.
- Arts workshop: This workshop is making art goods and held in people's house.
- Dago Pojok Festivals: This is annual festival began in 2011. The theme is different per year.

Those programs are managed by Dago Pojok administrators. The management that they do is dividing the work in line with their job descriptions. This is related with concept of organizational communication. They organize their work with communication flow that has been agreed by them before both formal and informal. Beside succeed in become creative kampong/village, the society of Dago Pojok has also developed from mediocre people to people with tourism awareness. Now they are focusing in sustain their uniqueness and make Dago Pojok as one of the most visit place in Bandung. Dago Pojok have market segment in student and youth specifically and public in general. To support the goal, recently people of Dago Pojok make mural and sculpture widely in their area. They also will add arts things along Dago Pojok later.

CONCLUSIONS

Dago Pojok has been develop from marginal area into creative area which called 'kampung kreatif' by arts that made by the citizens. Not only changing the face of the village but also the society. The citizens become more creative and active. It makes Dago Pojok sounded loudly in public in recent years and now become tourism destination in Bandung. Because of the succeed, the people of Dago Pojok want to develop Dago Pojok further to become one of tourist spot in Bandung and West Java. Innovation diffusion is the process that happened in Dago Pojok from the beginning until Dago Pojok has changed, in this case is developed. Citizens of Dago Pojok accepted the idea to make creativities in their area so they do that until now. Taboo community is the communicator in this innovation diffusion process, and the citizens of Dago Pojok are the adaptor. Taboo community becomes the key factor of developing Dago Pojok because the idea came from them and they did the communication so innovation diffusion they have made has successful. There should be more research to find out how citizens/people of Dago Pojok develop Kampung Kreatif Dago Pojok into one of leading tourist destination in Bandung and West Java.

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TOURISM IMPACT AND QUALITY OF LIFE (QOL) OF THE HOST COMMUNITY: A CASE STUDY OF GILI TRAWANGAN, INDONESIA

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ABSTRACT

Once a community becomes a destination, the lives of residents in the community are affected by tourism, and the support of the residents is essential for the development, planning, successful operation and sustainability of tourism in the destination. Therefore, the QOL of the residents should be a major concern for community leaders. Numerous studies have examined local residents perceptions of the economic, social, culture and environmental impacts of tourism, but there's a little studies about the effect of tourism on the QOL of the host community. This study was purposed to explore the effects of tourism on resident's QOL in Gili Trawangan. The method used in this study is descriptive method with simple random sampling technique. This study used questionnaire survey to examine the effect of tourism on resident's QOL through 237 residents in the community. Five-point likert-type was used based on the following scale: 1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree and 5 = strongly agree. Five variabel used to measure the resident's QOL were: material well-being, community well-being, emotional well-being, and health and safety well-being. The finding of this study shows that over all tourism impact has the positive effect on resident's QOL. However, according to the analysis, tourism in Gili Trawangan has the negative effect on safety well-being and the cost of living.

Key words: QOL, tourism, host community

INTRODUCTION

Tourism can be domestic or international, and international tourism has both incoming and outgoing implications on a country's balance of payments. Today, tourism is a major source of income for many countries, and affects the economy of both the source and host countries, in some cases being of vital importance. WTTC (*World Travel and Tourism Council*) reported that the growth of the Travel & Tourism sector in 2015 (2.8%) outpaced that of the global economy (2.3%) and a number of other major sectors such as manufacturing and retail. In total, Travel & Tourism generated US \$7.2 trillion (9.8% of global GDP) and supported 284 million jobs, equivalent to 1 in 11 jobs in the global economy. Policies and programs of tourism development in Indonesia has long been focused only on the development of physical and economic aspects. It's consistent with the theory expressed by Gatner (1996) that tourism development should be seen as a process, which its continuous and sustainable in the context of physical changes. But it is contrary to one of Indonesia's tourism development goals as contained in Indonesia Implemented Act No. 10/2009 about tourism that "one of the purposes of tourism is to improve people's welfare".

Once a community becomes a destination, the lives of residents in the community are affected by tourism, and the support of the residents is essential for the development, planning, successful operation and sustainability of tourism (Kim, 2002). Therefore, the QOL of the residents should be a major concern for community leaders. QOL refers to one's satisfaction with life and feelings of contentment or fulfillment with one's experience in the world. It is how people view, or what they feel about, their lives. Similar situations and circumstances may be perceived differently by different people (Andereck & Nyaupane, 2011).

There are several reasons for investigating the impact that tourism has on QOL (QOL) of community residents. Each individual is positively and negatively affected by tourism development in his or her overall quality of living. As an example, the quality and quantity of recreation opportunities in many areas would not exist without a vibrant tourism industry. Nor would a myriad of special event and cultural opportunities exist which contribute to the artistic, educational, and recreational experiences that positively shape the life quality of citizens. Also, the ambiance created in communities by the existence of tourism sets the stage to facilitate the attraction of new businesses and industries (Andereck, 2011). The perceived impact of tourism on a destination community will continue to increase along with the development phase of the tourist destinations (Pitana, 2005). Many studies have been done showing that the development phase of tourism will always have an impact, either positive or negative effects that will inevitably affect resident's QOL in the community (Kim, 2002, Uysal, 2013, Aref, 2011).

Gili Trawangan is the largest of Lombok's Gili Islands and the only one to rise significantly (30 m) above sea level. Measuring 3 km long and 2 km wide. The name Trawangan originates from the Indonesian word Terowongan (Tunnel) due to the presence of a cave tunnel built there during Japanese occupation in World War 2. Of the Gilis, Trawangan is the most developed and geared towards tourism. The main concentration of settlement, recreation, accommodation and diving business is situated on the eastern side of the island. In the present study, material well-being, community well-being, emotional well-being, and health and safety well-being were used to measure the QOL of the residents in the community (Kim, 2002).

- **Material well-being:** The satisfaction of material well-being can be shared in the form of cost of living and income and employment. Three items for cost of living and four items for income and employment were used to measure residents' satisfaction of material well-being.
- **Community well-being:** There are many aspects of community life and setting that make up people's appreciation or dissatisfaction with the greater than neighborhood area where they live. Four items were used to measure the community well-being domain.
- **Emotional well-being:** Emotional well-being can be satisfied in the form of leisure well-being and spiritual well-being. Four items for leisure well-being and five items for spiritual well-being were proposed to measure residents' satisfaction of the emotional well-being.
- **Health and safety well-being:** The satisfaction of health and safety well-being consists of health wellbeing and safety well-being. Four items for health and three item for safety well-being were used to measure the health and safety well-being domain (Kim, 2002). The Figure 1 illustrates the contribution of tourism to increase QOL, which is carried out in various forms: material well-being, health and safety, community well-being, and emotional well-being.

MATERIALS AND METHODS

This research attempted to identify the effect of tourism on resident's QOL in Gili Trawangan. To examine resident's perceptions on their QOL, the researchers use a questionnaire survey through 237 residents in the community. The researchers adopted five variables to measure QOL: material well-being, community well-being, emotional well-being, and health and safety well-being. The items were adopted from Aref (2011) dan Kim (2002). The questionnaire was structured around a Likert scale. Each statement was situated on a five scales with 1 representing a response of "strongly dissatisfied" and 5 representing "strongly satisfied". A face to face onsite self-administered survey was conducted using the convenience sampling method. Pretesting of the research instrument was carried out to examine the appropriateness and reliability of the instrument by taking 45 convenience samples. Thirty two questionnaires, a 91.42% response rate, indicated that the results were sufficiently comprehensive and verified the value of the instrument and the statements received.

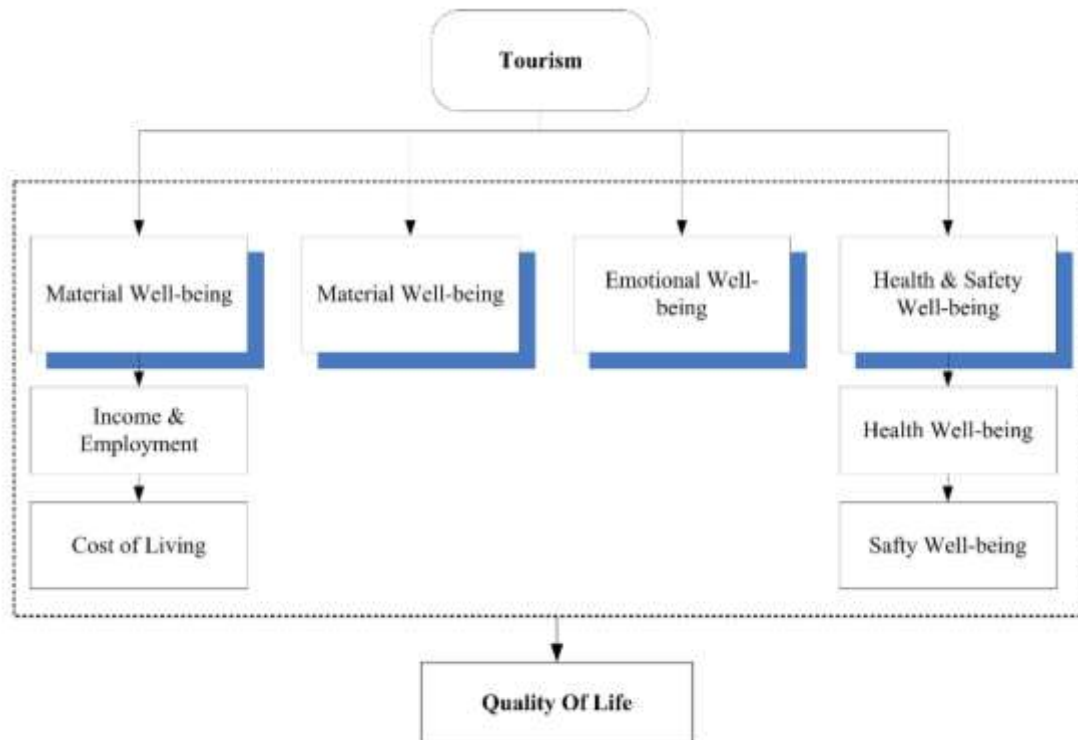


Figure 1 The Effect Of Tourism on Quality Of Life

RESULTS AND DISCUSSIONS

According to the results, most respondents were highly educated, earned more than Rp.3,000,000 (59.18%), male (58%) and female (42%) with an average age of 50 years. Majority of them (62.5%) were engaged in tourism activities. Descriptive statistics revealed that respondents rated higher on positive statements and lower on negative statements, indicating that the residents received more positive impact than the negative. Based on the mean measures of impact items as shown in table 1, the impact items associated with cost of living indicators have the lowest scores, those are real estate taxes (1.78), cost of living (1.74) and the cost of basic necessities (1.88). Increasing demand for basic services and goods from tourists will often cause raised prices that negatively affect local residents whose income does not increase proportionately. Tourism development and the related rise in real estate demand may dramatically increase building costs and land values. Not only does this make it more difficult for local people to meet their basic daily needs; it can also result in a dominance by outsiders in land markets and in-migration that erodes economic opportunities for the locals. Long-term tourists living in second homes cause price rises in their new homes if their numbers attain a certain critical mass (Pitana, 2005). Furthermore, alcoholism (1.91) and litter from tourism activity (1.72) were also have a low mean score.

Table 1 The effect of tourism on QOL

No	Variables	Indicators	Mean
1	<i>Material well-being (MW)</i>	<i>Cost of Living</i>	
		- Real estate taxes	1.78
		- Cost of living	1.74
		- Cost of basic necessities	1.88
		<i>Income & Employment</i>	
		- Your income at your current job	3.30
		- Economic security of your job	3.01
		- Your family income	4.88

		- Pay and fringe benefit you get	3.76
2	<i>Community well-being (CW)</i>	- Your community life (<i>neighborhood</i>)	2.44
		- Community service in your area	3.95
		- Community facilities	4.71
		- Community well-being	4.05
3	<i>Emotional well-being (EW)</i>	- Spare time	3.65
		- Leisure activity	3.17
		- Leisure life	2.79
		- Cultural life	3.11
4	<i>Health & safety well-being (HSW)</i>	Health well-being	
		- Your health	3.71
		- Air quality in your area	3.89
		- Water quality in your area	3.21
		- Litter	1.72
		Safety well-being	
		- Crime rate	3.67
		- Safety and security in your area	3.61
		- Alcoholism	1.91

But overall, all the indicators show that the respondents have rather positive attitudes toward tourism impacts in their QOL in their community. The whole indicators in community and emotional well-being are the most favored impacts among the residents of the communities. Findings of this study supported the research question that there is positive effect of tourism on the resident's QOL. The result of this study is fairly consistent with previous research findings by kim (2002) and Aref (2011).

CONCLUSION

The purpose of this study was to identify the effect of tourism on resident's QOL. The result of this study showed that most of the respondents were strongly agree that tourism has many positive effect on their QOL, such as increase their income, more job for the residents, etc. The findings of this research can assist tourism stakeholders community developers in the implementation of tourism development strategies based on residents' attitudes towards tourism impacts on QOL in tourism destination.

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LOCAL ENTREPRENEURSHIP OF WOOD INDUSTRY IN TEMANGGUNG DISTRICT, INDONESIA

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ABSTRACT

The entrepreneurship is related to the capacity and willingness to establish a certain business to generate profit that also it has possibility of some risks. A critical factor in rural development is local economic growth, which is influenced by the local entrepreneur performance to establish business in the rural area. The social entrepreneurship promotes the business to share the value added to the society. In Temanggung district, Indonesia, the wood production and industry has been becoming one of main important economic activity in rural. The paper reports the study of entrepreneurship situation in the wood industry development process. It explores the internal and external factors of rural area to the business development. The study result shows that the local business of wood industry in Temanggung was initiated by the synergy of external investment and technology that located in the district with the local advantages to the wood industry i.e. land price, workers, and supply of raw material. The previous capital from tobacco business also became factors that make the local entrepreneurs could afford the initial capacity to establish initial wood factories. The social entrepreneurs in Temanggung district raises due to the initial external investment initiative and technology, that in line with the raising of local capacity to the investment. The local entrepreneurs of small and medium enterprises of wood industry in Temanggung district embeds the social value of local employment opportunity to the rural community development.

Key word: Social entrepreneurship, rural business development, rural wood industries.

BACKGROUND

Entrepreneurship contributes to the business dynamics in the entire economic fields that promotes the raising of the economics condition in the area. The entrepreneurship is important to the rural development since it encourages the improvement of value added of the rural products and promotes the sustainability of the rural economy. The main entrepreneurship components that influence to the ventures business are related to the financial, human, and cultural capital factors. The social entrepreneurship is relevant in the rural development discourses. Recently, the social entrepreneurship becomes increasingly popular among researchers due to the contribution and prominence in the current rural society transformation. There are tendency in rural area, the entrepreneurs seek to create ventures that not only due to the profit but also to share the value added to the society, especially those are native from the area. The term of social entrepreneurship refers to the value that a company adds to society in three fields i.e. (1) economic benefit to the society, (2) ecological benefit to the environment, and (3) social benefit to people and their quality of life (Rey-Martí, 2016).

While the process for entrepreneurship could follows the steps i.e. (1) Identify an invention worth commercializing; (2) convert the invention into a marketable product or service; (3) create or find a start-up business to sell the product or service; (4) obtain resources to run the company and sell the product or service; and (5) sell the product or service to achieve a steady growth and survival (Kirchhoff, 1994). Temanggung is a district in Central Java, Indonesia that economically still based on the agriculture sectors and rural activities. The area is located in an inland mountainous area. It is

interesting to understand how the entrepreneurial of wood industry established in the rural surrounded area that situated in the location that has less of geographic accessibility. In the field, there are local support factors such as culture capital, human capital, and financial capital as a driving force for the local entrepreneurship. In this research, these factors provide a significant impact for capital diversification. There is the shift from previous entrepreneurs of tobacco production to diversify their capital to establish the wood industry enterprises.

The paper aims to analyze the factors and value added from social entrepreneurship of wood industry in Temanggung District. It reports the local entrepreneurship of wood industry in Temanggung District, Indonesia as a case study for field empirical understanding context. The research collected data with purposive sampling through in-depth interview (23 informants) to the local government, and development agents in Temanggung District. The research elaborates the aspects that relate to the policy, management, and program initiatives of the entrepreneurship situation in the wood industry development process.

THEORETICAL FRAMEWORK

Entrepreneurship

Wennekers (1999) defines entrepreneurship as a manifest ability and willingness of individuals, on their own, in teams, within and outside existing organizations, to:

1. Perceive and create new economic opportunities (new products, new production methods, new organizational schemes and new product–market combinations); and to
2. Introduce their ideas in the market, in the face of uncertainty and obstacles, by making decisions on location, form and the use of resources and institutions.

Social entrepreneurship is a part of entrepreneurship concept (Austin, 2006), which is embedded in the factors that influence the entrepreneurship that are the firm size, training, educational attainment, experience, family background, and receipt of financial support. In addition, the individual factors (or groups of these factors) affect to the business size, which also acts as supporting component in a job creation by social enterprises. More explanation to the influence factors i.e.

Firm Size

The firm size and age play the role in the innovative performance of firms. An increasing amount of research has placed firm age and firm size in the center of interest on management literature (Yildiz, 2013). It is argued that while resources are changed or renewed, the firms grow in size and their organization structures that are reorganized by new managements. Studies, that explore whether the size of a firm affects its success, show that larger companies are more successful. Nevertheless, larger companies are more efficient than small businesses are, so larger companies survive and grow, whereas inefficient companies are unable to grow and may even fail completely. Therefore, the effect of size is positive for most enterprises across all sectors (Méndez-Picazo, 2012). Small businesses become bases of initial challenge to the start-up entrepreneurs. Entrepreneurs commonly start small companies due to the uncertainty and resource scarcity. Nevertheless, the technical efficiency of small businesses may be greater than that of larger firms, thus small businesses may face greater competition (Lundvall, 2000).

Training and educational attainment

The training and educations that were undertaken by entrepreneurs could increase their capability of business management. The effects of training and education are an important consideration in the recruitment of new workers. Because of their training, entrepreneurs acquire the skills required to access resources and reduce costs, so that their companies perform better than if the employer less in training (Sariano, 2016)

Experience and family history

Knowledge from formal education and training is not the only way to acquire valuable knowledge and skills; knowledge that entrepreneurs gain from their experience is also important. Also, the family history of entrepreneurship is relevant because this type of informal training also helps entrepreneurs (Kim et al., 2006). It is argued that businessmen from the entrepreneurs family will have a better chance of success than the entrepreneurs who do not have a family history as a entrepreneurs. As well, the entrepreneurs those experiencing in running business starting from challenge stage will have better performance (Sariano, 2016).

Financial support

The role of government in supporting entrepreneurs, especially in the economic policy, also critical. Government needs to concern about the need to encourage social entrepreneurship and improve conditions for social entrepreneurs. The governments could improve economic growth, investment, and entrepreneurship to create the appropriate social climate (Méndez-Picazo et al., 2012). Social entrepreneurship could create sustainable competitive advantage, which helps entrepreneurs to achieve their social missions (Weerawardena, 2001). Providing financial support therefore seems an effective way to help social enterprises because although social enterprises may struggle to obtain or return their financial resources, they are more sustainable over time. In competitive markets, social entrepreneurs are able to attract there sources (i.e., capital, labor, equipment, etc.) (Dees, 1998) that the social entrepreneur lacks or has yet to develop.

Business Value Chain

Full range of business activities are required to bring a product or service from conception, through the intermediary phases of production (involving a combination of physical transformation and the input of various producer services), delivery to the final consumers, and final disposal after use. The term ‘value chain’ refers to the fact that value is added to preliminary products through combination with other resources. The value chain is at the centre of the market system. Within the chain, businesses are engaged in transactions through which products and services are traded against payment and/or other products and services. The activities within a value chain process could be covered in one firm or distributed to many firms. These firms could be located within a geographic proximity, or spread to the wider area (Herr, 2009).

WOOD INDUSTRY CONTRIBUTIONS TO ECONOMIC REGION IN TEMANGGUNG DISTRICT

Regional Economic Sharing

The wood industries in Temanggung district covers the forestry and industry sectors. The first sector covers the wood farming and cultivation process. The processing industry is consisted of the wood processing into semi-finished products and finished products. The contribution the wood industry products to the economy of Temanggung district is indicated in the agricultural sector GRDP share (particularly in the forestry sub-sector), and the industrial sector in the sub-sector goods wood and other forest products. The contribution of each sector and sub-sectors of the economy as is indicated in Temanggung district Gross Regional Domestic Product (GRDP) at Current Market Prices (Temanggung statistic, 2015).

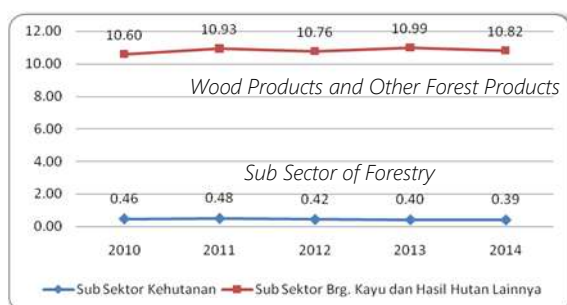


Figure 1. Contributions of Forestry and Wood Products Sub Sector and Other Forest Products against the GDP in Temanggung District (%).

(Source: Calculation from Temanggung Statistic, 2016)

The agricultural sector and processing industry is the highest contributor to the GRDP in Temanggung District compared to other sectors, where the contribution of the sectors are 28% and 20% in 2014. The wood industry has highest sharing contribution to the economy of the region compared to other leading products, which amounted to 58.19% of plantation sector, and 11.71% of the total GRDP Temanggung District in 2013. The beneficiary population of wood processing sector are around 12,948 people in the year 2013 as the result from multiplier effect of the wood industry.

Product Value Chain in the Wood Industry in Temanggung District.

Value chain of wood industry in Temanggung District covers the sectors which comprises cultivation, collection, processing, and marketing. However, there are specifications in the processing business, which includes wood processing in the scale of small-medium and large company.

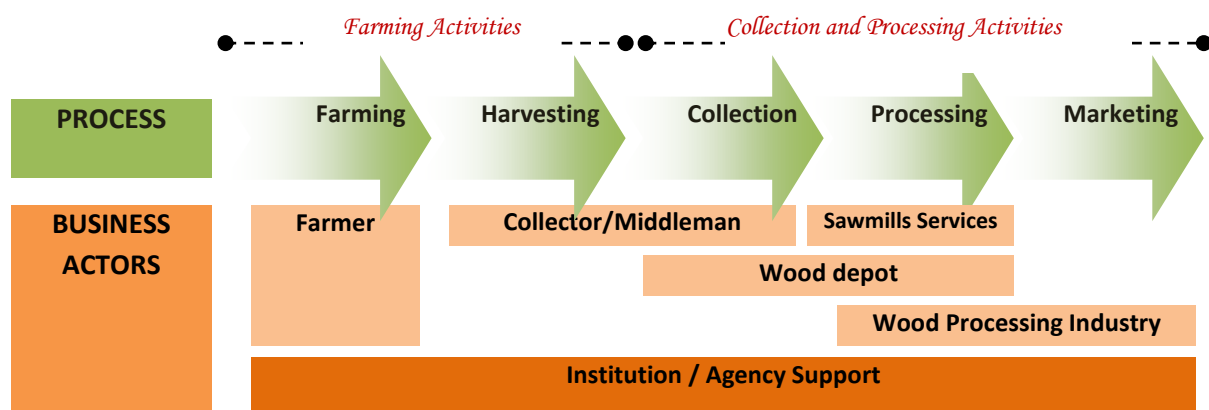


Figure 2. The Value Chain of the Wood Industry, Temanggung District (Source: Field survey, 2015)

Table 1. The Entrepreneur Actors in Value Chain of The Wood Industries

WOOD FARMING / CULTIVATION	COLLECTION & PROCESSING SMALL SCALE	PROCESSING AND MARKETING LARGE
(Main Stakeholders)		
Wood famers; Providers of wood farming (seeds, fertilizers, plant medicines, etc.).	Collectors and middleman Wood collecting depot; Services sawmill; Custom / processing wood waste.	Company / Factory of Processed Wood; Export and transportation services.
(Supporting Agents)		
Counseling Agency of District. Environmental Agency Temanggung District; Agriculture, Plantation and Forestry District. Temanggung; Processed Wood companies in the district. Temanggung; University.	Department of Agriculture, Plantation and Forestry of Temanggung District; Department of Industry, Trade and Cooperatives Wood Processing companies Bank.	Department of Industry, Trade and Cooperatives Public Works Department Bank.
Regional Development Planning Board (Bappeda) Temanggung District; Office District in Temanggung.		

Source: Field survey, 2015

The entrepreneur actors in every chain of wood processing activities are also different, which can be divided into the main actors and supporting actors. Main actors are the entrepreneur agents who are directly involved in the process of exploitation to produce the wood products, while the business supporters are the actors who contribute to providing support / help / policies that encourage business development wood processing, but is not involved in the process of exploitation of processed wood products.

Value chain for wood products has some product branches, so that the values that bind to the product also adapts to variations of existing products. In general, the flow of the product chain begins from the form of wood logs produced by the farmer. The wood logs sold in the same form to middleman (penebas). Middleman collects and transports the wood logs to the wood collecting depot. In the depot, the logs could be sold in the same form, or processed into beams, block, bare core, board, wood for construction, and pallet. The processing activity produces also the waste in the form small piece of wood (sebetan) and wood powder, which also can be resold. Depot process the wood products in the form of bare core, boards, battens, rafters, lumber and pallets, that are sold directly to end-users for construction activities and so on. Mainly the wood products of log, wooden beams are sold to wood processing company. The bare core is processed into products of plywood, block board, furniture, building materials, wood beams, parquet, and veneer. Products derived from the processing are then sold to consumers, both at home and abroad. Based on the analysis of the value chain, the largest percentage of the added value and the businesses involved are generally get by the company wood processing.

The most value added is generally received by the company of wood processing, while the smaller profit value is generally taken by depot and farmer. This condition encourage to the addition of company / wood processing business in Temanggung District. The highest wood product value added is the parquet, but most of the value come to the wood processing company. Also the advance processing wood product has less competition, the only company that has higher technology that is capable to produce. These company mainly has management support from the national and international levels. Entrepreneurs such as wood depot also get high value added, which is obtained from the finished products that are sold directly to end-users, including construction materials such as boards, battens and rafters. Of these three products, the greatest added value (80%) was obtained from the product of rafter. The value added received by the entrepreneur like log wood products, wood beams, wooden beams and vary according to the output of the final product. Of the three, value-added products are processed into bare core beams is the highest (13.56%). The highest value added received by farmers comes from logs that become raw materials block board direct to company (14.6%), as well as a raw material by the board that send to the Depot (50%). Regarding to the amount of the gained value added from the value chain of wood processing industry, the large scale company get the highest amount, while the smallest share is received by depot.

ENTREPRENEURSHIP OF WOOD INDUSTRY IN TEMANGGUNG DISTRICT

Mapping of entrepreneurial activity of the wood processing industry could be divided to two parts i.e. the collection, and the processing stage. The mapping indicates the process of post-harvest production of raw materials which are predominantly production of Albasia (local name is Sengon) wood.

Small Scale Business of Wood Processing in District

Until 2016, there are 125 small scale rural businesses of wood depots and sawmills that are actively operated. The location of production is spread across 44 villages and 12 sub districts in Temanggung district.

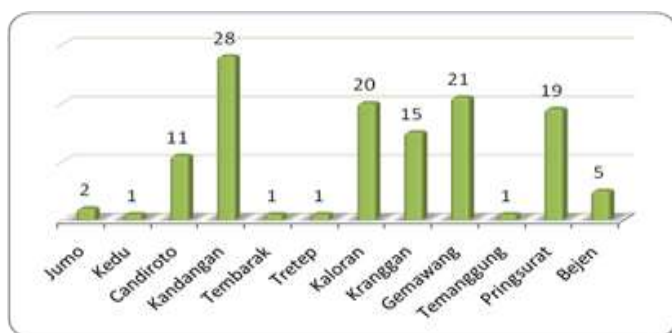


Figure 3. Wood Collecting Depot in Temanggung District (Source: Survey, 2015)

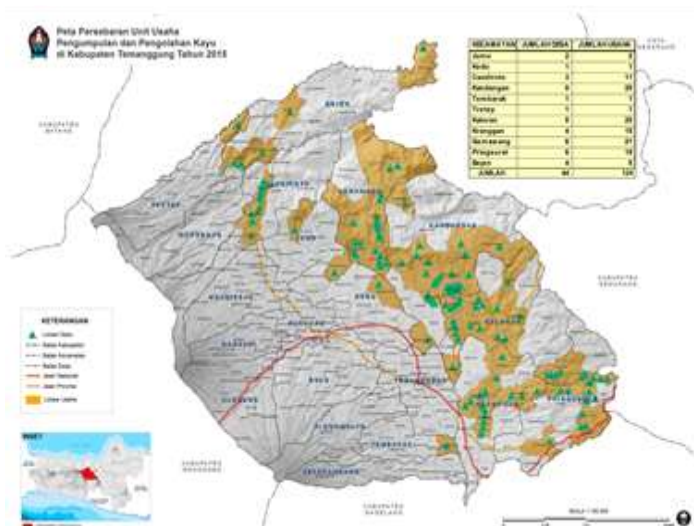


FIGURE 4. SMALL SCALE BUSINESS OF WOOD PROCESSING IN DISTRICT (Source: Survey, 2015)

Wood depot companies in Temanggung District has started growing since the 1980s, and began faster growing after the economic crisis of 2008. Although illegal logging policies were adopted with tough sanctions, but it did not make the wood firms in Temanggung declining. It is shown that as many as 84 Depot were established in 2009 to 2016, after the policy is implemented

Large-Scale Wood Processing Enterprises

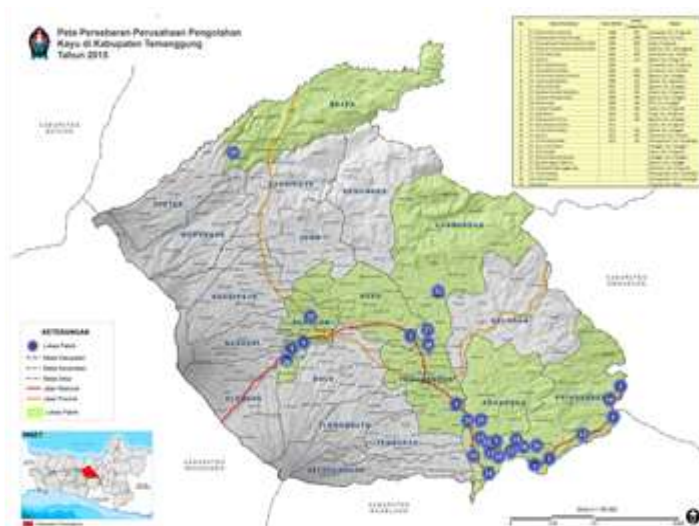


FIGURE 5. LARGE SCALE OF WOOD PROCESSING ENTERPRISES (Source: Survey, 2015)

In 2015, there are 29 active wood processing companies in Temanggung district that are classified as large-scale timber processing in 15 villages of 8 sub districts. The large scale wood companies in Temanggung District has been established initially around 1980s, and It had grew faster after 2000s. From the current active company, there are two of companies, which have still operate since 1980s. The large company activities, therefore absorb the local rural employees. Currently, these companies employ about 13,870 workers. The employees mostly are from the district of Temanggung, which especially from the surrounded village of the company location. Some others are from the outside district of Temanggung, especially the more skilled workers.

INFLUENCE FACTORS FOR THE SOCIAL ENTREPRENEURSHIP

The wood processing industry has influenced and gave multiplier effect to the entrepreneurial of the local actors. The local entrepreneurial actors are mostly businesses in small to medium scale wood processing. Some of the large factories are also established by the local investor. The local entrepreneur actors are mainly in numbers business the depot and semi-finished wood industry. Regarding to the capital accumulation, the Temanggung district has historically produced the tobacco as one of main agriculture product of the area. It is especially located in highland area of the district. The tobacco farming has provided high value added to the local farmers and entrepreneurs. Mainly the tobacco farming product is sell as dried leaves to the national cigarette companies. Currently the

district also become marker Most of the national cigarette company has representative office in Temanggung district to manage the tobacco purchasing from Temanggung. The business of tobacco has given capital accumulation to the local farmers and entrepreneurs. The capital accumulation from tobacco production promoted the local entrepreneurs to diversify their business to the wood processing industry.

Training and education in entrepreneurship in wood industry

Entrepreneurial training and education in the wood processing today is still considered less. Support training and education both from the government so far has not touched the small and medium level entrepreneurs. The government support is mostly in the wood farming activity. From the interview, the sample entrepreneur who want to open a new business prefers to take the workers from existing industry that has operated previously. It is expected the transfer of skill and technology are come from the existing industry.

“The ex TKPI (the first large wood company) are easier to get new job in other company due to they have more skill. The high skill of TKPI worker due to the high production technology in PT TKPI i.e. parquet, plywood etc. therefore if they out from company, it is more easily absorbed into other company due to they have mastered more (Public relation of PT TKPI).”

Experience and family history

Most of the villagers in the district make the cultivation for the economic reasons that have less concern to the environmental reasons eq. decreasing the land erosion. For the locals the most reason to the farming crops is ease in sales. Regarding to the wood farming, the raising of wood industry also increases the demand for Albasia wood. Commonly, the farmers in Temanggung farming the wood as intercrops cultivation. It is due to the wood cultivation could not provide regular income in the short term. Mainly the wood farming in the sub district uses the multi-cropping system between wood tree with coffee, cocoa, chili, or other crop. The multi-cropping system provide the farmer with short-term income, and in long-term income through wood farming.

As for the industry, the history of industrial development begins with the establishment of PT TKPI as a pioneer of wood processing industry in Temanggung district in 1994. “PT. TKPI was established in 1994 and made first export in March 1995. The company mainly produced flooring parquet for export (Public relation of PT TKPI). The Enterprise then triggered local entrepreneurs, who have a tobacco business in Temanggung district to follow the initial wood industry activity. “The company owner previously has tobacco business, the current wood company name is APINDO that actually same as the entrepreneurs association. But actually the name is come from the acronym of the owners name that are a family. (Public relation of CV Apindo)

Financial Support

From the survey data, it is about 69% of the wood industry investment come from the local entrepreneurs, while 31% investment is from national and international investors. The condition indicates that the local entrepreneurs financially capable to establish the wood company in Temanggung district. In the development of entrepreneurship, the finance capacity and capital become critical aspects to establish and continue the business. Based on the ownership, the wood processing industry in Temanggung District are mainly based on individual and family investment.

CONCLUSION

The research shows the development process of local entrepreneurship in the wood industry in the district of Temanggung. There are important entrepreneurial driving factors in Temanggung district that are consisted of the experience, family history, training and financial support that influence on local entrepreneurship. On the other hand, the entrepreneurship also gives significant impact on the development of the district. The development of wood industry that started in the 1980s with the emergence of several national scale industries also share to the growth of the region. The investment

location are mostly due to the aspect availability of raw materials, land, and labour. The existence of the wood industry is part of the local capital diversification of tobacco business in Temanggung. The driving factors of entrepreneurship in wood processing industry of Temanggung District were mainly from the previous experience in the wood industry as external factors (external), while the financial capacity to follow the initial industry become an internal support factor. The external factor is related to the business experience in the wood industry had given a boost to local entrepreneurs to start a similar business. The first industry become a reference model of the local entrepreneurs, which get the technology transfer and knowledge through ex-workers. Workers who come out from the initial wood industry then running a similar business, or cooperate with the entrepreneurs who have the capital.

The second factor is the financial support which become the internal factors through the diversification of accumulated capital. Some local businessmen who are historically tobacco farmers or traders develop a new business of wood industry due to the availability of wood as raw material, local capital of land and labour, as well the bounding social value to the location. The local entrepreneurs of wood industry have the social value to develop the wood industry business based on the local advantages and resources. The growth of industry then gives the multiplier effect to the local employment improvement. The local entrepreneurs those have local social community value are encourage the establishing of social entrepreneurship di Temanggung district. The local advantages that was gained from local entrepreneurial activities in the district of Temanggung that wood industry has contributed to the economy development, especially the agricultural sector (for products logs), and industry (for the wood processing industry products).

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DEVELOPMENT OF AGRO-TECHNOPARK MODELS TO SUPPORT COMMUNITY-BASED TOURISM IN THE SIBETAN VILLAGE KARANGASEM BALI

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ABSTRACT

Sibetan village, Karangasem is a center of Salacca (Salak) plant in Bali and considered the origin of salak (salacca) plant. In this area was found 14 cultivar, on the other hands the visitor in agro-tourism salak is very low at 0.008% of the total of 462 233 tourists visiting Karangasem regency. Factors that contribute to the low tourist arrivals to the salak agro-tourism were: 1). The agro-tourism object not managed properly, and lower human resources. 3) The object no yet marketed optimally, in addition to cooperation among tourism stakeholders still low. This study aims to :1) identify the biophysical aspects of agrotechnopark, (2) study the characteristic patterns of the local institutional to support agrotechnopark based on community, (3) study the perceptions and preferences of groups and visitors in the development of agrotechnopark, and (4) formulating development models of agrotechnopark to support community-based tourism. Respondents were farmers, processors, traders and related agencies as 25 people. Data collection with interviews and FGD. Data were analyzed by using scoring techniques and swot analysis. The result showed that 1) Sibetan village could potentially be developed as agrotechnopark with superior object salak garden, processed products made from plants and salacca fruits, unique culture and beautiful scenery in the hills Pemukuran. 2) Society was very interested in developing agrotechnopark to support agrotourism-based community. 3) People really needed assistance both in the field of planning, development and management and assistance in post-harvest processing. 4) Needed to restructure the biophysical, social aspects, cultural, institutional, funding from government and other sources, marketing and increased a network of cooperation.

Key word: Agrotechnopark, Community, Tourism, Salak, Sibetan

INTRODUCTION

Tourism has become one of the industries that have a major impact on economic growth Bali. GRDP of Bali at 73,478.16 billion, the contribution of trade, hotels and restaurants amounted to 30.62% (Bali Dalam Angka, 2011). However, the economic benefit derived from tourism is often accompanied by environmental destruction, land conversion, social and cultural exploitation and criminality (Diparda Prop. Bali 2009; Dharma Putra, 2010). The gap between the tourism industry with agriculture in Bali is also based on the imbalance of revenue sharing agricultural use for the purposes of tourism (Astuti, 2011), so Balinese were reluctant to develop the agricultural sector.

Therefore, Bali, a small island that has natural beauty and unique customs, culture and religion often has to be faced with a difficult choice between developing tourism at the expense of agriculture and the environment, or vice versa. In response to this phenomenon, needed a wise choice is to develop synergy with agricultural tourism by creating environmental friendly tourism packages alternation, equitable as Agroteknopark (ATP) community based in the Sibetan Village. ATP is an application pilot areas of agricultural and post-harvest technologies in an integrated from upstream (aquaculture) to downstream (post-harvest) in a large scale by applying bio- farming cyclo technology without waste. ATP development can improve the welfare of farmers and increase the

competitiveness of agricultural products (Widyastusi, 2010). The main problem in the development of Salacca ATP as the object of agrotourism in the Sibetan Village is the number of tourist visits to agro object is very low at 0.008% of the total of 462 233 tourists visiting 12 tourist attraction scattered in Karangasem (Tourism Office Prop. Bali, 2012). The causes of travelers is difficult to get the fruit to be plucked directly, especially outside the main harvest from December to March (Sumantra et al., 2012; Labek et al., 2013; Sumantra et.al, 2014). There are no any collection gardens and objects of agrotourism are not managed properly from the area made the object of the arrangement, the operational activities of the tour, human resources and marketing (Sumantra et al., 2015).

This study aims to 1) identify the biophysical aspects, (2) study the characteristic patterns of local institutions to support the ATP-based society, (3) study the perceptions and preferences of groups and visitors to the region of ATP in the development of agro-tourism, and (4) formulate development model ATP to support community-based agro-tourism in the Sibetan Village.

RESEARCH METHOD

The research was conducted by a survey method with field observations, interviews, and literature. Data were analyzed by using descriptive qualitative through the understanding of RRA (rapid rural appraisal) and understanding of PRA (participatory rural appraisal), and a SWOT analysis supporting the development ATP of community-based agrotourism ATP. Recommended model of development of community-based agrotourism ATP as a community was based on the identification and analysis of potential environmental and natural resources, agricultural potential to be integrated with the analysis in terms of socio-economic, institutional and partnership in development. The focus of this research was the development model of ATP as a supporting agro-tourism with the approach of community based tourism, which includes: (a) programs to empower communities in developing agroteknopark, (b) community involvement in the planning process development of ATP in the village Sibetan, (c) means ATP and supporting infrastructure development, (d) the promotion of agro-based agroteknopark potential, and (e) encourage the growth of the partnership (partnership)

FINDINGS AND DISCUSSION

General Conditions of Territory

Sibetan Village is a village with a pattern of Life 'society of agricultural field, especially farmers of salacca. The area of salacca farming in this village were pproximately 1,125,000 hectares, located in altitude 400-600 meters above sea level, with temperatures of 20-30 degrees Celsius, as well as rainfall 1.567 mm - 2000 mm per year. Clay soil texture, organic content of C-medium, N-medium, P-very high and K-Very low, acidity pH. Based on soil map which is half detail, Type of evolving soil in the area is typic Hapludalfs, volcanic, isohipertermik (Puslitan dan Agroklimat-Bogor, 1994). Family of soil was found in Districts of Telaga, Karanganyar, Dukuh in Sibetan Village (Sumantra, 2015). Sibetan Village was located in the district Bebandem, 8 km from Amlapura City, 20 km from Candidasa and 80 km from the city of Denpasar.

Sibetan village has typical characteristics of its own, especially interms of natural potential of agriculture, better known as Salacca Plantation, with 14 operating cultivars included Salak Injin, Salak Nangka, Salak White Putih, Salak Boni, Salak Penyalin, Salak Cengkeh, Salak Gondok, Salak Nenas, Salak Bingin, Salak Cemara, Salak Kelapa, Salak Gula Pasir, Salak Muani, and Salak Embadan, accompanied with some operating processed products made from salacca, including: wine, dodol, chips, syrup and candies, which made this village different from other villages in Karangasem (Sumantra, 2015). Farmers in the Sibetan Village at planted the salacca under protecting plants. Protecting plants of salacca plant were very important because these plants were not resistant against sunlight Full (Sumantra et al, 2012.) Other benefits of the protecting plants was enabling to modify microclimate such as air temperature and soil (Sumantra et al, 2012; .. Sumantra et al., 2014), conservation of flora and fauna (Priyadarshini et al., 2011).

Results of the inventory of protecting plants in the cultivation system of salacca grown in Sibatana were amounted to 13 kinds. Dadap plants (*Erythrina variegata* L) showed the highest importance value index (IVI) ie 66.52%, then followed Banana Protecting plants (*Musa paradisiaca* L), with IVI 58.36%, durian (*Durio zibethinus* Murr), Sengong (*albisia falcate*), Coconut (*Cocos nucifera*), mangosteen (*Garcinia mangostana* L) and Gamal (*Glyricidia sepium*) with IVI 25.44%, 24.93%, 24.55%, 22.75% and 20.74% , The identification results showed the diversity of protecting plants were Still low BY Values Diversity indices Operate (H) <1.

The social aspect

Number of families of ten Banjar were 2,186 households with a population of 8,618 inhabitants which consisted of 4,305 male and 4313 female. Village Sibatana education level was still relatively low, seen from the number of people who mostly are in complete primary school level / equivalent as many as 811 people (37.95%), as many as 545 people graduated from junior high school (25.50%), and highest level of education to Bachelor (S1) as many as 305 people (14.27%). Most of the villagers Sibatana livelihood as farmers so that farming community institutions patterned ie farmer groups. Farmer groups to develop agrowista barking is a group of Dukuh Lestari, Mekar Sari groups and farmer groups in Karanganyar village, which is supervised by the Office of District Tourism, Agriculture department and the university. The group has already developed a range of activities in the field of tourism as well as processed products based on fruits.

Sibatana indigenous village has a tradition of such religious processions Ngusaba implementation dangsil, Ngusaba ceremony deha is a rare and unique ceremony, the stage of the deha and young men with oversized clothes is a potential supporter agrowista development. Fostering community about mengolola asset management of natural resources and agro bark is not maximized as well as economic institutions has not run optimally.

SWOT Analysis of ATP as a supporter Agrowisata

a. Strength (Strength)

- The potential for a strong and unique salacca agrotourism in this village is a stretch of a very spacious garden bark is 81.12%. The genetic diversity of salak Bali reached 14 types and not shared by other areas that can serve as a tourist attraction, especially for students, university students and researchers.
- On the sidelines of the bark of plants there are different types of cover crops with wide reaching 13 species.
- This is an ideal habitat for bird life conditions punglor which are now scarce due to poaching.
- Development of Salacca ATP is one of the main implementation of the Bali Provincial Regulation No. 3 of 2013 on the Protection of Local Fruits provide opportunities and a conducive business environment in the development of ATP (Prop.Bali Government, 2013).
- Farmers were already capable of yielding a household product industry based fruits such as rice wine, chips, dodol, palm bark, candied bark, bark pia and culinary products made ponds (puppies bark) as a vegetable bernuasa Sibatana regional specialties.
- It was also a plantation area of environmentally friendly, because the farmers never used chemicals.
- A beautiful panorama in the region Pemukuran at the south end of the village area Sibatana gave the beauty form paddy fields and a valley with a panoramic view of the beach in the district of Manggis.
- The area was also close to attractions Bukit Putung, tourist attraction Candi dasa, Tirta Ganga and Pura Agung Besakih.
- Sibatana traditional village has a tradition of such religious processions Ngusaba implementation dangsil held for 4 (four) months, deha Ngusaba ceremony is a ceremony that is rare and unique, is a performance of the deha and young men with oversized clothes.

b. Weakness

- Implementation regulations Bali Province No. 3 in 2013 have not been implemented optimally makeover.
- The types of salacca that there has not been managed well and there is no collection garden and feared some kind will be extinct.
- Travelers were difficult to get the fruit to be plucked directly, especially outside the harvest season (December-March), in addition to the quality of the fruit not meet the standards.
- The object of this agro not managed properly from the area made the object of the arrangement, the operational activities of the tour, and human resources.
- There are adequate lodging facilities available and the path of travel is clear.
- As a tourist attraction, ATP Sibeten village has not marketed its full potential, in addition to the cooperation among tourism stakeholders (governments, local communities, the tourism industry, and academia) have not been going well.
- People did not have experience in managing ATP as a tourist attraction.
- The funds for the settlement area was not yet available .

c. Opportunity

- A visit to Bali travel from year to year showed an increasing trend .
- Development of ATP as an agrotourism would be able to preserve and simultaneously created opportunities formation of new cultivars .
- Economic community will be increased due to the results of domestic industry which produced such as chips, dodol, wine, pia and palm bark can be marketed as souvenirs typical of the garden barking.

d. Threat

- The establishment of new agro-tourism in the area adjacent to the object of salacca agrotourism feared to disrupt the continuity .
- The effect of the development of agrotourism often rub together when it is not prepared as mature as possible , especially the culture brought foreign tourists.

ATP Development Strategy as Community-based Tourism Object

a. Planning development and marketing

Community empowerment was a process for the community's independence in order to improve their living standards by using local resources as possible. The process of putting the public as the main party or the center of the development. Training programs that were been undertaken by the Government of Karangasem regency was in the form of training and coaching to improve the ability of communities in order to utilize existing resources. In planning the ATP as a tourist attraction, people participate in field practice by providing learning the facts that occurred in an area such as a survey or study. Through these activities the community will be directly aware of the problems, so that people have an idea to make a plan in accordance with local conditions.

Indicators of achievement for community empowerment Sibetan views of capabilities: (1) The public was able to access the means of production and marketing; (2) The public was able to produce a superior product that is worth the high rate so that the program becomes a partnership ATP educational tourism education from various regions; (3) Improving the status and self-image in their cultural identity.

b. Infrastructures of Salak Agro Tourism Development Support

The ingredients were all things that could n be used as a tool to achieve goals. Tourism infrastructure were all facilities that allow it to tourism facilities coul g live and develop as well as to provide services to tourists to meet their diverse needs (Yoeti, 2008). Structuring and manufacturing facilities

included a car park, residences, offices, product showroom farmer groups, the (object) main sights, footpaths, public toilets, gardens and a collection of other facilities.

Arrangement of tourist objects that include structuring the garden barking, demonstration garden, garden collection, garden arrangement in view Puncak Pemukiman banjar Hamlet, manufacture of refined products based on fruits banjar Ponds. Agrotourism supporting institutional empowerment should be encouraged. Organizational units will act and perform tasks according to their function. Women Farmers Group will provide products of domestic industry has produced. Group in charge directly as agrotourism team do its work ranging from receiving guests, accompanying and member services to tourists.

c . Promotion of Sibetan Salacca Agrotourism

Promotions were the means used by the company in an attempt to inform, persuade and remind consumers directly or indirectly on the products and brands they sell. Many forms of promotion done by the Department of Tourism is heavily influenced by the needs of the service as well as based on a target of increasing tourism commodities to increase foreign exchange.

d. Community Support

Community of Sibetan village had not understood the concept of ATP as a community-based tourist objects. The introduction of the model ATP caused them know and agree to develop the business as it would give a wider impact for economy village and employment opportunities for local communities. Support of fruit products, processed, diversity Sibetan village Salacca panorama of natural and cultural potential possessed villagers made Sibetan Village was interested in developing it. This was realized by providing information and input more in-depth about the plans and hopes to develop agro barking. The development plan is expressed in the form of charts and maps about things that need to be worked out in the recana.

Besides, people needed support in capacity building, which was still considered to be insufficient, especially in ethics vacancy, language acquisition and management arrangements. The trainings related to tourism and tourism needs were given to the community, and the communities need to be involved in planning the development of agro-tourism in the region (Budiarti et al, 2013).

Villagers in Sibetan also required funding sources to support agrotourism, whether the source of funding later through BUMDes or form cooperatives or other sources what are benefit and ease in obtaining funding in developing a domestic industry that had been developed at this time. In addition, the community was in need of regulation that could be set and also used as a reference in the management of agro components so that all involved could be benefit and fairness.

e . Encouraging the growth of partnership (partnership)

For the creation of regional autonomy , in accordance with the legislation , especially UU No. 32 in 2004 , the Regency Government reserves the right to conduct its own policy by conducting programs in accordance with the conditions and potential in the regions , namely through agriculture -based tourism sector. The programs included were the cooperation / partnership with private institutions who were fully committed to the advancement of agriculture-based tourism sector , which is creating a partnership of Sibetan Salacca Agrotourism .

Evaluation of Community-Based Agrotourism Sustainability

Evaluation of sustainability community based salacca agrotourism in the Sibetan village of the physical, socio-economic and cultural aspects indicated that the physical aspect requiring corrective action and restructuring further. While the social aspects of economic and cultural aspects showed a good direction towards sustainability. Some facts in Bali showed, the development of tourism facilities were followed by the land conversion. These events should be anticipated through the specific regulations that could be written in awig awig (rules) of indigenous villages, thus increasing the value of land use were able to increase the income and standard of living. In line with the research results of other countries such as Malaysia that the development of agrotourism were able to raise public awareness about sustainable development, improve the system of social empowerment,

strengthen social bonds them and develop social skills in relation with the increase of people's income, diversification and intensification of economic activities, providing employment and poverty alleviation (Hamza et al., 2011). The development model of ATP as a tourist object needs to consider a variety of factors at play, including physical factors, community and socio-cultural, economic, technological, legal and policy aspects, the level of supply and demand farm tours, experience gained by tourists when visiting the tourist area of agriculture. These factors needed to be analyzed to get the appropriate development model (Budiarti et al, 2013).

Recommendation of Model of Development ATP as community-based agrotourism of Sibetan Village

- The potential diversity of plant salacca, protective plant species based processed products of fruits, natural beauty and unique culture that is owned by the Village Sibetan developed for the preparation of agro-tourism program.
- Potential gardens and natural beauty synergized with the potential for processed products in the community could be offered to visitors in the agrotourism program.
- Structuring the path between the salacca garden, improving environmental hygiene, and processing midrib pruned for the composting.
- Capacity building in both the manufacture of processed products, and services of good service to guest visitors.
- Building garden collection to prevent the extinction of certain types because nowadays the growth were scattered and unprotected.
- Improving the sustainability of agriculture through conservation of resources (land, water, vegetation, and wildlife).
- Increasing the cooperation and partnership of stakeholders for the sustainability of agriculture and improve the synergy of agriculture with tourism.

CONCLUSION

1. Sibetan Village has the potential development of ATP as a tourist attraction with a leading community-based overlay salacca garden, refined products made from plants and fruits , unique culture and beautiful scenery in the hills Pemukuran , Banjar Dukuh.
2. Community of Sibetan Village were very interested in developing ATP as a community-based agrotourism attractions.
3. Community really need assistance both in the field of planning , development and management of agro-tourism as well in post harvest processing of fruits.
4. Need to restructure the biophysical , social aspects , cultural, institutional , government funding and from other sources , marketing and improvement of cooperation networks .

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BENEFIT DISTRIBUTION IN RURAL CLUSTER DEVELOPMENT MODEL: A CASE OF TOURISM SECTOR IN BOROBUDUR, MAGELANG CENTRAL JAVA, INDONESIA

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ABSTRACT

Tourism development is a part of rural cluster development models. It can be the stimulating the Small and Medium Enterprises (SME) in the rural development area that can bring benefit to local people. Taman Wisata Candi Borobudur is located in Borobudur Village, Borobudur Sub-District, Regency Magelang, Central Java, Indonesia. Borobudur is one of the most visited tourist destination in Jawa Tengah. It can be seen from the number of visitors both domestic and foreign increased year to year. The benefit of the high tourist visits have been used by local people who work in tourism sector, there is an increasing of innovations in tourism, increasing of transportation facilities, and also the innovation of local product. Referring to the concept of Equity-Based Development, the focus is twofold. The first is on what aspect the local community can benefits from Borobudur Tourism, and the second is on how well equity is applied to the benefit distribution. The result show that there are some benefits that local people can accepted from this rural development and also the failure of benefit distribution in local community income. Borobudur tourism have a high migration number caused of people who find a job and that impact to the competition to get a job. It can reduce the job opportunity for the local community. The government of Borobudur may have something to do with this outcome.

Key words: benefit distribution, tourism development, Equity Based Development, Taman Wisata Candi Borobudur, local community

INTRODUCTION

Most in developing countries, tourism sector is an important economy component because it is significant foreign exchange revenues. Indonesia has many tourism destinations with diverse attraction, for example Bali Island, Raja Ampat Papua, Toba Lake, Yogyakarta, Bromo Mountain, and so on. Borobudur temple is one of tourism objects which has a high vistors rate from domestic and foreign tourist. It manage by PT. Taman Wisata Candi Borobudur, Prambanan, dan Ratu Boko (company). In Borobudur temple area, local community also managed other sub-tourism places. Those potential of Borobudur tourism should be able to trigger development around it, especially in Borobudur Village. The data show that number of visitors of Borobudur tourism area always above 2 million visitors every year (borobudurpark.com,2016).



Figure 1. Borobudur Temple and attraction
Source : borobudurpark.com

The good progress occurs because tourism area had been clustered and managed by the local community. Even the growth happened but it had not change the quality of life that much. By 2009 Borobudur regency contributed 5.54% of poverty rate in Magelang Sub-District, and there are 38.5% poor people live around Borobudur tourism area. Because of that, the effect of Borobudur tourism growth should be identified and analyzed about its equity, especially on the distribution of its benefits. The purpose of this study is to identify benefit distribution of the Borobudur tourism area activities. The main question is whether the benefit distributed well and equal for everyone or not, and it considered by several aspects.

MATERIALS AND METHODS

Materials: Tourism Development in the Framework of Equity Based Development

There are many aspects of tourism development that can involve local people. Starting with the construction of infrastructure and supporting facilities, such as roads, bridges, terminals, hotels and restaurants, to various types of creative, household-based, industries. Local communities can thus benefit from the development of tourism to improve their quality of life (Sugiri, 2015). In line with the definition of sustainable development by the WCED (1987), sustainable regional development is development at the regional level that is capable of guaranteeing equity within and between generations without reducing the ability of the related other regions to do the same (Sugiri, 2009; Sugiri et al., 2011). The concept of Equity-Based Development (EBD) by Sugiri (2009) can address the challenge of sustainability. This model involves four functions, in which the application of equity should be ensured, namely that of the benefit distribution (I), the production function (II), the non-production function (III; such as ecological, conservation, and buffering), and reinvestment for sustainability (IV). Figure 1 shows the model in the inter-regional context (Equity-Based Regional Development).

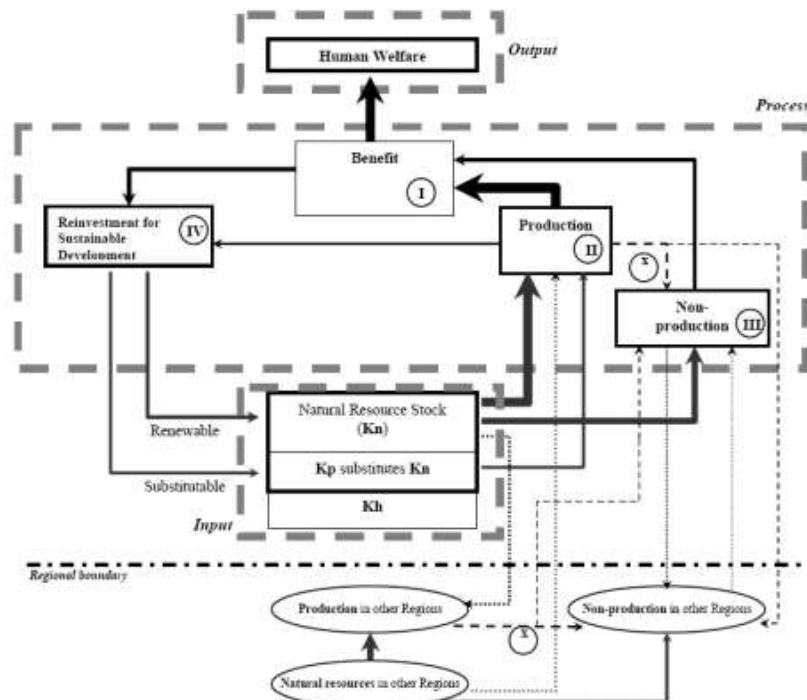


Figure 2. Inter-regional model of equity based development
Source : Sugiri, 2009

Sugiri (2015) said that some equity failures in the production function may also be relevant to tourism because a failure to guarantee equity in this function (Equity II) would cause deep inequality and unsustainability. If public policy fails to achieve Equity I, the implications would be:

- Equity failure Ia, i.e. poverty and deep economic inequality, because the majority of the people are benefiting less than they should be (a worse-off majority). Such occurs when their level of welfare remains low despite their hard work.
- Equity failure Ib, i.e. when access to public services and facilities cannot be allocated equitably. The worse-off people are often hard to service even at basic levels, such as clean water, waste disposal, primary and secondary education, and health care, either because of the unaffordability, or the distance barrier, or other causes.

For Equity Ia (the system of income and employment), the aspects are:

- Job opportunity;
- Taxation;
- Minimum wage;
- Social security.

For Equity Ib (access to facilities and services), the policy aspects are:

- Education services;
- Health services;
- Basic infrastructure (road, electricity, clean water, drainage, telecommunication).

Material scope of this study based on the 8 policy aspects (Sugiri, 2009), such as 1) Job opportunity, 2) Taxation, 3) Minimum wage, 4) Social security, 5) Education service, 6) Health service, 7) Basic infrastructure, and 8) Shelters. But, further in this research, it will mention about benefit distribution of job opportunity and minimum wage from the Borobudur tourism area, Magelang Sub-District.

Area Scope of this study is Borobudur temple tourism area. It is located in Borobudur urban-village, Borobudur Regency. It area is 472 ha and its administration geographical border on:

- North : Bumiharjo village dan Mertoyudan Sub-District
- East : Wanurejo village and Mungkid Sub-District
- South : Teksonggo village, Tanjungsari village and Karanganyar village
- West : Karangrejo village

Methods

This study uses quantitative approach because it is more applying a concept based on the literature review previously about Equity Based Development (EBD). The quantitative data obtain from secondary data and previous research.

RESULTS AND DISCUSSIONS

Job Opportunity

In 1984 - 1994, the number of tourists in Taman Wisata Candi Borobudur increased rapidly. Many tourists coming by the result of developing tourism in Taman Wisata Candi Borobudur this have a positive impact on Borobudur Sub-Districts, even for Regency Magelang. The real profit is the increasing of employment opportunities. While the negative impact is the high of migration for seek jobs and live, so it caused the dense of population in Borobudur Sub-Districts. Trade and services is a dominant community business around Taman Wisata Candi Borobudur. The following is the business distribution in Taman Wisata Candi Borobudur :

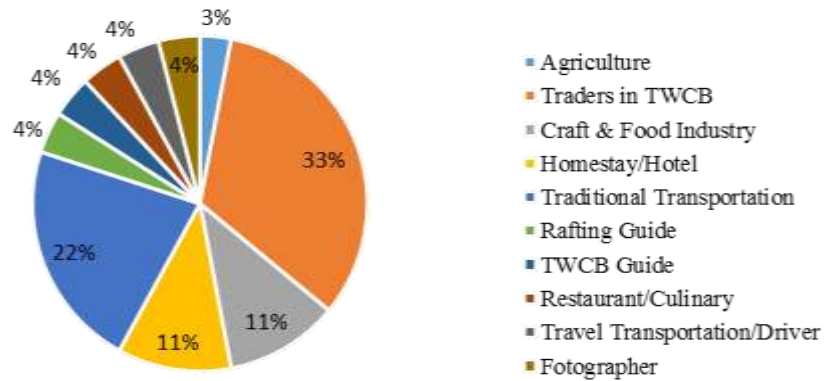


Chart 1 Business Distribution in Taman Wisata Candi Borobudur
 Source : Adhang (as cited in Alie, 2012)

If the businessmen classified based on their domicile, 83% of the businessmen come from within Borobudur Sub-Districts and 17% other is from outside the Borobudur Sub-Districts with details as on Table 1:

Table 1. Businessmen Classification

No.	Business Sector	Comes From Within Borobudur Sub-Districts	Comes From Outside Borobudur Sub-Districts
1	Accommodation	90%	10%
2	Attraction	75%	25%
3	Food and Beverages	70%	30%
4	Transportation	82,5%	17,5%

Source : Adhang (as cited in Alie, 2012)

Profit and positive impact is perceived by local communities around the Taman Wisata Candi Borobudur. It's shown by the low of poverty percentage especially in Borobudur Village. In 2008 the poverty percentage is 15,22% of the population (Adhang, as cited in Alie 2015). In addition, it also shown by the increasing of the employment from 63,22% (2013) be 71,51% (2013). It prove that the development of Taman Wisata Candi Borobudur giving a good impact and profit for local community.

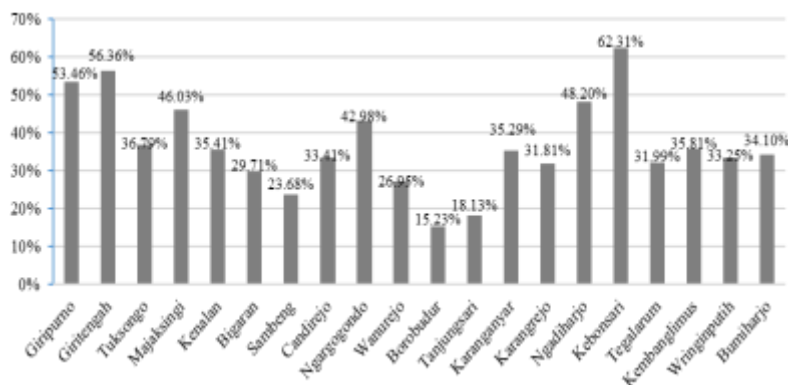


Chart 2 Poverty Percentage in Districts Borobodur (2008)
 Source : Social Protection Program Data Collection, 2008

If examined according to its business in Borobudur Sub-Districts, the results also prove job opportunities by tourism development fairly can be perceived by local people. Business in the Taman

Wisata Candi Borobudur is dominated by non poor. From 73 of 102 businessmen non poor community. According to previous business distribution, traditional transport sector (Andong Tourism) is the second leading sector after trade sector. It is shown a high visitors demand in this two sectors. With the result that traditional transportation able to change 60 % businessmen from poor to better off.

The following below are a table showing the total number of businessmen based on type of activity their business and economic status after undergoing their business. The kind of business activity below classified based on the type of economic activity most often found in Taman Wisata Candi Borobudur.

Table 2 Number of Business based on Economic Status and Activity Types

No	Element	Activity	Businessmen	Economic Status				Poor	Non Poor
				Remains Poor	Non Poor Become Poorer	Remains Non Poor	Poor Become Non Poor		
1	Input	Tour Guide	3	2	0	0	0	2	0
Sub Number			3	2	0	0	0	2	0
2	Related	Street Hawker and Kiosk	25	8	1	10	6	9	16
		Parking Attendant	1	1	0	1	0	0	1
		Fotographer	6	1	0	4	1	1	5
		Wood Craftsmen	2	1	0	0	1	1	1
		Fiber Craftsmen	2	1	0	1	0	1	1
		Pottery Center	2	0	0	2	1	1	3
		Tofu Center	4	0	0	2	0	0	2
Sub Number			44	12	1	22	9	13	31
3	Transportation	Rent Car	4	0	1	3	0	1	3
		Pedicab Driver	6	1	2	2	1	3	3
		Andhong Tourism	5	1	1	0	3	2	3
		Bike Tours	1	0	0	1	0	0	1
Sub Number			16	2	4	6	4	6	10
4	Accommodation, food and drink	Hotel & Restaurant Workers	25	4	2	22	1	2	23
		Homestay Workers	5	0	0	0	1	4	1
Sub Number			30	4	2	22	2	6	24
5	Attraction	Art Workers	3	0	2	1	1	1	2
		Tourism Village	2	0	0	2	0	0	2
		Rafting	1	0	0	0	0	1	0
Sub Number			6	0	2	3	1	2	4
6	Supporting	Tanker	3	0	0	3	0	0	3
Sub Number			3	0	0	3	0	0	3
			102	20	9	56	16	29	72

Source :Adhang (as cited in Alie, 2012)

From Table 2 above, it can be seen that the majority of businessmen in Taman Wisata Candi Borobudur have non poor economic status. The business types most easily to find and and attractive in Kawasan Wisata Candi Borobudur is street hawker, kiosk, hotel and restaurant. It caused by the high of tourist demand needs, more people interested to be a traders and opening kiosks. However, the high number of businesses can't ensure that these efforts can reduce poverty businesses themselves. It can be seen that the poor businessmen who work as street hawker and kiosk still remain in poor economic status, there is also find a number of non-poor traders instead fell to a poor economic status. If seen by the largest possible business activities in reducing businessmen poverty in Kawasan Wisata Candi Borobudur, Andhong Tourism have contribute 60% poverty reduction, from businessmen both

have poor economic status increase to the non poor after work in Andhong Wisata. There are a lot of business activities that can be made by the businessmen to create business opportunities and new jobs for the community around Kawasan Wisata Candi Borobudur. So there are many job opportunities that can be found there besides street hawkers and kiosk due to the efforts mengerjaka does not insure to improve the economic status of businessmen. This can be caused by the number of rivals in trade business and also the least income earned from the business.

Minimum Wage

In 2012, minimum wage in Magelang Regency (Upah Minimum Kabupaten – UMK) is Rp870.000,- this value lower 2,93% than fair living needs in Magelang Regency (Kebutuhan Hidup Layak – KHL) in the same year. Fair living needs in Magelang Regency on 2012 is about Rp896.000,-. If view the structure of labor income in Kawasan Wisata Candi Borobudur, it still a lot of workers who have wages below the UMK and KHL. As many as 60% of workers still have wages below the Rp800.000,-. It indicates that jobs in tourism area Borobudur can not provide income and benefit according to minimum wage (KHL) and fair living needs (KHL) for local communities.

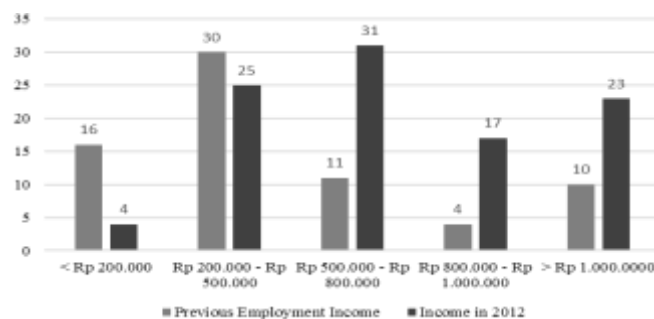


Chart 3 Previous Employment Income and Income in 2012.
Source :Adhang (as cited in Alie, 2012)

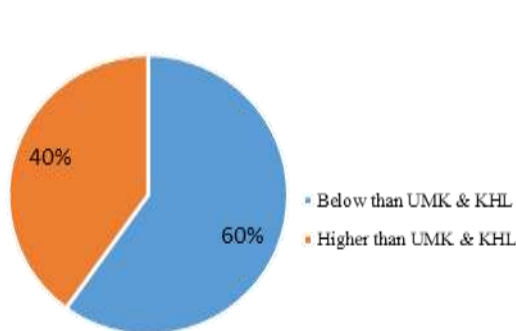


Chart 4 Income Status Against UMK & KHL



Chart 5 Percentage of Total Income

Source :Adhang (as cited in Alie, 2012)

The analysis on 102 workers at Kawasan Wisata Candi Borobudur showed there are 28% of workers have poor economic status (Table 2). This poor workers spread in various kinds of business , as tour guide, street hawkers, photographer, wood craftsman, fiber craftsman, pottery central, car rental, pedicabs, andhong , hotel and restaurant, homestay, artistry, and rafting that have comparison between poor workers and non-miskin relatively balanced (Table 2).

CONCLUSION

The tourism development in Taman Wisata Candi Borobudur have a positive impact on local community. This study discuss about Equity Based Development from benefit distribution in Taman Wisata Candi Borobudur. It use the literature about Equity Ia (the system of income and employment), the aspects are: a) job opportunity; b) taxation; c) minimum wage; d) social security. Job opportunity and minimum wage are the concern of this study. Overall the benefit distribution function on job opportunity of Taman Wisata Candi Borobudur is good. But in the other side, there is a bad condition in minimum wage. The minimum wage in Kawasan Wisata Candi Borobudur is lower than minimum wage Magelang Regency (UMK) and fair living needs (KHL). Equity failure happen pertains in job opportunity. However, the high number of businesses can't ensure that these efforts can reduce poverty businesses themselves. According to the Equity Based theory, Equity failure Ia, impact to poverty and deep economic inequality, because the majority of the people are benefiting less than they should be (a worse-off majority). Such occurs when their level of welfare remains low despite their hard work.

Some recommendation that can be given for the tourism development on Taman Wisata Candi Borobudur: Businesses that have a multiplier effect for the local people should be given the facilities in its business development such as infrastructure support, facilitating the management. Local communities should be the main focus on employment, the development of the tourism area can be maximized. In addition, local people should also be given training so that local communities have the training of new innovations to create other potential that is only found in the Kawasan Wisata Candi Borobudur. And it can be increasing the local community income higher than minimum wage and fair living needs.

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TOURISM CARRYING CAPACITY SUBAK SYSTEM THROUGH TRI HITA KERANA AS LOCAL WISDOM IN BALI

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ABSTRACT

Local wisdom contained in the Bali Hindu concept of Tri Hita Karana. Tri Hita Karana is the harmonization of the three elements of Tri Hita Karana modified into parahyangan, palemahan and pawongan. Where basically the Tri Hita Karana means three sources of happiness or well-being, which is a harmonious relationship and balance between man and God (spiritual aspects / parahyangan), between humans and other humans (aspects of society / pawongan), and between humans and the environment (environmental aspect / palemahan). Subak is not just an institution in agriculture, but also be a part of the local wisdom of Balinese culture with Tri Hita Karana. The agricultural sector into the upstream sector which is very important in the development of tourism in Bali. Tabanan regency as barns have rice area of the total of 22,184 hectares in the province of Bali and to represent the character of the people of Bali are agrarian and cultural values supported causes the development of tourism. One of the components of the landscape and culture into a tourist attraction that agricultural systems becomes wisdom local Bali subak. Agricultural system in Bali known by the term water control system that characterizes and attractions. Subak system entered into the UNESCO World Heritage in 2012, namely as a Cultural Landscape of Bali Province: the Subak System as a Manifestation of the Tri Hita Karana. The increase in the number of tourists and tourism development can also be an impact on the sustainability of Subak Jatiluwih as a world cultural heritage. Sustainable tourism development is the development of increased profits from tourism resources for the local community while the community integration sustainable cultural and ecological, as well as improving the protection of natural heritage of the region and ecologically sensitive. The threshold values for the number of tourists in the area of nature Subak Jatiluwih appropriate physical carrying capacity is 879 people / ha. The threshold values for the number of tourists in the area of nature Subak Jatiluwih appropriate ecological carrying capacity is 11 people / ha.

Key words: Physical Carrying Capacity, Ecology Carrying Capacity, Subak Jatiluwih

INTRODUCTION

Local wisdom contained in the Bali Hindu concept of Tri Hita Karana. Tri Hita Karana is the harmonization of the three components include components parahyangan, komponenn palemahan and components pawongan. Subak is not just an institution in agriculture, but also become part of the local wisdom of Balinese culture with Tri Hita Karana (Susanto Mudhana 1999 in 2009). Agricultural system in Bali known by the term water control system that characterizes and attractions. The subak sytem entered into the UNESCO World Heritage in 2012, namely as a Cultural Landscape of Bali Province: the Subak System as a Manifestation of the Tri Hita Karana.

Subak Jatiluwih included in Catur Angga Batukaru area located in the village of Jatiluwih, Tabanan regency Penebel District with an area of 305.80 hectares Subak. Jatiluwih village has become a tourist village with the beauty of the landscape potential of agriculture (Subak), and tourist activities. The number of visitors to the village of Jatiluwih continue to increase in 2012 the number of tourists as many as 97,099 people, in 2013 as many as 101,560 people, in 2014 as many as 165,158

Things that affect the carrying capacity of tourism region one of which is a factor of the biophysical environment of the tourist sites. In addition to physical factors, the carrying capacity of tourism region is also associated with psychological factors visitor. Construction area of destination as well as on the quality of the object tourist destination of air can cause irritation or disruption to travelers and the environment, in particular, conservation areas (Fandeli and Muhammad, 2009). Besides the impact of tourism on the environment can also be caused due to the use of means of transportation, the construction of tourist facilities, pressure on natural resources, destruction of wildlife habitat and pollution and contamination of other waste (Richardson & Fluker 2004 in Pitana & Diarta, 2009). Such impact when considered because of the influence of human activity by as visitor attractions. According Luchman (2004), the carrying capacity can be decreased or damaged partly because of internal factors are caused by humans.

MATERIALS AND METHODS

The carrying capacity of the tourist area is defined as the level of the presence of tourists that impacts on local communities, the environment, and the economy is tolerated well by the public and the tourists themselves, and to guarantee sustainability in the future (Cooper et al. (1993: 95)). According Soemarwoto, 2004, the carrying capacity of the environment tourist attraction is the ability of nature to be able to accommodate the number of tourists in the area and unit of time. Tourism environmental carrying capacity is influenced by two main factors, namely tourist destinations and tourism location factors biophysical environment. Biophysical factors in the strong influence of natural tourist sites fragility of an ecosystem, the carrying capacity of nature. A strong ecosystem has a high carrying capacity so that it can receive tourists in large numbers.

According Inskeep, in Liu (1994), from Pitana and Diarta (2009: 134) Carrying Capacity is defined as follows: "The maximum number of people who can use a site without an unacceptable alteration in the physical environment, without unacceptable decline in the quality of experience gained by visitors, and without unacceptable impact on the society, economy, and culture of the tourism area ". The concept of carrying capacity of the region implicitly contains restrictions (limit), the upper limit (ceiling) or levels (threshold) that can't be separated from the construction and development of the region, within the limits of carrying capacity is influenced by factors characteristic visitors such as age, gender, income , motivation, attitude and expectations, to tourists, length of stay of tourists, type or types of tourist activity (O'Reilly, 1991, in Richadson and Fluker, 200: 306), Pitana and Diarta (2009: 134). Tourism carrying capacity according to Simon et al., (2004) relates to the maximum number of tourists who can use the facility or destination without changing the physical state or degrade the surrounding environment caused by their travel activities.

Methods

The data collection includes primary data and secondary data. Primary data was collected through interviews with the management techniques Subak Jatiluwih travel. As for the secondary data is done through the study of literature and collection of bibliographic information associated with the assessment of the carrying capacity of the physical and ecological carrying capacity Subak Jatiluwih.

RESULT AND DISCUSSIONS

Physical Carrying Capacity

Physical Carrying Capacity is the maximum number of travelers who are physically acceptable in the area of travel at a specific time based travel criteria Douglass (1975) in Fandeli (2001). Parameters measured in calculating the carrying capacity of the physical nature of Subak Jatiluwih tourism area and consists of a long traveled, the area to travel and the number of tourists. Physical carrying capacity of nature tourism area is calculated by the following formula

$$PCC = A \times \frac{1}{B} \times R_f$$

Description:

A = Area for traveling Subak Jatiluwih

B = The area required by traveled with fixed visitors to obtain satisfaction. Needs of the area traveled per person for picnic activities 65m² (Fandeli and Muhsammad 2009 in Siswanto 2012)

R_f = Factor Rotation in travel activity; namely the average length of time traveled (3.5 hours) divided by the length of the tourist area opened in one day (12 hours, because it opened at 05.00 WITA closed at 19.WITA),

$$R_f = \frac{14}{3,5} = 4$$

Therefore;

$$PCC = A \times \frac{1}{R} \times R_f$$

$$PCC = 305 \times \frac{1}{0,00065} \times 4$$

$$PCC = 187,7 \text{ ha}$$

Tourism Capacity

The carrying capacity of the existing physical, it can be calculated capacities of tourists to area nature tourism, which are as follows;

$$\begin{aligned} \text{Tourism capacity} &= \text{The number of tourist} / \text{PCC} \\ &= 165158/187,7 \\ &= 879 \text{ orang/ha} \end{aligned}$$

So that the capacities for travelers with tourism destinations, according to the physical the carrying capacity of is 879 people / ha. This value implies that for every 1 ha area to use to nature is able to accommodate 879 people, while still obtaining the physical comfort of nature in the tour.

Ecological threshold values can be maintained or even can be improved if the condition of ecological tourism Jatiluwih Subak data is maintained or improved.

Ecology Carrying Capacity

Ecology Carrying Capacity measured parameter is the number of tourists, while other parameters have been defined in Douglass (1975 in Fandeli, 2001).

$$AR = \frac{D \times A}{CD \times TF \times 43560}$$

AR = The required to tourism activity

D = Demand tourists to a activity; in this is the number of tourists to the natural attraction , namely 165,158 tourists .

A = The needs of every traveler in feet² area; in this case the area of nature provided that 3,050,000 m² or 32829925.5 feet²

CD = The number of days used for a particular activity; then CD = 364

TF = Recovery Factor; by Douglas (1975) in Fandeli (2001), for the value of nature tourism activities Tf = 1

he calculation of the ecological the carrying capacity of tourist Subak Jatiluwih Subak travel with an area that 3,050,000 m² atau 32,829,925.5 feet²

$$AR = \frac{D \times A}{CD \times TF \times 43560}$$

$$AR = \frac{165158 \times 3282992,5}{364 \times 1 \times 43560}$$

$$AR = 34196,39 \text{ acre}$$

$$AR = 13838,78 \text{ ha}$$

Capacities of tourists to the area is the nature of Subak Jatiluwih

$$= \frac{1615158}{13838,78}$$

$$= 11 \text{ orang/ha}$$

This value implies that for every 1 ha area used for nature is able to accommodate 11 people / ha. Ecological threshold values can be maintained or even can be improved if the condition of ecological tourism, Quality can be improved. Convenience ecological needs to be maintained or improved considering travel as a world heritage Subak Jatiluwih

CONCLUSION

The conclusions obtained from this study are (1) The threshold values for the number of tourists in the area of nature Subak Jatiluwih appropriate physical carrying capacity is 879 people / ha.; (2) The threshold values for the number of tourists in the area of nature Subak Jatiluwih appropriate ecological carrying capacity is 11 people / ha.

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A COMMUNITY-BASED APPROACH TO RURAL TOURISM: CASE STUDY IN PADUSAN VILLAGE, PACET DISTRICT, MOJOKERTO REGENCY

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ABSTRACT

In this time, tourism sector becomes one of prospected sector and has multiplier effect for areas development. One of the tourism approach is Community Based Tourism. Community-based tourism development would seek to strengthen institutions designed to enhance local participation and to promote the economic, social, and cultural well-being of the popular majority (Brohman,1996). The development rural areas by using potential officials and empowerment rural communities is one way effective in improving economy of the village (tourism strategies and rural development,1994). Indonesia as a tropical country has own potential resources for rural tourism. Rural tourism can be expected to play an important role in the growth of both agriculture and tourism simultaneously. In this case, Padusan Village is an example of rural tourism in Indonesia. Padusan Village stipulated as one of agriculture area which supported economic activity in Mojokerto regency and also familiar with the scenery around. As a majority, The local community in the padusan derive their main income as farmers and sell their commodity in the market near a principal attraction in Padusan Village but the tourism sector still has some constraints so that its necessary existence of a tourism development strategies for increasing local revenue. This research has 2 aims which are to know the potential and obstacle that supported community-based approach and formulate the appropriate development concept for Padusan Village. The potency is Mojokerto regency included as one region of national activity centre in Indonesia. In other hand, there is still lack of the role of the government in the development of Padusan village, so therefore it needed to improve the role and coordination from the local village representatives and other stakeholder involvement in tourism development, such as the government, tourism investors, NGO, scholars and social organisations.

Key words: Rural Tourism, Padusan Village, Tourism, Community

INTRODUCTION

In this time, tourism sector becomes one of prospected sector and has multiplier effect for areas development. As one of Asia's largest countries in terms of physical size, Indonesia, contains great potential in tourism sector. According to Ministry of Indonesia's tourism Creative Economy, in 2014, tourism contributed about 5,7 percent to Indonesia's GDP Growth, up 9,39 percent point from 2013. Indonesia has a potential in the rural tourism sector, it recorded if there are 967 tourism villages scattered throughout the country. Tourists who come to the tourism village will enjoy the natural scenery of rural areas and the local customs. (susyanti,2013). During the rural tourism activities, local people have carried out some improvements on their village assets. In 2008, the Indonesia's government launched a project to transform villages into tourist destinations. Rural tourism includes village tours and outdoor activities such as farming and the local activities. Indonesia has the potential to expand such initiatives because villages have diversity of cultures, traditions and handicrafts to attract tourists.

East Java, one of province in Indonesia, has a fortune of the natural attraction which abundant compared with the surrounding provinces. East java also known as centre of agriculture in Indonesia. There are many villages with the main attraction and additional attraction in agrotourism. The research was conducted in Padusan Village sti, one of agriculture area which supported economic

activity in Mojokerto regency and also familiar with the scenery around. This study aimed to identify and formulate the appropriate development concept for Padusan Village by community based tourism approach.

METHODOLOGY

The location of this research is in padusan village, pacet district, Mojokerto regency. The approach for this research was mainly descriptive. Researchers are collecting data through questionnaires and in-depth interviews with selected informants in the study area. And also do the field observation to Padusan Village and the raw data are processed or analyzed by using SWOT to decide tourism development efforts in Padusan Village. This study discussed the potential and obstacle that supported community-based approach and arranged the development planning.

RESULTS AND DISCUSSION

Literature Review

Over the last 20 years the concept of sustainable tourism has been developed to counter the threats which unmanaged tourism can bring. One of the sustainable tourism approach is Community Based Tourism. Community-based tourism development would seek to strengthen institutions designed to enhance local participation and to promote the economic, social, and cultural well-being of the popular majority (Brohman, 1996). A community participation approach envisaged that the approach can increase a community's carrying capacity by reducing tourism's negative impacts while enhancing its positive effects.

Community based tourism is regarded as being less harmful to the socio-cultural environment because the local population is in control, they decide which cultural traits they share with their guests. Community based tourism projects would also have less negative impacts on the natural environment. Community members are often the best to judge what is best for their natural surroundings. The small-scale character of Community based tourism also means that small amounts of tourists are visiting and therefore do not cause overcrowding of the socio-cultural and natural environment. The success of Community based tourism relies on the goodwill and cooperation of local people because they are part of the tourism product. If tourism development and planning does not match with the local aspirations and capabilities, this can destroy the industries' potential. Local participation is generally regarded as a contributing factor in the success of development projects, it is now incorporated in policies of many NGOs and governments (Breugel, 2013).

There are ten basic principles of Community Based Tourism ; 1) Admitted , support and develop local community in tourism industry 2) Involving community members to initiating every aspect, 3) Develop the community pride, 4) Develop the life quality of community, 5) Ensuring the sustainability of environment, 6) Retain the unique character and cultures at local area, 7) facilitating the study of cultural exchange on a community, 8) appreciate diversity culture and human dignity, 9) Distribute advantage in justice to community members 10) Take a Role in determining the percentage income in a project which is held by community (Nurhidayati, 2013). Also, in community based tourism approach, the stakeholder take an important role. The stakeholders of the rural tourism development consist of six groups namely government, tourism industries and NGOs, local communities, tourists or visitors, and universities. They play roles differently and shall work simultaneously in applying the principles of sustainable rural tourism development. (Buidasa, 2014)

Profil of Padusan Village

Mojokerto Regency is a [regency](#) in [East Java](#) province. It is part of the Surabaya metropolitan area (known as Gerbangkertosusila) which comprises [Gresik Regency](#), [Bangkalan Regency](#), Mojokerto Regency, Mojokerto City, [Surabaya](#) City, [Sidoarjo Regency](#), and [Lamongan Regency](#). Mojokerto

Regency divided into 18 districts and it covers an area of 717.83 sq. km. The population of the Regency was about 1,054,248 in 2014. Many of them earn their living as small farmers and craftsmen (consisting shoemakers, furniture makers, and souvenir makers). Main sectors of Mojokerto Regency is the agricultural and tourism. Several areas in Kabupaten Mojokerto having the potential of agricultural which are Pacet district, Trawas district and Gondang district. In this case, the study area is limited to Padusan Village, Pacet district. In Mojokerto's Masterplan, Pacet district directed to be centre of agricultural production and tourism.

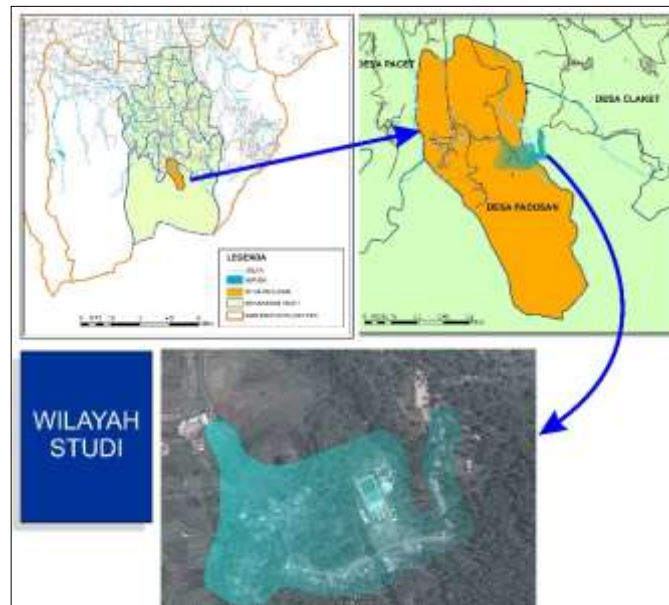


Figure 1 the Study Area

Geographically, Padusan Village has an area of 676 Km² wide and located 500 m above sea level. The area is dominated by forest and agriculture area. The agriculture area has an area about 15.801ha. According to geographical location, padusan village located in the highlands where is suitable to developed a variety of agricultural commodities and plantation with a kind of diverse, so that it may become a source of income for the local community. In Padusan Village there is a tourist attraction/ Padusan Ecotourism namely Wana Wisata Padusan. This region has an attractive landscape character, the abundance of natural resources such as rice fields, plantations, waterfalls and rivers. The position of the region is hilly and unique topographical conditions make this region has a beautiful scenery. Wana Wisata Padusan in the slopes of Mount Welirang, where the area around the pine trees flourish. attraction offered by Wana Wisata Padusan is a pool of water heat, tourism market, Flying FOX, high rope session, ATV, Mini Cros, Trail adventure

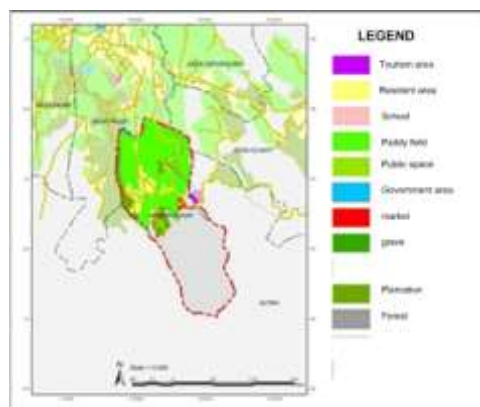


Figure 2 Padusan Village's land use

As majority, local residents in Padusan Village come from Javanese ethnic and their religion is moslem. Sometimes they do religion activity once week called pengajian and it influenced to their social bond. The local community in the padusan derive their main income as farmers and sell their commodity in the market near a principal attraction in Padusan Village (Wana Wisata Padusan). As annual event, there is kirab budaya or a cultural parade. This event held as as a form of gratitude to God for the crops that they obtained.



Figure 2 Wana Wisata Padusan’s Market

Tourism Attraction in Padusan Village

On the supply side of tourism, there are composed of five important components ; attractions, services, transportation, information, and promotion (Clare A. Gunn,1979). Based on a survey in 2014, the components could be explained as follows.

Table 1 Tourism Supply in Padusan Village

No	Components	explanation
1	attractions	attraction offered by padusan village is a pool of water heat , tourism market,Outbond facilities and the natural scenery
2	services	There are many traders and warung that sell the commodity from Padusan Vllage
3	Transportation	The road in tourism location less wide and damaged so it needed to an improvement
4	Information	Most of visitors lack of information about the attraction that offered in Padusan Village
5	Promotion	During this time the media used to promote Padusan Village is catalogs and exhibitions but there information is no information about the facilities that offered. Also, there is no official web of Padusan village in digital media. By promoting rural tourism using digital media tools, the number of visitors to tourism villages can increase significantly

Based on the results , there is still a deficiency from these five parts in the Padusan Village, so in the development its important to consider from these five components of tourism supply

Stakeholder contributions

In this section, the researchers limited the analysis on Wana Wisata Padusan as Padusan Ecotourism. Government comprises local governments at district and regency levels. The roles of government as stakeholders are to provide policies and site plan and other planning documents. Mojokerto Government trough Tourism department has contribution in developing Padusan Village. In an effort to improve the potential wana tourism in kabupaten mojokerto, mojokerto’s governor, mustofa kamal build a cooperation with the perhutani in development and management of tourism wana padusan The mojokerto’s government has allocated by IDR 50 billion to provide supporting facilities in Wana Wisata Padusan (<http://www.bumn.go.id/>).

Perhutani, a company engaged in the field of forestry (especially in Java and Madura) and the duty and authority to organize the management of Forest Resources with due respect to the production / economic , social and environmental aspects That is because the area of ecotourism Padusan located within the forestry authority. Local communities comprise group of wana wisata

padusan's traders, Padusan's Government, Farmer Group, Karang Taruna (Youth Organization), PKK (Program at village level to educate women on various aspects of family welfare). According to survey, Karang taruna and PKK is currently still less connected in the development of the village of padusan, the role of the young generation is still low because many prefer to leave and work in the city. Karang taruna as social organizations which consists of youth is also needed their role in village development especially work in social. Next required guidance and the motivation from the village Government so that young generation can help programs from the government and as one of stakeholder in community based tourism approach

SWOT Analysis

The SWOT analysis is concerned with the analysis of an organization's internal and external environment with the aim of identifying its internal strengths in order to take advantage of its external opportunities and avoid its external threats, while addressing its weaknesses. The SWOT matrix is very useful for generating a series of alternatives for a development of padusan village unit based on particular combinations of the four sets of strategic factors.

		INTERNAL	
		Strength	Weakness
SWOT		<p>Padusan village had fertile soil type that is suitable for arable agriculture and plantation commodities</p> <p>There is Wana Wisata Padusan as one of main tourism object in Mojokerto Regency</p>	<p>The relationship between institutions/stakeholder in the padusan village less closely</p> <p>The lack of involvement from the young generation in rural development</p> <p>there is no a specific characteristic or image forming of Wana Wisata Padusan</p>
EXTERNAL	Opportunity	<p>Mojokerto Regency as a part of the majapahit kingdom</p> <p>There is a development planning for infrastructure in wana wisata padusan</p>	<p>STRATEGI S-O</p> <p>Maximize the development of wana Wisata padusan by improving the facilities</p>
	Threat	<p>Less monitoring of the government towards the development of Wana Wisata Padusan</p> <p>Natural conditions are erratic so susceptible to landslides</p> <p>There are many Agricultural and plantation products which are come from another district and sold in wana wisata padusan</p>	<p>STRATEGI S-T</p> <p>Improve coordination between the village government , the Department of Tourism and the Department of Perhutani</p> <p>give priority to the agricultural products of Padusan village for sale in trade zone in wana wisata padusan by increasing the quantity and quality of the aspect of agricultural</p>
		STRATEGI W-O	STRATEGI W-T
		Develop a cultural element of Mojokerto so that it can become a regional identity from Padusan's Village	Increase the participation of stakeholders in Padusan village's planning padusan

The SWOT matrix uncover four major strategies namely:

1. SO strategies focus on how to use strengths of a business to take advantage of opportunities.in this case study, the SO strategy is Maximize the development of wana Wisata padusan
2. ST strategies attempt to utilize the strengths of a company to avoid threats, .in this case study, the ST strategies are Improve coordination between the village government , the Department of Tourism and the Department of Perhutani give priority to the agricultural products of Padusan village for sale in trade zone in wana wisata padusan by increasing the quantity and quality of the aspect of agricultural

3. WO strategies aim to eliminate weaknesses to open new opportunities. .in this case study, the WO strategy is Develop a cultural element of Mojokerto so that it can become a regional identity from Padusan's Village
4. WT strategies are basically defensive and mainly act to minimize weaknesses and avoid threats. in this case study, the WT strategy is Increase the participation of stakeholders in Padusan village's planning padusan

CBT Approach

According to potential and obstacle It needed the The government's role for Involving community members to initiating every aspect in Padusan Village's development. The government should accommodate social aspects on their plan, the plan that not only accomodate the economic and physical aspects, but also social aspect to involve the development with the local community. In macro spatial Padusan Village is divided into residential , agriculture space ,tourism area. Scope of planning is divided into two residential areas and agriculture as a supported area, while Wana Wisata Padusan as the main planning area. Settlement area used as a supported area because in the development concepr it will be built as homestay to stay for visitors. Meanwhile, the resident will take a role as Service's supplier. The homestay will be built with the architecture of Java to make it more attractive. Settlement area is also equipped with a home industry that processes craft items such as souvenirs which will be marketed in Wana Wisata Padusan .The existence of home industry can increase participation and income of local communities. For example is accommodate potential Padusan village through the museum of the Jamu (herbal medicine) industry . In addition Mojokerto regency is also a center for herbal medicine industry " Dayang Sumbi " , but so far the consumer is declining. Therefore , Wana Padusan as one tourist attraction Mojokerto can uplift return potential of herbal medicine industry center. Furthermore, the farm is also used as a supported area. most of the residents work as a farmer. Agricultural production can be procesed and then sold in the market in the Wana Wisata Padusan. Wana Wisata Padusan conceptualized as the main planning focus area , because it can boost the local economy Padusan village community through various sub- sectors that are developed in the planning block area.

CONCLUSION

The identification stage suggests that the potential and obstacle that supported community-based approach. are associated with several things. In Padusan Village there is a tourist attraction/ Padusan Ecotourism namely Wana Wisata Padusan. In an effort to improve the potential wana tourism in kabupaten mojokert also build a cooperation with perhutani, but the problem is the participation of local community is still low. The government should accommodate social aspects on their plan, the plan that not only accomodate the economic and physical aspects, but also social aspect to involve the development with the local community. According to SWOT analysis, there are 4 strategic plan, which are come from the Strength, weakness, Opportunity and threat in Padusan Village. Those strategies also consider with basic principles of Community Based Tourism. According to potential and obstacle It needed the The government's role for Involving community members to initiating every aspect in Padusan Village's development. The government should accommodate social aspects on their plan, the plan that not only accomodate the economic and physical aspects, but also social aspect to involve the development with the local community

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DEVELOPMENT OF "AL BAROKAH" ORGANIC AGRICULTURE CLUSTER AS VILLAGE TOURISM DEVELOPMENT OF "AL BAROKAH" ORGANIC AGRICULTURE AS VILLAGE TOURISM CLUSTER

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ABSTRACT

Ketapang village at Susukan Subdistrict, Semarang Regency, Central Java Organic farming has grown. Achievement of this village along with a group (cluster) Al Barokah farm organic rice farming field has been highly recognized at regional, national, and even international. In addition to his achievements in the field of organic to the village is very beautiful and great potential as a tourist destination area. This is corroborated by the results of the study of Central Java Regional Research Council (2011). Ketapang village at Susukan Subdistrict, Semarang Regency, Central Java Organic farming has grown. Achievement of this village along with a group (cluster) Al Barokah farm organic rice farming field has been highly Recognized at regional, national, and even international. In addition to his achievements in the field of organic to the village is very beautiful and great potential as a tourist destination area. This is corroborated by the results of the study of Central Java Regional Research Council (2011). Due to the cluster member society, the main activity is organic rice farming, the Tourism Village Educational on Organic Field. The market potential is wide open given the increasing awareness of healthy food organic based. There was also a trend of people on vacation enjoying the countryside. However, because of tourist arrivals is not much, it would require the development of specific strategies to the cluster. Due to the cluster members of society, their main activity is organic rice farming. The potential market is wide open given the increasing awareness of healthy food organic based. There was also a trend of people on vacation enjoying the countryside. However, because of tourist arrivals is not much, it would require the development of specific strategies to the cluster. This paper is based on research which conducted by the method of observation to the location, observation of the web (www.albaorganic.com) and some social media, became guests (tourists) in the village and also conducted interviews with village leaders (clusters leaders). This paper is based on research conducted by the which the method of observation to the location, observation of the web (www.albaorganic.com) and some social media, became guests (tourists) in the village and conducted interviews with village leaders (clusters leaders). Descriptive analysis were done based on Tourism Based Community and Cluster Development Theories. Descriptive analysis were done based on Tourism Based Community and Cluster Development Theories. Findings from our study indicate that the village of Ketapang yet widely known as a tourist village. The number of guests who have been less than the maximum or the capacity to receive guests (tourists) a lot left. Already recognized by the villagers about the benefits of receiving travel guests include organic rice will be more popular that demand for rice will also increase. They will also be more involve women farmers who have produced a wide range of processed food products. Based on discussions with community leaders agreed on the existence of specific activities in the field of tourism. Development will be done by forming special teams, using online media (especially those already owned) and promotion by personal selling. Cluster members are optimistic this particular field can run well. Our study found that the village of Ketapang not yet widely known as a tourist village. The number of guests who have been less than the maximum or the capacity to receive guests (tourists). Already recognized by the villagers about the benefits of receiving travel guests include organic rice will be more popular that demand for rice will also increase is. They will also be more involve; women farmers who have produced a wide range of processed food products. Based on discussions with community leaders they agreed on the existence of specific activities in the field of

tourism. Development will be done by forming special teams, using online media and promotion by personal selling. Cluster members are optimistic this particular field can run well. Its because they have the resources, including personal. It is because they have the resources, including good personality. They just need some training and other development activities They just need some training and other development activities.

Key word: tourist village, cluster, organic farming, village development Keyword: tourist village, cluster, organic farming, village development

INTRODUCTION

Organic Farming has growing in the Ketapang Village at Susukan District, Semarang Regency. Farmers at those organic farming into Al Barokah Cluster. The main harvest of these groups is an organic rice. The marketing area of Al Barokah's organic rice including Jakarta, Bandung, Bogor, and several cities in Central Java. In connection with the activities of organic farming and its beautiful natural environment, Ketapang Village is very interesting to be visited by tourists, especially traveler with themed organic educational. This is confirmed by research conducted in Central Java Regional Research Council in 2011 to identify their potential Ketapang village as a tourist destination areas, it is in terms of Attractions, accessibilities, amenities and aciallery services. The description of the potential Ketapang village are as follows:

- Attraction: They are producer of organic rice (agricultural products are unique), a beautiful natural landscape, how to learn environment.
- Accessibilities : easy to reach (9 km from Salatiga) with good road, impassable public transport and is included in the path (network) other tourist destination (Rawa Pening, Ambarawa and Salatiga).
- Amenities : have parking facilities, places of worship, lodging (home stay), inadequate public toilet facilities. Although not yet available additional services (eg, ATMs) but the village is already connected to the internet.

Findings from our study indicate that the village of Ketapang is not yet widely known as a tourist village. The number of guests who have been less than the maximum or the capacity to receive guests (tourists) a lot left. This paper will discuss how to develop Organic Farming Village to be Tourism Village.

LITERATURE REVIEW

Cluster

A simple definition of a cluster is "the geographical concentration of industries which gain advantages through co-location" (Bosworth and Broun, 1996). A Simple definition cluster is a groups of companies and spatially dominated by one sector. This definition use by researchers who conduct research cluster in the developing country (Schmitz and Nadvi, 1999). A broader definition is the "geographic concentrations of inter-connected companies and institutions in a particular field" (Porter, 1998). Nowadays, AC initiatives are starting to be seen as a key approach to help promote the agricultural sector of developing countries. Agriculture Cluster initiatives are starting to be seen as a key approach to help promote the agricultural sector of developing countries. The promotion or inducement of such clusters has The promotion or inducement of such clusters has Table 2. Commonalities and differences of approaches to support clusters in developing countries Similarities Differences (Nogales, 2010) commonalities and differences of approaches to support clusters in developing countries Similarities Differences (Nogales, 2010).

Cluster approaches recognize that all the actors in the agricultural value chain are often more innovative and successful when they interact with supporting institutions and other actors in the supply chain. Cluster approaches recognize that all the actors in the agricultural value chain are more innovative and successful when they have interaction with supporting institutions and other actors in the supply chain. By promoting vertical and horizontal links between local agricultural enterprises, as well as supporting relationships between them and facilitating organizations (eg local governments, research institutes and NGOs), cluster policies promote the diffusion of innovation, as well as the use and generation of important local externalities. By promoting vertical and horizontal links between local agricultural enterprises, as well as supporting the relationships between them and facilitating organizations (eg local Governments, research Institutes and NGOs), cluster policies promote the diffusion of innovation, as well as the use and generation of important local externalities. ACs can also enhance access to markets and information. ACs can also enhance access to markets and information. (Nogales , 2010) (Nogales, 2010).

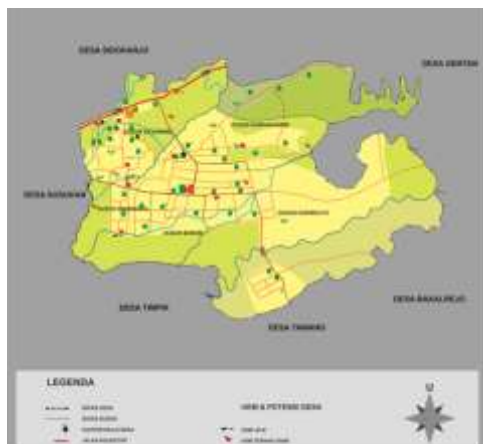
The World Tourism Organisation defines sustainable tourism as 'tourism that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment and host communities' (UNWTO, 2012). The World Tourism Organization defines sustainable tourism as "tourism that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment and host communities' (UNWTO, 2012). Brohman (1996) states that 'community-based tourism development would seek to strengthen institutions designed to enhance local participation and to promote the economic, social, and cultural well-being of the popular majority' (p.60). Brohman (1996) states that 'community-based tourism development would seek to strengthen institutions designed to Enhance local participation and to promote the economic, social, and cultural well-being of the popular majority'. Hatton (1999) describes CBT as innovative tourism development in local communities, involving individuals, groups, small business owners and local organizations and governments. Hatton (1999) describes as innovative CBT tourism development in local communities, involving individuals, groups, small business owners and local organization and governments.

METHODOLOGY

Data Gathering by interview with the leader of Al Barokah Cluster, Obsevation on Location. Data gathering by interview with the leader of Al Barokah Cluster. We also did observation on location. Researcher also do participation research, we the practice of being a guest for 2 days.

RESULTS AND DISCUSSIONS

The Location



Map of Ketapang Village, Susukan District , Semarang Regency , Central Java . Maps of Ketapang Village, Susukan District, Semarang Regency, Central Java.

Sources : (bps.go.id) (Sources: bps.go.id)

Activities in the field of Organic Farming Cluster

In 2007 received the Technical Assistance of Green Ear Net and Thailand on the standardization of organic products. In year 2012, the project received certification from the LSO Inoffice ISO 6729.2010 No. 062 / LSPO-003-IDN / 10/12. Until 2015 there were 16 Farmer Group, 158 farmers in five villages namely Ketapang, Timpik, Koripan, Kenteng, and Sidoharjo Area in District Susukan been certified by the ISO of Inoffice no. 062/LSPO- 003-IDN/10/15 dengan luasan 332,76 hektare. 062 / LSPO- 003-IDN / 10/15 with an area of 332.76 hectares. The scope of certification is rice (white, black, red), glutinous rice (black and white), bran (brown rice and black rice), flour (white rice, brown rice and black rice).

Tourism in Ketapang Village

- Guest / Tourist who come to Al Barokah : Guests with the purpose of learning about organic farming, it usually comes from a farmer groups from other regions, researchers in the field of agriculture (undergraduate up to doctoral students, and another researcher)
- Organization Member Companies :Secondary school children are learning to live in the village (live in or Field trip). Long stay guests: for a researcher or farmer groups usually stay longer (one week up to three months). Guests who stay for the purpose of Live in staying shorter (three to five days) They live in for personality development, organizational development, the introduction of environmental and others. In connection with the activities of tourism, in the village there are two groups of people who have been serving the arrival of guests.
- Group of Learning Center Al Barokah : Learning Center is an institution were established for organic farming instructional media. They learn among others. Material of learning are the introduction of organic farming, manufacturing of organic pesticides and organic fertilizer production. Learning Center Al Barokah Group support training activities either for farmers or members of the outside community (including tourists who come to visit).
- Women Farmer Group II (Annisa) : Annisa Women Farmers Group is a group formed for the empowerment of women farmers in the village. The group is active in harvesting their crops. The main activity is a routine meeting, savings and loans, and produces a variety of local food. In the tourism activities Annisa women farmers annisa role in providing food services and accommodation, also sales souvenirs. Before guests arrive, board member or Cluster will hold a meeting to organize a guest's arrival, things that need to be addressed It is a welcome activity, distribution of the population living in the home and guest activities during on-site.

Hospitality as perceived by guest

Guests feel comfortable with the situation and the environment of the village. Ketapang Village like other villages, most residents work as farmers. Therefore environmental conditions of the village is still fresh. Guests were impressed with acceptance committed by citizens. Ketapang villagers always were very accepting of tourists, it is indicated when we arrived. In extreme events, where the host does not know if it will be used as a host. They still will graciously receive the guests. Tourist placed in the main bedroom (the best area of the residents). Guests will treated food more than enough. There are many alternates menu that is served by the host, and even the main menu meets the four criteria healthy food. All of the farmers have will be served to guests, regardless of profit and loss. Guests experience is quite exciting, they follow host's activities as a farmer.

Is Al Barokah well known as Tourism Village?

To determine whether Al Barokah has been known as a tourist village, we do some searching on albarokah activities in tourism, we found on the internet.

- Googling "Al Barokah " we only found "organic farm" When we googling "Al Barokah" we only found "organic farm".
- Googling "Al Barokah Tourism Vilage ", we didn't find any result. When we googling "Al Barokah Village Tourism", we did not find any result.

There are no information from Al Barokah that they can receive guest/tourist ? Also there are no upload information from guest that had been visited Ketapang Village. So how Ketapang village as a place of organic farming became tourist village? All can occur because of the networking that occurs among Agricultural Cluster with various parties. Cluster administrators also actively present their activities and their villages. It was the emergence of demand for activity tourism in Ketapang Village District of Susukan. Thus a lot more to do personal selling.

CONCLUSION

Ketapang Village have attractiveness in the field as producer of organic rice (unique agricultural products), knowledge in the field of organic farming, sustainability on environmental aspect, and beautiful natural landscape. Ketapang have Organization which is already well. There are two groups of farmers commissioned to manage tourism activity at this organic farm. They will give what they have for consumption and accommodation guest. This corresponding with character of rural community. However, they need to be considered aspect business. They no take into account aspect business, so that still will be big question is tourism activities will give benefit ekonomi for community?

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CREDIT AND REGIONAL ECONOMIC: A REVIEW

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ABSTRACT

Economic growth is a proxy of the regional economy. However, the high economic growth in Indonesia has not been able to reduce poverty and unemployment significantly. This is evident from a comparison between the high value and low economic growth rate of decline in poverty and unemployment. There is related between poverty, social inclusion of economic and financial inclusion. Poor people are generally more difficult to access social services, financial services and growth. Many studies show that encourage access to financial services can contribute to the reduction of poverty and economic inequality. The Indonesian government is committed to encouraging access to financial services as part of a poverty reduction strategy. Quality economic growth increasingly marked by widening the economic gap between rich regions and poor regions, between rural and urban areas, as well as the poverty rate is still quite high. One of the policies is expected to improve the quality of economic growth, overcome poverty and unemployment is the empowerment and development of Micro, Small, Medium Enterprises and Cooperatives (MSMEs and cooperatives). SMEs and cooperatives sector has a dominant role in the Indonesian economy. This is evident from the contribution of the SME sector and cooperatives in the formation of national GDP, economic growth, the number of business units, and employment is quite large compared with the contribution of big business sector. The role of the SME sector and a very large cooperative can also be seen from the number of its business units, about 99.99 percent of the existing business unit in Indonesia in 2007. Year of 2020 will be designated as the Year of Financial Inclusion, after earlier in 2005 has been designated as the Year of Microfinance by the United Nations (UN). Microfinance loans have a very important role in economic development. Therefore, credit is often associated with poverty reduction. The new paradigm for regional development should be directed to equity, growth and sustainability in regional economic development.

Key words: Access, Credit, Growth, Inclusion, MFI, SMEs, Poverty, Regional economic development, Rural and urban areas

INTRODUCTION

Some facts in formulating the problems generally associated with the role of credit to the regional economy in the region of Sulawesi, namely: (1) the contribution of banks in capturing the SMEs market, which reached the figure of about 30 per cent nationally, indicating the difficulty of SMEs to obtain credit or gaps between knowledge of SMEs with products and procedures for banking credit, (2) the endurance capacity of SMEs during the post-crisis shows that micro-enterprises in particular, it is feasible in the business but not bankable in accessing credit, (3) relation to the economic development of the principal problems facing in the financial sector which is the uneven allocation of credit. Thus the need for policy development financial institutions by increasing the role of financial institutions, banks and the SMEs access to capital and financing of economic activities in the area.

Economic growth and development will never be separated from the economic actors. Still a lot of inequalities of economic growth that does not comply with the conditions of society based on the low level of growth in lending in order to finance the productive sectors. The issue of inequality of regional development issues related to development policy which is further expanded by the disparity of economic development. In order to increase economic growth in a region that takes into account

the services sector, especially banking services which in this case is closely related to credit from financial institutions.

Conditions that represent the contribution of microfinance through a credit against Gross Regional Domestic Product (GDP) as a proxy for the regional economy can be understood through lending by MFIs and banks that continue to be improved, so as to encourage regional economic growth. Credit has an important role in financing the economy and driving force of economic growth. So it is important to analyze the role primarily through credit growth in the sector concerning what the credit channeled. Therefore, need to conduct a comprehensive study related to credit and regions that combine economic and geographic. This is an important requirement in the economic development of the region. The level and pattern of credit in an area can be created in a model association in improving the economy of the region.

In a major study on the economic growth, the main indicator used is the GDP. Therefore, the link between the credit that comes from MFIs as one of the banking institutions that are part of a monetary policy tool, are expected to participate and encourage the region's economy, especially in terms of economic growth. The role of MFIs in the promotion of economic growth can be seen as part of the role of monetary policy on economic activity, due to micro-credit as a financial product would encourage the production and consumption activities of SMEs. At first, the monetary system will be affected by monetary policy which affect the interest rate, credit, and the money supply, as well as investment and consumption to GDP will be affected. The influence of this monetary policy will respond to the bank and then transferred to the real sector through investment and production activities by groups of small enterprises in various sectors of the economy.

In the area of economic development, the government uses GDP as a benchmark basis of the regional economy. Governments need to consider other alternatives to be able to continue to improve its regional revenue, one of which is to consider the services sector, especially banking services. While the economic theory of development, the financial institution is considered as one of the inputs to spur economic growth. The financial institution is the complement to the other input in the allocation of development resources in order to achieve efficiency and effectiveness of development. Special credit by credit institutions to the economic operators is expected to increase linearly welfare that will affect the economic development of the region.

DISCUSSION

Regional development strategy needs to consider the diversity of the potential of the region in order to increase economic growth. Slowing economic growth will be impacted spatially across the whole of Indonesia. Areas experiencing the highest economic growth in the period 2012 - 2014 is the region of Sulawesi.

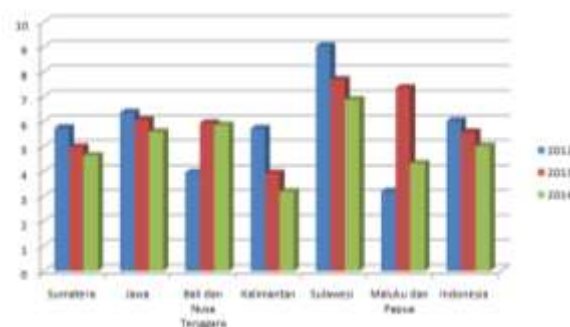


Figure 1. Growth by Region in Indonesia (percent)

Source: www.bps.go.id

The ability of a region to manage their resources will determine the pace of economic growth as an indicator of successful development. In addition, the regional autonomy policy provides extensive influence in the determination of regional development planning system. The key to successful

decentralization seen from the parameter of local Government Assessor autonomy era, among which the economic life of the ability of local government to improve the welfare of the population. In addition one of the challenges faced by the regional head for the gap is still a barrier factual development of the area of monetary gaps. This gap can be understood through the absorption of public funds through banks in the area, but only a few people in the area of savings is channeled back in the form of credit for the local community.

Credit is one input at a time incentives for people to do activities. So that the linkage relationship can determine the productivity and affect the growth of development in a region. The level of uptake of credit from one region to another region in a region different course which is influenced by many factors. If the loan portfolio grew to the height, the accelerated increase in economic activity areas will experience significant movement especially in creating a climate of regional economy that is likely promising rising per capita income and vice versa. The amount of credit that can be used by people closely related to per capita income that support the regional economic growth.

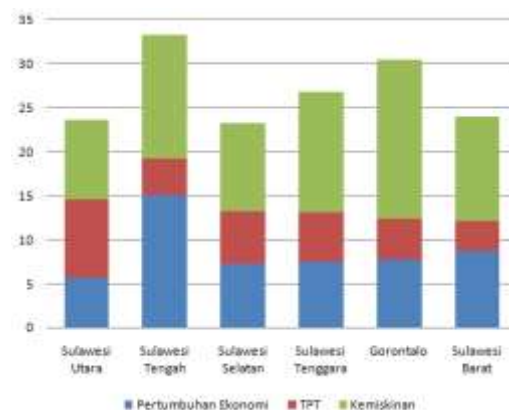


Figure 2. Economic Growth, Unemployment Rate and the rate of poverty in the region of Sulawesi in 2015 (Percent). Source: www.bps.go.id

Strategy and the government's role in the regional economy is to increase economic growth and regulate the supply of public goods (allocation), reducing inflation and unemployment (stabilization), and implementing equalization (social justice) or distribution. The role performed by the real sector (goods sector) and the monetary sector (financial sector). The real sector can be understood through the Indonesian economy which can not be removed from their role of Micro, Small and Medium Enterprises (SMEs). SMEs in every sector of the economy reflects the real form of social and economic life that form the majority of the people. The development of SMEs as one of the economic actors who play a role in the economy is inseparable from the support of banks in lending to SMEs. SMEs loans are loans to borrowers of micro, small and medium enterprises that meet the definition and criteria of micro, small and medium enterprises as stipulated in UU No. 20/2008 on SMEs. Under the law, SMEs are productive businesses that meet the criteria of the business with certain restrictions on net worth and annual sales revenue.

SMEs in Indonesia amounted to 107 657 509 people and created employment for 97.16 percent and contributed more than 59 percent of the gross domestic product of Indonesia. This indicates that the SMEs sector has a strategic role and can be relied upon to support the economy in Indonesia. The main issue for the SMEs sector is the limited access to the financial sector. More than 50 million SMEs in Indonesia, only about 17 percent of offenders who obtain credit facilities from banks. Difficulties for SMEs to access bank is due mostly to the SMEs feasible but not bankable (Permana 2013). Monetary sector understood through Industry Banking and Microfinance Institutions (MFIs). MFI has evolved as a means of economic development aimed at creating employment and income, increase productivity and incomes of vulnerable groups, reducing the dependence of the rural population to the risk of crop failure due season, and the diversification of business activities that can generate income (Arsyad 2008). MFI types vary greatly, both in terms of the institutional side, the

purpose of establishment, culture as well as other targets. MFIs in Indonesia can be classified into two types of banks and non-banks. MFI bank consists of rural banks (BPR) and BRI Unit, while non-bank formal MFIs include cooperatives (Credit Unions and Cooperative Village Unit) and Pawn. Microfinance institutions still play a major role for the community, especially those in rural areas.

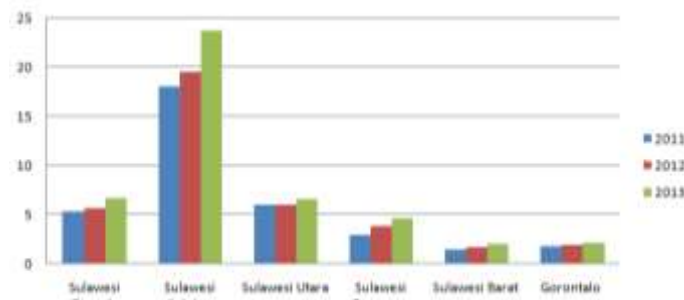


Figure 3. Credit SMEs in the region of Sulawesi (Billion USD)
Source: Indonesian Banking Statistics (2015)

SMEs loans in particular small and micro credit is important, both from the standpoint of the government and the employers who need credit. From the government side, the credit can be used as a tool to drive the local economy through SMEs. Loans will have an impact on business extensively including increased economic activities. Thus, the credit is very important for the government to improve people's welfare. From the user side, the credit is considered very important, because employers generally experiencing barriers to capital to make new investments or to make changes to the technology. Credit is not only important in terms of the development of SMEs, but more importantly that the credit is intended for entrepreneurs who have financial constraints and limited access to formal financial institutions. Therefore, it is urgent for financial institutions to work on micro and small enterprises more seriously in order to boost national economic growth.

In the theory of micro-finance, high SME loans will increase access to finance which would then encourage the ability of SMEs to expand its business and strengthen their resistance to various socio-economic upheavals that occurred. In this regard, the role of credit to the economy to be important, especially from the aspect of macro and micro aspects of economic growth in micro and small enterprises.

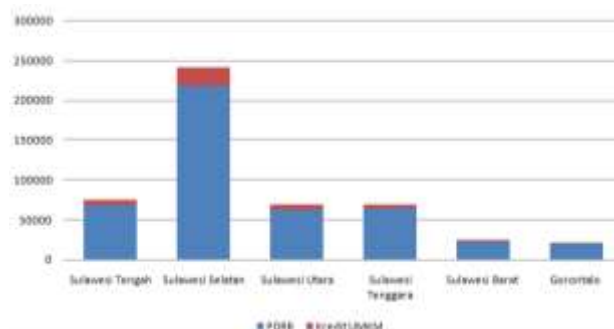


Figure 4. Gross Regional Domestic Product at Constant Prices (2010 = 100) and SMEs credit Sulawesi region in 2013 (Billion USD). Source: www.sulut.bps.go.id

Other monetary sector's role can be understood through the banking industry has an important role in the economy as intermediary institutions that channel funds into the investment society of productive assets that will drive the real sector productivity, capital accumulation, and growth in aggregate output. Based on the indicators of regional economic growth and the allocation of credit, there are indications that the credit acts as a stimulator of economic growth. The role of credit is very important to encourage the real sector's role as a derivative of fiscal and monetary policy that is able to accelerate the region's economy in the real sector. Credit became the impetus to multiply the

economic activity in the real sector. Thus, with the increase in business will be an increase in labor demand, which in turn can reduce the level of unemployment and poverty at the regional level. If these conditions can be improved, the development of the region will be achieved resulting in equitable development.

CONCLUSION

The role of MFIs in the autonomous regions as bases in the development of microfinance. Basically, microfinance is a synergy and also the implementation of the philosophy basis of confidence in the value of "people driven" in the autonomy. Focusing mainly on the economic development of SMEs is very strategic to achieve broad-based development or development through equity (Ismawan 2003). Micro finance function is to provide capital support to increase business. Funding requirements after receiving capital support will increase. So it takes the MFI to continually serve the needs. Some things are played by MFIs in such regional autonomy is: (1) Supports Growth Equity - Microfinance services are widely will effectively serve the various developments micro enterprises turned into a small business. This will certainly facilitate equitable growth; (2) Overcoming Gaps Towns and Villages - MFI comprehensive range that includes the villages and towns is a breakthrough development. The development of microfinance capable to reach villages and towns will reduce the gap villages and towns; (3) Overcoming Gaps Big and Small Business - Sectors which have had access and easy to develop themselves is a big undertaking. Then, with the financial support of small businesses will be able to reduce the gap that occurs. In addition, with the rapid development of small businesses will help support the development of large enterprises, and vice versa; (4) Reduce Capital Outflow of Rural - City and Regional – Central :- Access to factors of production from rural communities, has been absorbed by the urban community. While the capital outflow from the regions to the center are also strong indications occur. It can be seen from the development of large cities is so rapid and increasingly leaving regional growth. MFIs play a role to facilitate rural community or region can reuse the savings they have accumulated; (5) Improve Regional Autonomy - Factors of production (capital, land, HR) is the strength of the area and used to capitalize on the opportunities available in order to reduce dependence on investment from outside the region and improve people's economic investment. Local independence will certainly have an impact on the growth of national self-reliance in the form of equity, the balance of urban and rural growth, and reduced the gap large businesses - small businesses. Obviously this will reduce the likelihood of regional instability. Jealousy by itself would be reduced, as well as equitable prosperity would lead to a multiplier effect as well as the interdependence between one part and another. The era of regional autonomy is an opportunity for economic empowerment of the people by the MFI. Through microfinance, the economic revival of the people (and the national economy) as well as poverty reduction will be done by the people themselves.

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THE POTENTIAL OF SOCIAL MARKETING ON A COMMUNITY BASED AGRICULTURAL COOPERATION IN INDONESIA BASED THE VIEWPOINT OF FORTHCOMING GLOBALIZATION

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INTRODUCTION

Background

Many countries surrounding the Pacific Ocean are currently concerned over the Trans-Pacific Strategic Economic Partnership Agreement (TPP). The TPP is an international agreement that aims to form a unified market for goods and services, including farm products, and to reform the structure of trade and distribution in the Pacific Rim Area. Therefore, it is important to study the status quo and future prospects of the Asian countries' agricultural production. Based on the status quo that Japan was also one of the countries supporting the internationalization of the agricultural marketing, this report advances understanding by comparing farming between Japan and other Asian countries.

The purpose of this paper is two-fold. First, this paper helps understand the structure of management of Indonesia's agricultural production area in comparison with a typical Japanese agricultural company. Second, this paper considers a growth strategy for Indonesia's agricultural production area on the basis of the influence of global agricultural trade dynamics. In rural areas, agricultural production activities are integrated with social life. Thus, comparing the features of farming in the context of rural planning is very important from both an academic and practical perspective. Previous Japanese studies have conducted observational and analytical research on paddy field management in Indonesia. For example, Tanaka et al. (2004) surveyed the trend of productivity and profits of organic paddy rice. Higuchi et al. (1999) proposed the optimal planting plan for a paddy field by using linear programming. Fujita et al. (1990) analyzed the labor force structure and productivity of conventional farming practices for paddy rice and two or more other crops in Kecamatan Cisarua.

However, there are few studies comparing the conditions of fruit and vegetable production areas between Japan and Indonesia. Regarding studies analyzing agricultural systems and organizational structures of fruit-and-vegetable production areas sustaining stable growth only Asami (1997), Kobayashi et al. (1995), and Higuchi et al. (2001) conducted such analyses after 1990. In recent years, the main concern over Indonesia's agricultural market has shifted from paddy fields toward vegetable distribution, thus indicating that the traditional market in the area has become inferior to modern supermarkets (W.J.F. Alfa Tumbuan et al., 2006). This research concentrates on a company that has no wholesale practices with large-scale companies, such as supermarket affiliations, and has expanded its business size through individual relationships within Indonesia. One study concluded that a weakness of Indonesia's traditional market for the modernization of the supermarket is adverse conditions, such as inadequate infrastructure and location. Interestingly, the company reviewed here has different characteristics.

Shinkai (2008) detailed the different types of Japanese agricultural companies and determined that there were four types using cluster analysis and results obtained from an interview with an agricultural company's administrator. This paper, however, re-classifies these companies into three types (Table 1) by unifying two similar categories from Shinkai's model. The company under analysis in this paper is the closest to the company type B. However, it is difficult for a company in cluster B to maintain dominance with high personnel expenses or low-priced agricultural products in the Japanese domestic market. This paper investigates the management structure of a paprika production

company that highly values customer reliance and maintains cooperative relationships because it rivals many companies in the market.

Table 1 Classification of management type: Agricultural company in Japan

	Interest in non-agri business	Interest in overseas advance	Other features (Agricultural companies of this type are...)
Type A	Very strong	Very strong	Very active in management expansion like a general company.
Type B	Weak	Medium	Believe that preservation of agricultural land in the area holds maximum preference and give priority to goods' quality on the basis of the company's interests.
Type C	Weak	Weak	Act conservatively and have comparatively high sales volume. Are interested in the dissolution of an abandoned cultivated land and preservation of agricultural land in the area. Do not recognize that the market mechanism is functioning in the agricultural market in present Japan. Have sales scales that are comparatively large.

Note: This classification is made in reference to Shinkai (2008).

Outline of this article

The structure of this paper is as follows. The concept of social marketing, a main methodology of this research, was described briefly in Chapter 2. In Chapter 3, a geographical overview of the study area and an overview of the management scale and management policy of the surveyed company were described. In Chapter 4, we conducted a SWOT analysis based on the strategy of the surveyed company and considered a strength and weakness of the management strategy, and a challenge and opportunities, which would be faced at a future stage of management development. At last, I summarize the findings of the present study on the basis of the evidence in Chapter 5.

METHODOLOGY

An analytical discipline of this research was social marketing, proposed by P. Kotler et. al. (1971, 2008). At first, P. Kotler and G. Zaltman (1971) defined it as "Social marketing is the design, implementation, and control of programs calculated to influence the acceptability of social ideas and involving considerations of product planning, pricing, communication, distribution, and marketing research." After that, P. Kotler and N. R. Lee (2008) redefined it as "Social marketing is a process that applies marketing principles and techniques to create, communicate, and deliver value in order to influence target audience behaviors that benefit society (public health, safety, the environment, and communities) as well as the target audience," through the substantive research.

Briefly speaking, social marketing is a discipline of marketing and management, compatible with the prospering of the community in which a company is located and sustainable development in business with its trading partners. When thinking of the continuous development of the rural community, it is significantly contributive for the company rooted in the region to expand the business on the basis of social marketing. In Japan, domestic farming will face significant price competition owing to TPP negotiations. Under such circumstances, a cost cut by the selection and concentration of management resource and increasing income by expanding exports have been promoted. In the context of examining an alternative to this direction, considering the management method of the agricultural company investigated here is meaningful.

Agricultural company in Japan:

- Interest in non-agri business
- Interest in overseas advance
- Other features (Agricultural companies of this type are...)

Classification of management type:

- Type A Very strong / Very active in management expansion like a general company.
- Type B Weak Medium / Believe that preservation of agricultural land in the area holds maximum preference and give priority to goods' quality on the basis of the company's interests.
- Type C Weak Weak / Act conservatively and have comparatively high sales volume. Are interested in the dissolution of an abandoned cultivated land and preservation of agricultural land in the area. Do not recognize that the market mechanism is functioning in the agricultural market in present Japan. Have sales scales that are comparatively large. Note: This classification is made in reference to Shinkai (2008).

Outline of study area and company

This research analyzes M-Co., a large company in the area that operates in the paprika market with large-scale agricultural land in Desa Pasirlangu, Kecamatan Cisarua, and Kabupaten Bandung Barat. This area is located in the mountainous region of the West Java state, situated in the Midwest of Java Island (Photo 1). Desa Pashirurangu is a mountainous agricultural region located two to three hours from the capital of Bandung by car. Pathway leading to the village from the urban areas is a continuous uneven dirt road along the valley (Photo 2). For these circumstance, it is inconvenient areas of daily life as well as the location condition from the perspective of customer attraction. Interviews were conducted with the company's accountant (Bendahara), Mr. E (42-year old at the time).

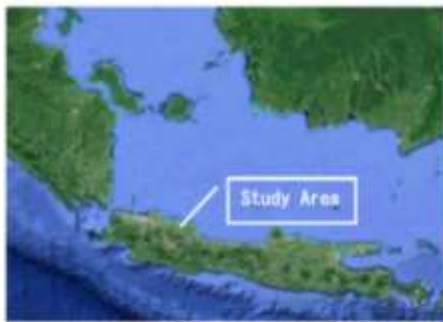


Photo 1 Study area in Java Island



Photo 2 Landscape from uneven dirt road to the village

The following analyses are based on Mr. E's interview responses. M-Co. was founded in 1995 as a free organization and has grown into a licensed company, which was consistently employing local farmers. Since its inception, M-Co. has cultivated solely paprika and sold only raw paprika¹. Almost all its trading partners have been individual wholesalers, who have been trading with the company for many years. M-Co. does not trade with other large-scale companies like supermarkets in the domestic market, because of preferential saving margins. In addition, whether intermediate wholesalers trading with M-Co. deal with the major traders was unconfirmed by the survey, though M-Co. does not do so directly. However, the buyer or seller usually has to transport goods from the store in the mountainous area to urban areas via bike, when they transact. Therefore, for a buyer wholesales a large amount of fresh merchandise to a large store such as supermarkets and hotels is rare, since the amount that can be traded at any one time is limited. Owing to the rate of domestic business is about 70 % of total volume of transaction, M-Co. was a kind of domestic-minded company. While the number of transactions has differed mainly due to the rise in the number of customers, which has been increasing by 5% per year as a result of its reputation and word of mouth, the company has not changed the price per unit shown in Table 2.

Table 2 Wholesale price of paprika (kg unit price)

Variety (color)	High Quality	Low Quality
Yellow	45,000 rupiahs	16,000 rupiahs
Red	40,000 rupiahs	15,000 rupiahs
Green	20,000 rupiahs	10,000 rupiahs

A total of about 6 to 7 tons of paprika is shipped at per week and, in the case of domestic trade, the company incurs the total transportation cost. Total annual gross income, including earnings and government subsidies, is valued at approximately twice the total cost, including transportation and employment costs for farmers.² Each employee of M-Co. shared his success experience and agricultural know-how; nevertheless, they have a salary incentive based on their individual farm work accomplishment. Moreover, the employees of the competing neighboring company have the same custom. This is because the farmers of the area share the social norm of reciprocity that only their own affiliated company should be successful. Furthermore, M-Co. emphasizes client relationships with focus on mutual trust. It does not accept orders that exceed its supply capacity based on its own experience that most customers rely on mutual trust about prompt and accurate commodity supply rather than commercial of their commodity. In addition, M-Co. accepts orders from new customers only after ensuring that the needs of existing customers have been satisfied, thereby placing less emphasis on profit maximization. The company also prioritizes the accumulation of knowledge and skills regarding cultivation management, which it deems crucial for maintaining the quality of commodities.

Moreover, although it has not expanded its farming scale, no restrictions have been placed on land use or on the size of the workforce. Considering the above management discipline, it can be seen that M-Co. balanced a competitive superiority in market share with the stable development of community. That is, it can be thought as an example of a company that has been successful through social marketing.

RESULTS OF SWOT ANALYSIS AND DISCUSSIONS

Insight from the situation in which Japanese companies are located

Currently, in Japan's agricultural management structure, the strengthening of the competitive farmhouse power is needed to influence the TPP, and the flexibility to adapt to rapid international marketing has become important. Therefore, the small farmers wanting to continue operations but lacking global competitiveness are in a crisis. On the other hand, social marketing, anticipated to be a method of stable development of the community, was not based on a rational allocation of resources by selection and concentration. Thus, whether the business based on social marketing would continue to be dominant or not in the future market competition is interesting. This section examines the future of the Indonesian agricultural production from the viewpoint of the internationalization of the agricultural product market. This is done by systematizing fragmented information gathered in a field survey about management strategy and the principles and methods of maintaining client relationships following a logical framework using a SWOT analysis. A SWOT analysis allows for strategy formulation on the basis of a company's business condition matrix that comprises internal (strength and weakness) and external factors (opportunity and threat).

Future of Indonesia's agricultural production area

Table 3 presents the results of the SWOT analysis conducted for M-Co. It is assumed that there are two internal factors regarding the company's marketing strategy. The first is "M-Co. intends on domestic development" and the second is "M-Co. intends on global development." The SWOT

characteristic “Opportunity” (external factor) is a population increase in Indonesia or a neighboring country, which would lead to an increase in the number of consumers. Moreover, the farming village offers superior climatic conditions for cultivation, coloring and, taste of paprika. On the other hand, “Threat” is the risk that efficient workers will exit from the agricultural industry as a result of the declining attraction to the industry in light of urbanization and industrialization in Indonesia. Next, the study hypothesizes that M-Co.’s “Strengths” are its intentions for domestic development, which are popular in the domestic market, and its dependence on loyal, valued customers. On the other hand, it hypothesizes that its main “weakness” is the social norm of reciprocity in the area that only M-Co.’s affiliated company should be unsuccessful, which can hold back the company’s growth. Moreover, M-Co.’s “Strengths” in the virtual market is its persuasion of global development with the intension of worldwide competitiveness. This is because the area has surplus land and labor force on which M-Co. can capitalize. On the other hand, the company’s “weakness” in that this scenario is associated with a risk of a decrease and the loss of trust in domestic customers and stable trade with existing customers in exchange for increased customer volumes in foreign countries. The results of the SWOT analysis show that M-Co. can adopt the following strategies.

Table 3 SWOT analysis of management deployment in M-Co.

	Opportunity	Threat
	- Consumer expansion due to an increase in domestic and neighboring country population - Optimal climate conditions for paprika cultivation	- Reduction of agriculture by urbanization (wages lower than those in other industries)
Strength: Orientation toward domestic development - Most popular in domestic market - Loyal, valued customers	Strategy for gaining an advantage using ones strength Maintenance or expansion of a sales channel in an individual company and pursuance of high-quality goods	Strategy for avoiding a threat using ones strength Securing employment costs by new business developments and getting new large-scale purchases including a company
Weakness: Orientation toward domestic development - Impossible to respond to a rapidly growing customer base. - Social norm of “Reciprocity”	Strategy for overcoming a weakness using a good opportunity Management plan for steady development and cooperation with other companies	Assumed crisis in management Shrinking of management scale by workers’ runoff to the urban area
Strength: Orientation toward global deployment - Sufficient land for management expansion	Strategy for gaining an advantage using ones strength Shift of management principle from trust-based trade in Indonesia to profit-maximization trade targeting global markets	Strategy for avoiding a threat using ones strength Sharing the employment costs by investing in a new large buyer including a company
Weakness: Orientation toward global deployment - Loss of trust with domestic customers	Strategy of conquering a weakness using a good opportunity Improvement in the sales unit price by heightening added value	Assumed crisis in management Weakening agricultural production area by poor business performance

If M-Co. were to act with the intention of domestic market development, three issues would be of concern. First would be the improved earnings resulting from new customers or breed improvement of paprika. Second would be the reduction of production costs and raising workers’ wages by securing new customs from not only individual suppliers but also large-scale companies to overcome competition with other urban companies. M-Co. could also follow a coalition or consolidation strategy with another company to cater to increasing customer demands following mergers with another company. Further, if M-Co. is unable to adapt to shifts in trends in the global fruits and vegetables market, it may lose its competitiveness owing to the shrinking management scale. At present, the influence of “weakness” on M-Co.’s management is not as serious or apparent as the

company's "opportunity" and "strengths." If M-Co. intends to develop with a focus on globalization, then it must consider a strategy for getting a new large-scale buyer (a company) to cover potential employment costs.

However, this strategy comes with the risk of a trade-off between earning volume and the loss of domestic customers, which would have repercussions on mutual trust. To overcome this "weakness," the company could effectively implement a market strategy to heighten added value. However, M-Co. neither has the technology and experience nor the institution for realizing such a strategy. Therefore, the company must make considerable investment and management reforms. As a result, it may be effective to shift business contacts to a company within and outside of Indonesia, allowing the internationalization of the market to rapidly progress in the future. However, if M-Co. should lose its domestic and stable customers as a result of adopting such a plan, it would be difficult to recover lost customers, as there is a lack of know-how and experience to deal with such a situation.

CONCLUSION

In Japan, it is known that many consumers support a low-priced product in many cases, while consumers participating in the researcher's investigation selected the answer "I buy food based on producer information or a production area brand." The question then arises; does such a situation occur in Indonesia? When a company shifts to profit-oriented strategies, according to the experiential knowledge of the interviewee in this research, "a customer supports the ability to supply quality goods at a stable rate," and there is the possibility that a company may lose existing domestic customers. Social marketing is an important approach to the stable development while avoiding excessive competition awareness for rural communities. However, it is difficult today that a resilience of the company with respect to the rapid change of the market environment is robust due to a too much dependent on a mutual trust with customers. Therefore, given dynamic market conditions, companies must be wary and, thus, prepared to take appropriate management decisions and adopt suitable strategies. Finally, a future work remaining issues after in this study is as follow. This study is an analysis of the case of competitive advantage in many kinds of companies, and market competition all over Indonesia or in the state range of the market has not been investigated. As a result, how much advances in competition a company which expand the social marketing such as M-Co. isn't discussed objective and statistically yet. Additional investigation, to complement information about these points, is needed.

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A RURAL TOURISM PROJECT AS A RURAL DEVELOPMENT INSTRUMENT: “TATUTA”

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ABSTRACT

Rural development aims to improve living conditions and increase levels of income of the communities that earn their keep mainly from agricultural sector while living in rural areas, and to minimise the developmental gap between rural areas and other parts. One of the most fundamental rural development instrument is rural tourism. Rural tourism that has recently gained importance in both developing and developed countries includes operations, services and opportunities offered to tourists in order to enhance income levels of public and farmers living in rural areas. There exist various studies conducted regarding the improvement of rural tourism in some of the countries in the world. In terms of procuring development in rural areas in Turkey, Eco-Agro Tourism and Voluntary Exchange on Organic Farms (Tatuta) projects are being carried out. The purpose of this study is to inform about the scope and functioning of the Tatuta Project, a rural tourism project in Turkey, and to present examples from different rural areas through the project. The study can be used as a model from which rural areas of countries can benefit. It can provide significant contributions to rural development.

Key words: Rural Development, Rural Tourism, Tatuta Project.

INTRODUCTION

Rapid industrialization experienced today, changes in agricultural technology, revenue decline from traditional rural sectors such as agriculture and forestry as a result of globalization have led to the need of economic diversification in rural areas and a search for alternative incomes [1]. After the economic contraction in traditional rural agriculture, tourism started to be considered as an alternative economic income and became a current issue as a solution to socio-economic problems of rural areas [2]. For that very reason, numerous countries have started to set eyes on tourism as one of the most important sources of growth and development in rural areas [3]. Both countries and non-governmental organizations have increasingly taken an interest in tourism activities that can be performed in rural areas [4]. For instance, the events over the past decade in Eastern Europe have triggered a rapid rural unemployment, and tourism; a power to revitalize economic development in rural areas, has been appointed as a tool to keep boondocks alive and an activity that is able to improve life conditions of rural-local community [5].

On the other hand, with the world's changing concept of holiday, rural tourism demand has been launched as a result of people's drifting away from sea-sand-sun holidays, their desire to participate in holiday activities with different motives, longing for rural life by virtue of the pressure of increasing urbanization, benefit requests from growing organic food market [6]. These demands primarily require the development of rural tourism and point out its further importance. Bramwell, furthermore, indicates that the ones preferring rural tourism are rather richer, better trained and in the search of quality, and spend more than the average for their holidays [7]. When the points above are considered, it can be explicitly said that rural tourism will contribute to rural development in positive ways. Rural tourism in Turkey has recently gained quite importance by means of projects supported by both domestic and foreign resources. One of the most pivotal projects in terms of rural

development is Eco-Agro Tourism and Voluntary Knowledge and Skills Exchange on Organic Farms (Tatuta). The main aim of this project is to present model applications from different regions in Turkey by acknowledging content and function of the project "Tatuta". In the study, the concept of rural tourism and effects of rural tourism on rural development were elucidated, then rural tourism activities performed in different countries in the world were presented. In the last part, information about content and function of the project "Tatuta" and the main objective of the study were presented and examples regarding the process from different regions were mentioned. The study is of capital importance in terms of providing an insight for other countries taking example of the project carried out in Turkey.

RURAL TOURISM AND EFFECTS ON RURAL DEVELOPMENT

Rural tourism is a type of tourism that has progressively been attracting attention and developing with regards to its contributions to social and economic development of rural areas [8,9]. Rural tourism has become a tourism type that is tried to be developed in plenty of countries in point of its features of meeting resting needs of people living in city centres, being compatible with different tourism types and easy compliance with agriculture [10]. When world tourism literature is analysed, it is seen that there are numerous different definitions to clarify the concept of rural tourism, which is also referred by the experts as farm tourism, village tourism, highland tourism, agro-tourism and ecotourism [11]. Various definitions for rural tourism concept are as follows:

English Tourism Council defined sustainable tourism in its strategy for rural tourism as tourism "which benefits the economy in tourism destinations, and meets the social and cultural needs of people" [12]. With this definition, it is inferred that rural tourism has economic, social, cultural, environmental and human effects. World Tourism Organization (UNWTO) qualified rural tourism as tourism type that is performed by visitors who want to interact in a significant and real way with rural environment and host communities, far away from classic tourism activities and places where intensive tourism takes place [13]. European Union, on the other hand, defines rural tourism as "a set of activities performed in small settlements where catering, accommodation and other services are presented by small-scale enterprises in line with expectations of tourists whose aim is to have a nice time with agricultural or local values [14].

Lane [15] describes rural tourism as "a complex activity including everything from multi-directional applications like nature-based activities, festivals, historical traditional events, art shows, agro-tourism, folk theatre etc. to farm-based tourism and travelling". Irshad [16], in a study, specifies rural tourism as a concept including especially farm and tourism, eco-tourism-based holidays, climbing, horse riding, adventure, health and sport, hunting, educational trips, art and heritage, the search of ethnic identity. Rural tourism, according to Soykan [17] is a type of tourism performed with visiting a rural settlement, accommodating there and tracking or taking part in local events in order to be together with different cultures and rest in natural environment. Service providers in rural tourism help visitors with personal communication and enable visitors to test the atmosphere and try rural products [18]. Nilson [19] illustrates rural tourism as a tourism type containing all tourism activities in rural areas. Rural tourism, a tourism type in rural areas, is a multi-directional and complex activity. Rural tourism, for Kucukaltan [20], can be mentioned when people visit rural areas apart from the ones they permanently reside in and demand goods and service produced by agricultural producers in appropriate places in harmony with natural texture of the place, and by minimizing their money raising demands and the overall relations and events arising from temporary accommodation. Places in this definition are not businesses built on farmlands but farm houses having farmlands around.

When all definitions are considered, it is seen that some of the definitions focus on features of places where rural tourism activities are performed while some merely focus on the events that tourists can perform with different tourism activities. Rural tourism, taking all definitions into account, can be defined as a tourism type in which tourism product is created by many rural attractiveness, and performed intertwined with people living in rural settlements in rural areas. To make a comprehensive definition taking all those other definitions into account, rural tourism can be identified as a tourism type in which various rural charms form touristic products, and which is

performed as intertwined with people living in rural settlements. Rural charms, within this scope, include agricultural tourism, ecologic farm activities, nature-based activities, festivals, cultural activities, handcrafts, outdoor sports, visits to architectural remains in rural areas and historical places. Components of rural tourism defined by World Tourism Organization (UNWTO) support this definition (Figure 1).

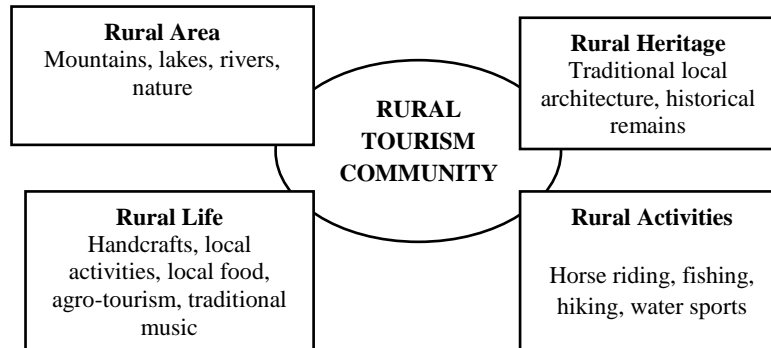


Figure 1. Components of Rural Tourism [13]

Rural tourism emerged as a result of rural conditions that differ, and of changing tourism understanding, makes contributions to development of rural regions owing to the fact that tourists who are fond of getting familiar with local cultures and lifestyles protect traditional lifestyles and features and hence visit rural areas [22]. Contributions of rural tourism to rural development come in sight predominantly in economic extents. This is because economic effects, due to financial sense, are rather remarkable amongst both local folk and country. Besides, it is absolute that rural tourism has also contributions to socio-cultural and physical environment [23].

Various effects of rural tourism on development of rural regions can be as follows [24].

- 1) Rural tourism, by creating new business spaces in rural areas, contributes to general and regional employment both directly and indirectly.
- 2) Revenue growth in a region in parallel with tourism development makes great contributions to the increase in production capacity in agriculture sector, procurement of standardization and ascertainment of real price of quality products.
- 3) Development of tourism in regions where agronomics are prevalent allows the reduction of poverty depending on income, owing to increased prosperity of those who make a living out of agriculture.
- 4) Rural tourism in rural areas brings infrastructure improvements like communication, transportation etc. in its wake.
- 5) Rural tourism enables more attention to traditional crafts and handcrafts such as woodworking, carpet, rug, handcrafts, decorative materials, and therefore their transformation to an income source.
- 6) Rural tourism leads to re-functioning (museum, crafts centre, stopover destinations) of historical buildings (old churches, chateau, farm buildings, houses).
- 7) Providing income gains, rural tourism makes positive contributions to conservation of touristic offering values.
- 8) Rural tourism provides quality improvement of activities like art, folklore and theatre, supports these kinds of activities and creates sources for sustenance.
- 9) Rural tourism encourages cooperation between public sector, private sector and non-governmental organizations.
- 10) Rural tourism provides institutionalization of local initiatives.
- 11) Rural tourism enables introduction of services, local culture and local product and conversion of local sources into benefits.

- 12) With the development of family pensions based on tourism in rural areas, a bidirectional interaction between local folk, cultural structure and lifestyles of tourists emerges. As a result of exchange of cultural components such as clothing, food culture, traditions and customs occurring depending on amicability between the two parties, local cultural structure may get wealthy or degenerate.
- 13) Tourism development in rural areas also affects improvement of health services.

“TATUTA” AS A RURAL TOURISM PROJECT IN TURKEY

Farms in rural areas in Turkey have been associated with rural tourism especially since 2002 and become a series of projects which are gradually becoming popular. TATUTA is the project that has been conducted across the board in Turkey since 2003, with the support of the Bugday (Wheat) Association for Supporting Ecological Living in August 12th, 2002. In the project, while those skilled/interest in technical, marketing, social, environmental etc. dimensions of ecological production share their experiences and/or workforces; food, beverage and accommodation needs are met by farms. Also, volunteers are able to reach real local experiences and a social cohesion and hence information based on these experiences [25].

As part of The Project TaTuTa (Eco-Agro Tourism and Voluntary Knowledge and Skills Exchange on Organic Farms, the web page www.tatuta.org includes detailed information about 91 farms in different regions in Turkey. By means of the map on the web page, making applications is possible by determining visit type. As well as directions, contact and accommodation information and locations of ecological farms in TaTuTa system, there is also detailed information about the works that need to be completed in the farm according to seasons and months (pruning, dibbling, harvesting, sauce making, animal husbandry etc.). The web page also includes responsibilities of volunteers and guests who will stay in the farms having trainings as well as the project coordinator of Bugday (Wheat) Association. Farms on which ecologic agriculture is performed in Turkey are shown in Figure 1.



Figure 2. Ecologic Farms in Turkey. Source: <http://www.bugday.org>

The aim of the Project

The main aim of the project TATUTA is to provide financial, volunteer workforce and/or information support to farmer families who make a living out of ecologic agriculture in rural areas in Turkey and to encourage ecologic agriculture and enable sustenance. Aims for agriculture tourism operation can be summarized as follows [25]:

- To provide additional income for businesses and families dealing with ecologic agriculture in rural areas.
- To supply workforce
- To actualize mutual information and experience exchange regarding ecologic production methods
- To make contributions to intercultural communication procurement

- To work up a nice connection between producer-consumer
- To contribute to strengthening and development of collective consciousness in respect to ecologic life and mutual responsibilities.

Project Operation

Visitors who would like to be agriculture tourists within the project TATUTA select one of the farms on the website “www.tatuta.org” as a “guest” or a “volunteer” according to acceptance periods of each farm. Accommodation, food and beverage needs of volunteers are met by farms free of charge. Working six hours a day and doing chores for farming will suffice. That way, there will be chances for mutual information and experience exchange with volunteers. Guests, on the other hand, stay in “eco-pension” accommodation units or “guesthouses” allocated for them in farms. Visitors who do not want to do any chores can spend their holidays paying a fee of 10-60 \$ per person daily. Visitors, either as guests or volunteers, are transported to farms via Genc Tur travel agency [25].

Example Farms within the Scope of TaTuTa Applications

In line with the project TaTuTa, there are different applications carried out in accordance with climate and land status of the region in 91 farms that operate in different rural areas of Turkey. A few farms in scope of the project TaTuTa and applications performed in these farms are given as examples.

Tangala Farm: Tangala Farm, located on 10 acres of land within the borders of Yakakoy of Fethiye town, hosts volunteers and guests 12 months a year. There are an adobe house, a building for volunteers, a hair-tent in the volunteer building and a shared bathroom/toilet on the farm. There is also an atelier for cheese production and a storehouse. Volunteers work 8 hours a day. Cheese production is especially preferred in the farm. There is a training process for how to make homemade cheese for guests. According to the calendar of Tangala Farm, activities may vary and volunteers can take part in activities such as gardening, fruit and vegetable picking, disinfestation, animal husbandry and wine making. Additionally, recycling, herbs growing, construction of eco-friendly architectural structures and traditional production techniques are also used on the farm. As well as all these activities, off-farm activities can be performed every 15 days. Volunteers and guests can also participate in activities like swimming, picnics, trips to nearby markets and visits to other farms. Minimum stay on the farm is 1 month. Accommodation including breakfast and dinner per person costs 75 TL = 25 \$.



Figure 3. Tangala Farm. Source: <http://www.tatuta.org>

Pastoral Valley: Pastoral Valley, located on Yanıklar village of Fethiye town in Mugla, is established on 42 acres. It hosts both volunteers and guests 12 months a year. Volunteers can take activities such as gardening, fruit and vegetable planting and picking, chores, animal husbandry, marketing support, pottery making, rug weaving, wood carving and basket making. On the valley, there are eco-friendly architectural buildings but also stone-adobe and wooden houses also exist, and ecologic life trainings, using native seeds, recycling, eco-friendly cleaning, permaculture and herbs growing activities are available, too. Accommodation including breakfast and dinner per person are about 40-50 \$ depending on different periods of the year. All detailed information is available on the web site <http://www.pastoralvadi.com/>.



Figure 4. Pastoral Valley. Source: <http://www.pastoralvadi.com/>

Hindiba Nature House: The facility, located on Kıyaslar Village of Bolu/Mengen, is on 3,5 acres of land. There is also a separate space for camping side on the facility. The couple who are the owners of the nature house show a strong interest in guests while also dealing with the garden, baking breads and making canned foods. Without using agricultural pesticide or fertilizer but traditional methods in their garden, they perform agricultural activities depending on the season. Generally vegetables are grown in the facility. There are 9 stone and wooden bungalow type rooms built with traditional architecture in the facility. Volunteers and guests can witness the wildlife via small walks or bicycles. They also have chance to pick wild fruits. Volunteers can take gardening or farm chores and maintenance-repair chores in the nature house. To reach information regarding this ecologic farm, the web site “<http://www.hindibadogaevi.com/>” has been created.



Figure 5. Hindiba Nature House. Source: <http://tatuta.org>

Knidia Farm: Knidia Farm, operating on a 12 acres of land in Yazlıkkoy of Datca hosts for volunteers between May and December and guests between May and September. Volunteers work for 6 hours 6 days of a week. On Knidia Farm, guests and volunteers are taught fruit juice making, orange syrup, marmalade making, carob (harnup) and wine making. Apart from these activities, there are also activities like recycling, herbs growing and constructing eco-friendly architectural structures. There are 4 wooden pergolas for accommodation of guests. Energy needed is provided by alternative energy sources using the sun and wind. Camping in ready-tents or erecting a tent on your own are also possible on the farm. All foods are cooked on wood fire, and during dinner, fresh wine from previous year is offered to guests.



Figure 6. Knidia Farm. Source: <http://tatuta.org>

Eko Tepe Ecological Life Farm: Located on 32,5 acres of land in Kuzgun village of Adana, in the east Mediterranean Sea, agriculture is actively performed. 4 adults and 4 children live on the farm, and there are many product farming like olive, pomegranate, broad bean, spring onion, green garlic, cauliflower, broccoli and parsley. Farm products are sold in 100% Ecologic Market in İstanbul and a market in Ankara. Organic farming has been performed on the farm for nine years. Volunteers can be busy with gardening, farm and house chores. There are also various activities organized for guests

such as hiking and horse riding. Organic and local food products are also available. For more detailed information, the web page <http://www.ekotepe.com/> can be visited.



Figure 7. Eko Tepe Ecologic Life Farm. Source: <http://www.tatuta.org>

CONCLUSION AND RECOMMENDATIONS

Rural tourism is one of the main tools of rural development. Numerous studies conducted show that rural tourism has a tight bond with rural development. Success from rural tourism is of quite importance in terms of rural development. This is thanks to the fact that rural tourism can be used as a tool to increase prosperity of both local folk especially living in rural areas and with regards to socio-cultural development. This study contains information regarding the project “TaTuTa”, which is applied as a rural tourism project in Turkey, and example applications from the project. In this study, conducted in contemplation of a project to be taken as an example from other countries, “TaTuTa” is revealed with its distinctive features.

The project provides multiple benefits for rural development. It, in a sense, provides opportunities for the escalation of agricultural activities, hence increase in agricultural products, with the participation of volunteers who have knowledge and experience and would like to work in ecological farms in rural areas. Besides that, there is also an opportunity for mutual information exchange between local folk and volunteers who have knowledge about agriculture. The project, on the other side, gives guests, who are visitors as customers, chance for paid accommodation and taking benefits of organic agricultural products. That brings additional income along to local folk who make a living out of agriculture. The project also creates opportunities for tourists who would like to spend their holidays in an ecologic environment and demand to participate in rural tourism. Being sustainable nonstop all year, rural tourism activities in ecologic farms in different regions of the country gain value in terms of development of rural regions.

In the light of the contributions above, the project “TaTuTa” may get a foothold as a project that can be considered as an example in rural development policies of other countries. Rural tourism can be benefitted in scope of rural development with a successful planning to be made in conjunction with determination of places where tourism potential exists in rural areas. Also, with the support of foreign tour operators, effective marketing activities can be carried out and thus tourist mobility can be ensured in rural tourism areas of the country. On the top of everything, however, the fact that local folks living in rural areas must be willing to participate in these kinds of projects to be able to succeed in similar projects to be conducted should not be ignored. That’s why local folks must be informed accordingly and significance of projects with regard to development must be emphasized.

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NON-FARMING ACTIVITIES AMONG ORANG ASLI HOUSEHOLDS IN ROYAL BELUM STATE PARK, PERAK

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ABSTRACT

Review of literature on rural transformation process in Malaysia highlights the importance of maintaining strong relationships between the three multi-dimensional changing factors namely; (1) the community's movement towards diversification of rural activities with increases in non-farm (NF) activities, (2) broadening of farm or land based activities and (3) introduction of quality and local distinctive products. The emergence of non-farm (NF) economic activities in rural areas are not entirely a new phenomenon, however, limited research has so far been done in Malaysia to trace their roles and contribution to rural livelihood. As a response, this study was conducted to examine the roles and contribution of NF activities in rural livelihood and how it may links to the rural economy. The Orang Asli communities in Sungai Kejar and Sungai Tiang, Royal Belum State Park (RBSP) in Perak were selected as case studies. Using questionnaire-guided interviews and survey of households (n=15), the study indicated that all respondents (100%) are currently involved in NF economic activities with 87% regarded NF as their full time job. Most of respondents' NF activities are forest-based related economic activities. The analysis of data from the survey concluded that the respondents involvement in NF activities in RBSP has potentially generate and maintain jobs for locals, however income (minimum wage) from NF is far from satisfactory hence unable to bring the community out of poverty. The final section of this paper highlight two crucial issues related to NF activities in Royal Belum State Park as observed during the field visit namely (1) forest clearance for establishing new settlements by the Orang Asli and (2) unsustainable practice in extracting wild kelulut honey.

Keywords: Rural transformation; non-farming; rural livelihood; Orang Asli; Royal Belum State Park

INTRODUCTION

Rural transformation in Malaysia can be observed in the multi-dimensional changes towards the diversification of rural activities with increases in non-farming activities, the broadening of farm or land-based activities and the introduction of quality and local specialty products (Ngah et al., 2016). Federal government agencies began to seek out alternatives in developing the countryside and rural communities, specifically to identify more profitable economic activities as it became obvious that the agricultural sector alone did not hold the key to rural development (Kamarudin, 2013). One of the main strategies of this search was to find ways of encouraging the diversification of rural economic activities (Ngah et al., 2016; Kamarudin et al., 2015a; Ngah et al., 2010; Liu, 2006). Rural economic diversification brought an interest in non-farming (NF) sector as a tool to revitalize the countryside and rural communities sustainably. The emergence of non-farming (NF) or non-agricultural economic activities in rural areas is not an entirely new phenomenon. Unfortunately, as of now, there is very limited research in Malaysia to identify their roles and contribution to rural livelihoods (Ngah et al., 2016).

This study was set up with the aim to examine the roles and contribution of non-farming (NF) activities in rural livelihoods and how they are linked to the rural economy. The roles and contribution of NF and NF-related activities are examined in terms of employment and income contribution to the

rural households of the Orang Asli's bottom 40 percent of the income group or the B40 group in Sungai Kejar and Sungai Tiang, Royal Belum State Park, Perak.

MATERIALS AND METHODS

Data from this study is based on household surveys and interviews conducted on 9th to 11th September 2015 involving two Orang Asli settlements in Royal Belum State Park; Kampung Sungai Kejar and Kampung Sungai Tiang (refer to Figure 1). A total of 15 respondents (seven respondents from Sungai Kejar and eight from Sungai Tiang) have agreed to participate in the survey by answering a questionnaire-guided interview (Figure 2). The Statistical Package for Social Sciences (©SPSS) software was used to aid data processing and analyses. A simple frequency and comparative statistical analysis was adopted to differentiate the variation in the contribution of non-agricultural activities to the rural livelihood in different localities. Cross-tabulation analysis was also used to examine the relationships between different variables such as the respondents' main reasons for participating in non-farm activities and pertinent issues related to the non-farm activities.

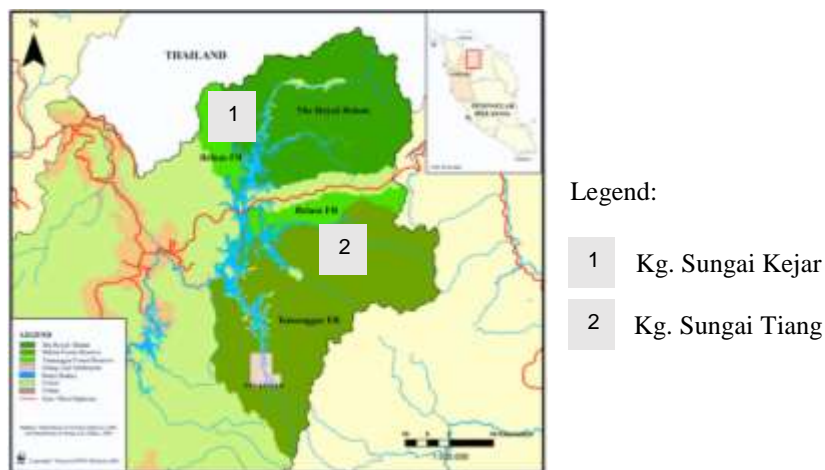


Figure 1: Map of Royal Belum State Park and study cases.
Source: WWF Malaysia (www.wwf.org.my).



Figure 2: Site visit and household survey at Kampung Sungai Kejar.
Photos by ©Khamarrul Azahari Razak (2015).

RESULTS AND DISCUSSIONS

Profile of Respondents

As presented in Table 1, a total of fifteen (15) respondents, seven from Kampung Sungai Kejar and eight from Kampung Sungai Tiang, all male and heads of household from the Jahai tribe, have agreed to participate in the household survey process.

Table 1: Profile of respondents

Information	Frequency (n=15)	Percentage (%)
Number of respondents		
• Kg. Sg. Kejar	7	47
• Kg. Sg. Tiang	8	53
Gender		
• Male (head of household)	15	100
• Female	0	0
Marital status		
• Married	13	87
• Widower	2	13
Education level		
• No formal education	9	60
• Adult school (sekolah dewasa) for 3 months	6	40

Source: Research fieldwork in 2015.

A majority of the respondents (87%) are married and only 13% are widowers. In terms of educational achievement, 60% of respondents did not receive any formal education while the remaining 40% stated that they have a certificate for attending an adult school (for 3 months) where they were taught to read, write and count (basic 3M - *membaca, menulis dan mengira*).

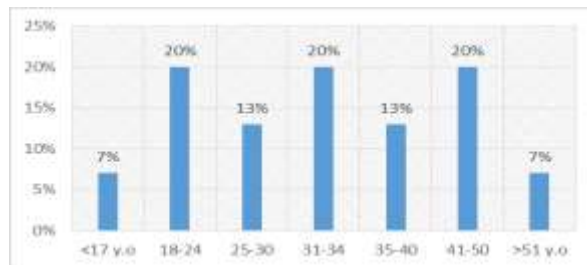


Figure 3: Age distribution of respondents (n=15).

Source: Research fieldwork in 2015.

As presented in Figure 3, the largest sub-groups of respondents are between the age group of 18 to 24 years, 31 to 34 years, and 41 to 50 years, comprising of 20% of representatives in each group. Meanwhile, two other sub-groups, age range of 25 to 30 years and 35 to 40 years are 13% respectively, and the smallest age groups (7%) are made up of the age ranges below 17 years and over 51 years.

Employment Status and Respondents' Involvement in RNF Activities

As presented in Table 2, all respondents (100%) are involved in RNF activities with 87% of them stated RNF as their full-time job while the remaining 13% considered RNF as a part-time job. Respondents also mentioned that RNF is a seasonal job, especially for those who are collecting forest products such as *madu Tualang* (beginning in August every year) and during fruit season (for *Durian* fruit and *Petai* beans).

Table 2: Status of respondents' involvement in RNF activities

Information	Frequency (n=15)	Percentage (%)
Involvement in non-farm activity		
• Yes	15	100
• No	0	0
Involvement as a full-time job		
• Yes	13	87
• No	2	13
Involvement as a part-time job		
• Yes	2	13
• No	13	87
Involvement as a seasonal job		
• Yes	9	60
• No	6	40
Location of non-farm activities		
• Inside Royal Belum	15	100
• Outside Royal Belum	0	0
Types of NF activity		
• Sandalwood / Kayu gaharu (full-time every month)	13	87
• Honey gatherer (madu Tualang) (seasonal)	15	100
• Honey gatherer (madu Kelulut) (part-time every month)	13	87
• Fishing (part-time every month)	13	87
Frequency of activity per month		
• Every week	13	87
• Not related	2	13
Involvement of family members in NF		
• Yes	1	7
• No	14	93

Source: Research fieldwork in 2015.

All respondents are currently participating in non-farming activities that take place inside the Royal Belum State Park. There are three types of RNF activities carried out by respondents namely: (1) a full-time, monthly collection of sandalwood (*kayu gaharu*), (2) a part-time, monthly collection of wild *Kelulut* honey (*madu Kelulut*) and fishing, and (3) seasonal collection of *Tualang* honey (*madu Tualang*). A majority of respondents (93%) works in groups without a direct involvement from members of their family.

Principal Reasons for Participating in RNF Activities

When asked for the reasons of their participation or involvement in RNF activities, 93% of the respondents mentioned “a lack of options” (especially in local farming or other land-based economic activities) as the main reason (Figure 4). Meanwhile, almost 87% of respondents pointed out the importance of RNF activities as their main source of income, followed by good demand and marketability of local NF products (40%). The lowest three answers given by respondents were “as supporting income”, “more job flexibility” and “possess relevant skills to carry out non-farm jobs” which shared a 27% distribution across the graph.

As a reflection to the previous statement by Gordon and Craig (2001) on the positive contribution of RNF in the literature review section, it is worth highlighting that in this case of the Orang Asli community in Royal Belum State Park, their livelihoods are restricted by State Park regulations which do not permit any land or forest clearing for development or expansion of settlements and farming activities. This situation in turn, pushed the community to be highly dependent on RNF, participating in various jobs related to forest-based activities.

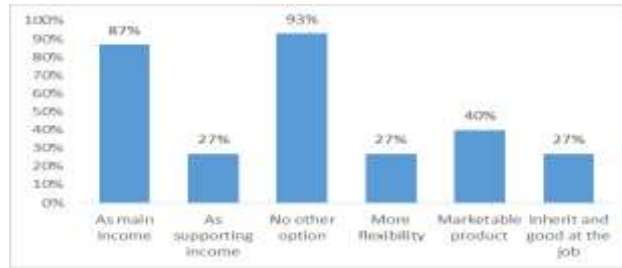


Figure 4: Respondents' main reasons for participating in RNF activities (n=15). Source: Research fieldwork in 2015.

RNF Contribution to Household Income

Regarding the element of income generated from RNF, this study was only able to obtain an income figure from the respondents' transactions for sandalwood (*kayu gaharu*) (Table 4). Income figures (or more likely, an estimation of income figures) for other RNF such as honey extraction (*Tualang* and *Kelulut*), selling rattan and wild herbs, and fishing were not given by respondents due to the seasonal nature of these activities which are often conducted on a part-time basis with insufficient data on production/output. Currently, all NF products from Sungai Kejar and Sungai Tiang will be sold at the Banding Island jetty (or known as Mat Shah Jetty by the locals) where they will receive payment in cash. A majority of respondents also stated that since they work as a group, the income generated from selling the forest products will be divided equally among members of the group (Research fieldwork in 2015).

Due to high transportation cost, respondents at both villages have to ensure that potential income from the sale of their RNF products would cover the necessary costs while still have extra cash to purchase daily provisions such as rice, sugar, cooking oil, cigarette and propane tank for cooking. Based on an interview with the *Batin Sain* of Sungai Kejar, local residents normally have to allocate approximately RM180 for petrol (for a return trip by boat). Similar feedback on petrol cost was also obtained from residents of Sungai Tiang (Research fieldwork in 2015).

Table 4: Average income from RNF activity (n=15)

	Frequency	Percentage (%)
Valid Not related	1	6.7
<RM10/day	3	20.0
RM15/day	7	46.7
RM30/day	4	26.7
Total	15	100.0

Source: Research fieldwork in 2015.

Based on Table 4, 47% of the respondents stated that they might be able to gain RM15 a day from the collecting and selling of sandalwood, or for approximately RM450 a month as their household income. Only a small portion of respondents (27%) are able to gain RM30 a day or RM900/month from RNF (sandalwood). Even on a very good day, the maximum monthly income they could achieve is RM900 and this figure is far from bringing the community out of poverty. In conclusion, the respondents' involvement in NF activities in Royal Belum State Park has potentially generated stable jobs for locals; however income (minimum wage) from RNF is still low and does not enable them to bring the community out of poverty.



Figure 5: Perceptions on prospect of RNF activities – market price and resources availability (n=15).
Source: Research fieldwork in 2015.

With regards to the respondents' perceptions on prospect – i.e. pricing of RNF products, more than 60% agreed that the market price is increasing as compared to 20% who felt that prices have not changed much over the years. Only 13% of respondents considered the market price is decreasing and the remaining 7% stated they are not sure about the price (Figure 5). The result is very closely related to the consequent question on the prospect or the status of the resources available for RNF products. The survey clearly indicated that a majority of the respondents (73%) considered the resources related to RNF activities are decreasing, followed by the remaining 27% saying that they are not sure about the situation. None of the respondents indicated local resources related to RNF are increasing nor come in a stable supply.

ISSUES AND CHALLENGES OF RNF ACTIVITIES

Based on Figure 6, there are four major issues/challenges that have been identified in conjunction with the RNF activities in the two villages. Resource depletion is regarded as the most pressing issue by 38% of respondents, followed by the issue of illegal poachers and intruders (32%), issue of seasonality for some of the RNF activities (22%) and issues related to lack of capital for funding the RNF works (8%).

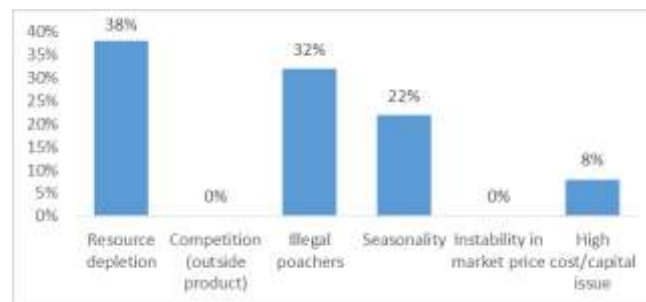


Figure 6: Issue and challenges related to RNF activities (n=15).
Source: Research fieldwork in 2015.

Another two (2) alarming issues have been observed during the field visit to Royal Belum State Park in September 2015 where both issues are closely related to RNF and RNF-related activities. These two issues are: (1) forest disturbances due to the opening of a new settlement, and (2) unsustainable practices in extracting wild *kelulut* honey.

1. Contest for resources – forest disturbance due to opening of new settlement

This issue directly impacts the Orang Asli community who reside within the Royal Belum State Park. Khairul's research paper published in 2015 had described this predicament in a more detailed manner with extensive discussions (see Kamarudin et al., 2015b) where he regarded the opening of a new settlement could be tied closely with the increase in internal pressure that affects RNF activities;

particularly an increase in competition for limited or shrinking resources to fulfil their socio-economic needs.



Figure 7: Opening of a new settlement as observed in Royal Belum State Park during field study.
Photo by ©Khamarrul Azahari Razak (2015)

2. *Unsustainable practice in extracting wild kelulut honey*

The second issue can be traced back to the local Orang Asli practices, or it might be the irresponsible act of outsiders, such as local non-indigenous and illegal poachers. Either or, the valuable natural resources (bee colonies) are decreasing. Without proper mitigation, not only this unsustainable practice will jeopardise the source of income for the local Orang Asli community in the long run, but it will also affect the forest ecosystem due to the disappearance of pollination agents, namely the wild bees.



Figure 8: Unsustainable practice in extracting wild *kelulut* honey observed in Royal Belum State Park during field study. Photos by ©Khamarrul Azahari Razak (2015)

THE WAY FORWARD

This study demonstrated that RNF activities played a significant role in shaping the livelihoods of Orang Asli households of Kampung Sungai Kejar and Kampung Sungai Tiang, Royal Belum State Park. Results from household surveys and interviews revealed that all respondents are involved in RNF activities mostly related to extracting and selling forest products including sandalwood, rattan, wild honey, medicinal plants and fishing. The community's involvement in RNF activities undoubtedly generated local jobs and income. However, the current data showed that the level of household income is far from satisfactory and it is not able to bring them out of poverty. Some interesting findings were also gathered by this study, particularly on the respondents' perceptions on market price for RNF products and on the availability of RNF resources in Royal Belum State Park. Data analysis indicated that a majority of the respondents agreed that the price for RNF products has increased over the years. On that note, they also admitted that local resources harvested as RNF products have also decreased in tandem with the market price hike, and as a result, they now have to

travel further into the forest to search for sandalwood, rattan, wild honey and other products. It is recommended by this study that new forms of RNF and RNF-related activities, such as community-based tourism should be introduced in the near future to reduce the community's dependency on the exploitation of the natural resources, hence reducing the pressure on the valuable resources of Royal Belum State Park.

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UNDERSTANDING AGRICULTURAL VILLAGE TOWARDS RICE SELF-SUFFICIENT: CASE STUDY OF ARGOSUKO VILLAGE, MALANG REGENCY INDONESIA

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ABSTRACT

Food is one of basic human needs (Maslow, 1943). The number of food demand is corresponding with population growth. Consumption rate of rice per capita in Indonesia reaches 1.6kg per week (BPS,2014). To meet the demand, increasing food production is one of the best ways. However, farmland conversion and climate change have made food production (including rice) even harder (Fischer, et al., 2005; Firman, 2000). Rural area set as place where food is produced. Argosuko Village is agricultural village and has 258 Hectare of farmland. This research aims to understand Argosuko Village in order to achieve rice self-sufficient. Farmland Carrying capacity for rice analysis was applied. This analysis was able to identify how village possibly achieves rice self-sufficient (Muta'ali, 2015). The variables are food demand and food production. The results showed Argosuko Village, theoretically, is able to achieve rice self-sufficient. Rice production covers 146% of current rice demand. However, rice import is preferable. Few villagers and rice farmer and family consume rice from self-production. Due to consumption behavior, rice self-sufficient may not be able to achieve. Further research related consumption behavior is needed. Government needs to promote local food production consumption. Geographical condition also appeared as prominent obstacle. Water availability leads to rice production failure. Improving irrigation system can be applied to resolve this obstacle. The conclusion is this village currently is not able to achieve rice self-sufficient under those circumstances.

Key words: rice self-sufficient, rice demand, rice supply

INTRODUCTION

Maslow (1943) defined 5 basic human needs. One of them is food. Food is necessary to human body. Moreover, lack of food daily intake will affect psychological condition. Hunger is appeared when people lack of food. In 1960, FAO established World Food Programme to fight hunger. In 2015, 7.3 billions people inhabit both in urban and rural area across the world. Population grow higher in the last decades. As response, the number of food demand is equal to population. According to WFP report, 1/3 of food production is wasted. agricultural sectors push to produce more food. Unfulfilled demand of food can affect to societal stability and peace (Adger et al., 2014, Stern, 2006).

Increasing food supply is necessary to meet food demand. Rice is staple food in most of part of the world. Farmers give great effort to produce rice. However climate change and disaster make the process even challenging (Kang, et al.2009) furthermore, political issues has made production lose in the market. Farmland conversion emerges as important factor of rice production. Farmland conversion happened due to urbanizing rural area (Fischer, et al., 2005; Firman, 2000). Main activity of people in the rural area is in the primary sector. More than 70% of rural is farmland, where food is being produced. Losing farmland and urbanizing rural area mean losing food production. Current condition has made food producer (i.e. farmer) work more to produce more food. According to Odum (1974), Issard (1960; 1968), Dasman (1992;1973) concluded, farmland has carrying capacity. If the farmland pushes harder, it can damage. As result, farmland can not produce anymore and needs time

to recover. Muta'ali (2014) stated similar concept. He postulated food production can meet food demand base on wide of harvested farmland for food production.

Self sufficiency of rice is merely less important than food security. Self sufficiency is outcome of food security which is supplied by within local production. Based on agricultural production and food demand, status of self sufficient of food (i.e. rice) can be calculated. Argosuko Village is wellknown as agricultural producer. It has 258 ha of farmland and produces more than 1,900 ton rice annually. Currently this village is considered as un-self sufficient of rice village. This research is aiming understanding village towards rice self-sufficient.

CONCEPTUAL FRAMEWORK

Food is human basic needs. This needs must be fullfilled. Food consumption at least meets minimum demand of calorie daily intake (i.e. 2100 kcal). Food that people consume must consist carbohidrate, protein, fat, fiber, and others micronutrients. Food security is condition where every person have access to physical, social and economic to food sufficient, food safety, and nutritious towards productive live and stay healty (Mercy Corps, 2017). "Food security is availability to avoid acute food shortage in the even of wide spread crop failure or other disasters" (Syarif, Hidayat, Hardinsyah and Sumali, 1999). There are 3 main elements of food security. Those are availability, accessibity, and utilization (World Food Programme 2009; A Food Security and Vulnerability Atlas of Indonesia, 2009; and Minimum service standard for food security at municipality and province level, Ministry of Agriculture of Republic of Indonesia, 2010).

Many agencies and instituion define various component of food security. Then, 3 components are appeared as principal components of food security. FSVA (2009) defined food availability is food that physically available and people can reach it and supplied either from local production or imported from other regions. Food accessibility related to how people can get the available food (International Federation of Red Cross and Red Crescent Societies,2007). Food utilization is related to how people utilize (i.e. cook) the food they get and finally they can eat it (WFP, 2009). Rice self-sufficient is different than food security. Food security aims to meet food demand wherever the food comes from. Rice self-sufficient aims to meet demand by supplying from local production. Therefore, carrying capacity of farmland is appropriate to achive research goal.

This research assumes all demand is supplied by local producer. This ideal condition cannot fit to all villages. That is limitation of this approach. Dasman (1992) and Mut'ali (2013) considered total harvested area and population are as main variables. This approach was developed from Odum (1974) and Issard (1960; 1968). The approach has limitaton. It works on ideal condition where villagers consume local production. Dasman (1992) calculated farmland carrying capacity of rice by using 2 variables. Those are area harvested and population. Ministry of Agriculture Regulation no 65 in 2010 stated 2 variables to calculate rice self-sufficient are food demand and food supply. If food supply is sufficient, rice self-sufficient can be achieved.

In the rural area of Indonesia, farmland is dominating land use propotion. However, farmland not only for staple food productions. Farmers also cultivate various crops, such as vegetables and fruit. Due to vary staple food productions, every villages has own way to achieve food security. Farming villagas can easy achieve food security since food is available and produced within village boudaries They have high possibility to achieve rice self-sufficient.. Villages without staple food production import from other regions. Producing food within village boundaries have no guarantee to meed rice self-sufficient. Climate, geographic and economic condition take some effect on rice production (Kawasaki and Heralt, 2011; Wischnatha and Buhaug, 2014; Bandara and Cai, 2014).

METHODOLOGY

This research was taking place in Argosuko Village. The village is locatted in the Malang Regency, East Java Province, Indonesia. To achieve research goal, this research used 2 variables. Those are food demand and food production. Those variables are taken from Dasman (1992) and muta'ali

(2013). the data was gathered from Statistical Bureau of Malang Regency and field survey. Some modification were applied. To calculate carrying capacity of farmland for rice production, this research used this following equation (1-1):

$$Sw_b = S - D$$

$$Sw_b = (Ah \times Lp) - KFM$$

Where Sw_b : self sufficient of rice status

S : Rice supply

D : rice demand

Ah : Area harvested

Lp : land productivity

KFM : Minimum un-hulled rice demand

Rice consumption: (300gr/capita or 106.8kg/year/capita)

S = D, it means this village can achieve rice self-sufficient in the minimum condition

S < D, it means this village has not achieve rice self-sufficient due to lack of rice production.

To meet demand, inhabitants need to import from other villages or regions

S > D, it means this area achieve rice self-sufficient. It also can export the production to other villages

KFM represents un-hulled rice demand. To produce rice that people can consume, harvested paddy through several processing step. During the process, some un-hulled rice may fall. Farmer for next farming cycling process is using some yield. To produce rice, un-hulled rice must through drying process and milling process. It made weight loss. Ministry of Agriculture Regulation no 65 in 2010 considers those to calculate un-hulled rice that needs to be harvested to meet equal condition between supply and demand. The equation as follows:

Equation (1-2)

$$\frac{R_{net}}{c} = KFM(1 - (s + w))$$

Equation (1-3)

$$R_{net} = Population \times Rice\ demand\ standard$$

R_{net} : Rice demand

c : conversion constan from un-hulled rice to rice (0.8312)

KFM : Minimum unhulled rice demand

s : conversion constant for seed (0.009)

w : conversion constant for grain lost (0.054)

To understand villagers behavior of food consumption, short interview was carried out. Villagers were asked their opinion regarding rice consumption and how they get their rice. Simpel descriptive method were applied. Then, this research related the interview result and carrying capacity of farmland for rice production status. This research also investigated villagers opinion regarding rice supply and demand, this research applied interview method. It help to understand the real condition and compare it with result of the equation above. The questions were related to opinion related food consumption, demand, supply, agricultural process, and government regulations.

RESULTS AND DISCUSSIONS

Village Condition

Argosuko Villages is on of village in Malang Regency. it is located in the 600 mater above sea level. This 419.5 ha village is characterized as plain area and has small slope differentiation with 4 small

rivers. This village is a home for 1.434 households that consists 4,561 villagers. Number of woman and man in this village is almost equal. Villagers 17-50 years old have high share of demographic composition. 1,456 villagers work as full time farmer. In addition, a few villagers work as public servant. Farmland dominates land use up to 86%. Human settlement only occupied less than 11% of total area. In 2016, paddy field reaches 258 Ha. This village is categorized as farming villages. It has fertile soil but low water availability. Four rivers and small well are available for farming. During dry season, water level is declining. However, it never reaches drought level. This condition pushes farmer to cultivate multi-crops in a year. During wet season, farmers cultivate paddy. In the dry season, farmers cultivate cabbage, corn and other less water crops. Farmers only cultivate paddy about 50% of total farmland.

Rice Supply and Demand

Annually, total harvested area for paddy reach 334.907 Ha and produce 1,896.989 ton grain. The productivity is relatively high (i.e. 5.5 ton/ha). Staple food of villagers is rice. Based on Ministry of agriculture regulation no 65 in 2010, rice demand per capita is 300gr/day. Therefore, rice demand in Argosuko Village reaches 448,1148 ton per year. Un-hulled rice or grain demand is one of important variable to calculate farmland carrying capacity for rice production. To calculate that, rice demand must be converted to Un-hulled rice or grain demand. Equation (1-2) shows how to convert rice demand to Unhulled rice or grain demand.

$$\frac{44.1148 \text{ ton}}{0.8312} = KFM(1 - (0.009 + 0.054))$$

The equation implies rice must be converted to grain demand because farmer only produce grain. During harvesting, transporting, and process from field to mill, some grains are lost. The important part before milling is drying. Grain must dry or it will wreck during milling. In the last, net grain weight do not produces equal rice weight. Milling process is separating rice and husk. After milling process, weight of rice will different from initial yield. Moreover, farmers use some yield for next cultivation process. This practice may lead to loss harvest because seed quality is not good. According to this discussion, there three constants were derived from ministry of agriculture regulation no 65 in 2010. Using equation (1-2), Un-hulled rice or grain demand is 1,299.42 ton/year.

Production capitals also hold important role. Water as important aspect holds key factor of rice production. Farmer only cultivate paddy on wet season or water supply is secure. Moreover, climate change and geographical condition give challenge. It makes cultivated land for rice production is unstable. This condition leads to unstable rice supply. According to field survey, irrigation system in the Argosuko Village has cover nearly 100%. It can secure water demand for paddy cultivation on wet season. Its service drop to 30% in the dry season due to lack of water supply. Water supply from river is limited. Irrigation improvement is needed by finding new water sources. Surprisingly, paddy is not considered as prominent production since its difficulties to grow. Farmers prefer cultivate other crops.

Rice self-sufficient

Concept of rice self-sufficient is fulfilling rice demand from local production. Then equation (1-1) shows status of rice self-sufficient. The result shows, Argosuka Villages produce more grains than its demand. It leads to rice self-sufficient. Comparison between supply and demand, Argosuko Villages can export their production to other regions or villages. Ratio of rice supply reaches 146%.

$$Sw_b = (344.907 \text{ ha} \times 5.5 \text{ toh/ha}) - 1,299.42 \text{ ton}$$

$$Sw_b = 597.57 \text{ ton}$$

Currently, Argosuko Village have not achieve rice self-sufficient village. According to interview, 75 % of total farmer consume their own production and sell it. The rest, farmers prefer to sell all yields to wholesaler. Then wholesaler exports it to other regions. Farmer behavior is driven by economic force. They prefer to sell their yield to get income. Oppositely, if they can manage their yield and give it benefit, the yield will have more value and expensive. However, this process demands more time. Farmer behavior showed they have no time to wait to get income because they will use the income as capital for next cultivation process.

Consumption pattern of villagers is vary. Villagers consume more grain (56,3%) (Including rice, (86,3%)) more than others (Baliwati dkk, 2004). We found, rice consumption rate in the Argosuko Village is vary than the standard. According to survey and data from statistic bureau, consumption rate for rice is 1.626 kg/week/capita and keep declining in the recent years. Villagers of Argosuko Village in average consume 0.2kg/day/capita. Even declining consumption rate and unstable rice supply, the village possibly achieves rice self-sufficient due to high yield of farmland. To meet food demand and achieve food security, villagers buy rice from store within village boundaries. More than 10 ton of rice is imported monthly. Fulfilling food demand is part of food security. Villagers concern how to reach food security than self-sufficient. In term of value of demand and supply, local production highly possibly can meet demand of rice.

Challenges

Land conversion in this village gladly not appeared as prominent problem. Villagers prefer to convert low and non-productive farmland. They avoid converting farmland for food production. They argue their income from food production. If they convert their farmland, they will have no income source. They are very carefully to convert farmland. For this last 10 years, farmland conversion did less harm to food production.

Since rice production still unstable, better system needs to be applied to secure rice production. Government trough ministry of agriculture gives hard effort to achieve self-sufficient. In the Rencana Pembangunan Jangka Panjang (RPJP) or long-term development plan of Republic of Indonesia 2005 – 2025, rice self-sufficient is a main issue. Government is obligated to promote food production growth as well as promoting consuming local food production. To achieve these goals, in Argosuko Village, government needs to improve irrigation system especially water supply for farming. Government possibly involves in this case. Special board for food security was established. One of main goals is improving food security including fostering food supply.

Promoting local food is also important. Subsidy for farming is available. However subsidy for grain processing from own production is unavailable. This is needed because farmers tend to sell their yield to get fast income and use it for capital in the next cultivation process. It can help local producer get better income and provide food for local demand. Martinez et, al. (2010) proves that promoting local food for daily consumption are able to local economic development. Direct selling is one of the program to promote local food. Government involvement hold important role because food market is a free market. Trough policy, government can lead people to choose local food.

CONCLUSION

Self-sufficient nearly achievable goals if implemented in the rural area. Rural area produces more food than food demand. Argosuko Village is on a half way to achieve rice sufficient. Rice supply from local production can meet rice demand. Moreover, rice consumption rate tend to declining. Some challenges appeared in the food production process. Farmers tend to consume their own yield and sell it to whole seller to get fast income. This decision made rice self-sufficient becomes harder to achieve. Villagers prefer meet food security rather than self-sufficient. It is reasonable since farmers tend to sell their yield to other market than fulfilling local demand. Water supply for farming is limited. It derived farmer to cultivate other crops than paddy to get their farmland productive and earn stable income. Therefore, better irrigation system (including finding more water sources for farming) needed. Government holds important role to solve the obstacles. By adopting this paper discussion,

government may establish new regulation to promote local food consumption and establish better irrigation system.

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LOCAL WISDOM FOR SUSTAINABLE COASTAL RESOURCES MANAGEMENT IN INDONESIA: CASE STUDY OF NUSA PENIDA, BALI INDONESIA

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ABSTRACT

The marine and coastal resources nowadays are degraded as the result of the behavior in exploiting them neglecting the essence of environmental aspects. The use and exploitation tends to be destructive and without considering on conservation aspects and resources sustainability. The amount of natural richness of Indonesian coastal area has also caused various environmental problems such as over fishing, destruction of mangrove forests, coral reefs, seagrass, coastal erosion, tidal wave and other damage caused by natural disasters such as the tsunami. These problems directly or not are linked to the poverty of coastal community, inappropriate policy, law enforcement, and lack on human resource capability. Therefore, it is important to position the community because they plays important role as the main entity and determinants in managing the coastal resources, namely by providing space for the community to determine the pattern of management in accordance with the tradition and cultures that already exist in the community of Nusa Penida. The method used in this research is descriptive method with purposive sampling technique in speakers and key persons in the study area. The result of this research shows that the value of local wisdom that plays important role in managing the coastal resources in Nusa Penida are awig-awig and Nyepi Segare. The obedience of communities on the communal wisdom is much uprooted as they realize and think that their life existence cannot be separated from the other living beings (creatures) that share the same world. There will be traditional sanctions for people who violate the rules. It can be a light punishment and moreover can be excommunicated from the village.

Key words: coastal resources, local wisdom, management, sustainable.

INTRODUCTION

Indonesia is an archipelago country where 2/3 of its territory consists of the oceans. The sea is a large body of saltwater that surrounds and divides land on the continent or island. The sea has a role and benefits in human life, some of these benefits are as water transportation, energy resources and a wealth of fishery resources that can be utilized by the community. High fisheries resources and the beauty of the coast make Indonesia continues to focus on developing the fisheries sector and tourism.

Fishery is an activity and exploitation of marine biological resources (Hempel and Pauly 2004). In a broader sense, not only the fishery is defined as the activity of catching fish, but also includes activities to collect shellfish, seaweed and other biological resources in a given geographical area (Fauzi, 2010). Utilization of coastal and marine resources today is increasing in almost all parts of Indonesia and tending to exceed capacity resources that tend to be destructive and does not pay attention to aspects of conservation and resource sustainability. Currently the development of the exploitation of natural resources marine and coastal (taking, aquaculture, and the extraction of materials for medical purposes) has become an area of economic activity that is controlled by the market (market driven), thus encouraging the exploitation of marine and coastal resources in a large scale and intensity (Ghofar, 2004).

Availability (stock) of fish resources in some fishing ground in Indonesia turned out to have been used beyond its carrying capacity, thus making its sustainability is threatened. Several species

were reported as difficult to obtain even almost disappeared from the waters of Indonesia. This condition is getting worse due to the increased number of fishing fleet, the use of technology and tools arrest that can be damage the environment (Purwanto, 2003). Generally, utilization of fish resources and the environment should be able to ensure the sustainability of ecological functions to support the sustainability of coastal fishing business economically and productively. Sustainability of ecological functions will ensure the existence of fish resources and the environment (Anggoro, 2000)

Failure of the centralized policy management (top-down) in ensuring the sustainability of coastal resource management along with accessibility of communities around these resources, have been aware of the importance of addressing the people as the main entity and determinants in coastal resource management. Therefore in 1999, the government implemented Law No. 22/1999 on Local Government. The new government introduced a policy of supporting participatory approaches and empowerment by giving autonomy from the central government to local governments to manage their area. More detail contained in Law No. 27/2007 and Law No. 1/2014 on management of coastal areas and small island explained that community participation is very important in the process of planning and management process. This is done with the hope to strengthen community and government agencies as well as encouraging community initiatives in resource management of coastal and small island in order to achieve justice, equity, and sustainability. Therefore, the development of coastal and marine areas should be arranged by taking into value system and institutions that grow and develop in society and in accordance with local potential sources.

Local wisdom/traditional are all forms of knowledge, belief, understanding or insight as well as tradition or ethics that guide human behavior in life in ecological communities. It also explained that local wisdom is part of the ethics and morality that helps people to answer the moral question to do what to do, how to act especially in the management of the environment and natural resources (Keraf, 2002). Environmental management approaches based on local wisdom is often called Community Based Management. Community Based Management according to Nikijuluw (1994) in Latama (2002) is a natural resources management approaches that put the knowledge and environmental awareness of local communities as their basis management. In addition they also have strong cultural roots and generally incorporate in their belief (religion). Therefore, the research related to “Local Wisdom for Sustainable Coastal Resources Management in Indonesia, Case Study: Nusa Penida, Bali” to be essential to be done to explore the value of local the values of local wisdom which is already exist and has been done by the community to ensure the sustainability of coastal resources.

MATERIALS AND METHODS

The research entitled “Local Wisdom for Sustainable Coastal Resources Management in Indonesia, Case Study: Nusa Penida, Bali” is a descriptive qualitative research. The purpose of this study is to reveal the facts, circumstances, phenomena that occurred as the research proceeds. The data are taken from literature review which is relevant to local wisdom study, interviews, observation and records or documentations. Interviewees obtain by purposive sampling where the units that are observed are based on the expert. This qualitative research is generally to identify local wisdom of Nusa Penida’s people in managing coastal resources.

RESULTS AND DISCUSSIONS

Nusa Penida is one of district in Klungkung Regency which has three islands, namely Lembongan Island, Ceningan Island, and Nusa Penida Island which is located in the southeast of Bali Island. Administratively, Nusa Penida District is bordering with Indian Ocean and Islands. Nusa Penida District area amounted to 202,840 km² and consists of 16 Village with 46.749 people (8.543 families). According to local regulation No.16/2009 on RTRWP (provincial spatial plan) Bali 2009-2029, Nusa Penida District is one of strategic area in Bali Province based on the interest of economic growth. Locals make their livelihood on agriculture as the main of their livelihood. Based on their

livelihood, 29,30% are employed in agriculture sector, 23,18% in trade, hotel and restaurant sector, 16,43% in manufacturing sector, and 13,78% in community service.

Fisheries Potential

Fisheries sector is the main sector that drives the economy of the community in the district of Nusa Penida. In addition, the type of catch fish production in Klungkung Regency is very diverse so it has a very strategic role for local development in promoting economic growth, increase the income of fishermen, fish farmers, and fish processors and improve job opportunities for local people. The majority of fishermen in Nusa Penida are a catch fisherman and seaweed farmer. At Nusa Penida, there about 850 fishermen with the tools they used is fishing rods and drive-net.

Fishermen in Nusa Penida included in fishermen subsistence which catch fish with lugger sized 22,9 feet or 7 meters and motorboat 15 PK. Types of fish commonly caught as grouper, snapper, tuna, shark, and big-eyed fish. Fishermen in Nusa Penida are not only caught in the waters around Nusa Penida, but up to the strait of Badung and Lombok Strait. Based on data from Department of Animal Husbandry, Fisheries, and Maritime Affairs in Klungkung Regency, total catches of fishermen in Nusa Penida is 226 tons/year.

Seaweed farmers in Nusa Penida has the potential of land about 300 Hectares. At this time, seaweed farmers in Nusa Penida plants two types of seaweed namely *Eucheuma Cottoni* and *Eucheuma Spinossum*. The method used is a step on the bottom which the seaweed grown using wooden pole and then attached to ris rope. Farmers harvesting the seaweed every 25-35 days, in which every single hectare produce 134.400 kilograms for wet and 26.880 kilograms for dried *Eucheuma Cottoni* seaweed.

Tourism potential

From 16 villages in Nusa Penida district, there are only 7 villages that included in tourism area. Tourism area in Nusa Penida district has an area of 6.895 hectares or 21,89% of Klungkung Regency and 1,22% of Bali Province. The following table is a data tourism area in Nusa Penida District.

Table 2 Tourism area in Nusa Penida District

No.	Village	Area (Ha)	Percentage (%)
1	Suana	1.042	15,11
2	Batununggal	1.345	19,51
3	Ped	2.115	30,67
4	Toyapakeh	65	0,94
5	Sakti	1.316	19,09
6	Lembongan	615	8,92
7	Jungutbatu	397	5,76
Total		6.895	100.00

Source: BPS, Statistics of Nusa Penida District, 2013

Carrying capacity of Nusa Penida waters has biodiversity such as dugong, giant clams, manta rays, ocean sunfish, turtles, whitetip shark and humphead wrasse. In addition, the condition of Nusa Penida's waters also supports the development of marine tourism attractions at several location, such as diving (Crystal Bay, Ped, Gamat Bay, Lembongan, Blue Corner and so on), fishing (Ped, Toyopakeh, Sakti, Lembongan, and Suana Villages), snorkeling, marine park (Nusa Lembongan), banana boat, sailing around the island and others. Elsewhere, the white sandy beaches area has the potential for tourism development such as swimming, sunbathing, and other that include of tourism superstructures.



Figure 2 tourism strategic area in Nusa Penida District

Local Wisdom

The presence of the fisheries sector, which is became one of the main sectors that drive the economy in Nusa Penida district, indirectly encourage the exploitation of marine and coastal resources in the large scale and intensity as well as the tourism sector. Tourism sector has a lot of various marine tourism activities that can contaminate and adverse impact to marine ecosystem such as coral reefs, seagrass and mangroves. Villagers in Nusa Penida have traditions that have cultural values, norms, and habits that approved by its citizens, whether it is written (awig-awig) and unwritten (pararem). In Bali Provincial Regulation No. 3/2003 stated that the Customary Law (awig awig and pararem) is the customary law in Bali Society sourced from Catur Dresta and inspired by Balinese Hinduism. Some local wisdom in the form of a religious ceremony that is closely related into the management of coastal and marine resources is Nyepi Segare, Melasti Ceremony, Ngayut Ceremony, Mulang Pakelem, Banyu Pinaruh, Ngangkid Ceremony, Melukat Ceremony and others. Melasti Ceremony aims to purify the universe and bhuwana to take the essence of life in the sea. Mulang Pakelem Ceremony aims to invoke the rain to the Lord of the ocean for the sake of prosperity of the fertility of all living creatures, including humans. Ngangkid Ceremony, Melukat Ceremony and others usually held in estuaries, because this place are considered capable of cleaning up in niscala or noetic.

Nyepi Segare is tradition rules that lasted for days and a night that held on Purnama Sasih Kapat or at the fourth of full moon based on Bali calendars (around October) to eliminate all of activities on the sea. Sea activities include tourism activities, transportation and exploitation of marine products. In the implementation of Nyepi Segare is coming done after Pengusaba. The ceremony held by all of the people in Nusa Penida. Nyepi Segare deliver benefits in social tighten if executed with full of earnestness. The existence of Nyepi Segare that still exists at this time, shown us that the understanding is still relevant in the circumstances in the present. It was visible from the zoning of marine conservation areas that assigned to Fisheries Minister Decree No.24/2014.

CONCLUSION

Sustainable coastal resource conservation in Nusa Penida District is maintained by applying local wisdom that passed from generation to generation. Local wisdom is evident from the tradition rules namely Nyepi Segare that annually done. Nyepi Segare is a traditional activity where there was a ban to do the activity taking place in the sea for the purpose of soothing nature in coastal areas and surrounding areas. In addition, Nyepi Segare are also used as a basis in determining zoning of marine conservation areas which regulates about catching line that are expected to maintain the sustainability of fisheries resources.

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EMPOWERING RURAL WOMEN IN JAVA THROUGH CASSAVA CULINARY BUSINESS IN THE REFORM ERA

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ABSTRACT

This paper discusses the emergence of small scale cassava based food business in Indonesia. The reform era, which brought more autonomy to the districts in Indonesia, had fostered the emergence of cassava based food industry that represented local identity. Making use the support from the government and civil society organizations that concerned with women empowerment and food diversification, women in villages developed this business to increase their income and economic resilience. Aside from describing the importance of social capital in developing small scale food industry, this paper also offers an empowerment strategy to make cassava based food industry a sustainable source of livelihood for women through populist village development program.

Key words: empowerment; rural women; rural entrepreneur; economic resilience

INTRODUCTION

World Food Programme (WFP) had been campaigning on measures against global food insecurity of which success would be impeded by the lack of social movement from local community (PSPK UGM, 2005). Women are significant agents of the movement because they have experience in processing various sources of food (Mintz, and Du Bois, 2002:103). As one of local food sources, cassava (*Manihotesculenta*) is the fourth of most significant staple food in tropical areas after rice, corn and wheat (Cock, 1982). Since reform era, Indonesia promoted food diversification based on local resource (Kementerian pertanian, 2009). The Ministry of Agriculture launched food diversity program and promoted cassava based food by enacting the year of 2014 as cassava year. Aside from being the third most significant staple food in Indonesia after rice and corn, cassava was selected because it had nutrition as much as rice did and could be cultivated easily in various regions in Indonesia respectively. The implementation of regional autonomy during Reform Era in Indonesia had fostered the emergence of social movement that concerned with local identity strengthening. One of the movement's agendas had been improving public's appreciation to local food. In the last 10 years, cassava based food industry had been developing in villages with women as the main producer (Resti, 2015). The significant growth of the food industry revealed that women contribute to the improvement of family incomes and opening of business and employment opportunity. Moreover, the economic development of cassava based food industry has strong impact to women's empowerment (Duflo, 2012:1054).

This paper attempts to discuss issues hindering the sustainability of cassava based food industry within the frame of women's movement to increase income and economic resilience in the regions in Indonesia. The discussion is relevant for empowerment program because many small and medium enterprises (henceforth SME), which were established either by the government or community's initiatives, did not well develop and were even defunct. This paper notes that the sustainability of cassava based food SME highly depended on the producer's social capital accumulation and appropriate support from various stakeholders such as the government, civil society organization (CSO) and private sector. In drawing the importance of social capital and stakeholder support this paper will be based on the research conducted in Gunungkidul District, Daerah Istimewa Yogyakarta (DIY). The paper will be divided into several sections, first on the importance of social

capital concept for empowerment; second the emergence of cassava based food business in rural areas; third, on the accumulation of social capital in cassava based food industry; fourth discussion and reflection; and fifth the presentation of empowerment roadmap. The paper will be wrapped up with conclusion and recommendation.

LITERATURE REVIEW

The Concept of Social Capital

SME in rural areas needs not only material capital support but also social capital boost. With strong social capital, women could organize themselves to break free from their powerlessness and develop competitive business. In turn, social capital can serve as an instrument to increase women's participation and self-reliance as well as to facilitate the establishment of local food based social movement. It is possible because social capital is a bond that is based on association and social network membership, which has power to generate social influence and support (Putnam, 1993). Putnam also stated that 'people with high levels of social capital see each other as political equals, bound together by horizontal relations of reciprocity and cooperation, not by vertical relations of authority and dependency'. In line with Putnam, Tandon and Mohanty (2002: 7) believed that the community with high level of social capital has associations or networks that are trustworthy for their members to struggle for common interest.

Edwards (2004: 18) and Halpern (2005: 36) argue that organizations with strong social capital are trustworthy for external partner as they are able to cooperate and state their aspirations participatively. Fukuyama (2002: 33) also emphasizes on trust as an important element of social capital. Grootaert (1997) furthermore state that social capital is both an input and output of the development process, which inspired this paper to argue that by enriching their social capital (input process), women would be able to gain multi stakeholder support to develop their business (output process). Silvey and Elmhirst (2003) show the importance of social capital particularly social network for women and rural-urban workers in Indonesia. Women had better access to employment and social security during economic crisis when they had social network. Related to cassava based food business, the highlight of the problem will be how women can develop their social capital through joint business associations or networks, and how the government, CSOs and private sector play their roles in developing their social capital for promoting their business.

The Emergence of Cassava Based Food Business

Since the beginning of reform and decentralization era in 1998, there had been a growing tendency among provincial governors, district mayors and the community in the regions in Indonesia to reveal their local identity by revitalizing local culture. They re-enact traditional art, customs, ritual and even food. Some district governments even organized local food festival. Developing local food business, they expected to strengthen food security, increase family's income and promote tourism in their region.

As a region of tourist destination, DIY has significant number of SME that worked on food business. During 2010-2014 alone, there had been 7% increase in the number of business unit and 3% increase of manpower as implied by the following table. In Gunungkidul district, SMEs producing cassava based food also emerged. The district is a dried region and cassava is the main crop and staple food of the people. Cassava was gradually replaced by rice and other flour based food but since reform era, the people of Gunungkidul began to consume cassava again. The number of cassava based food producers also significantly increased. In 2014 alone there were 9.064 food businesses that employed 34.117 people. As much as one third of the business produced cassava based food. Nearly 90% of food businesses in Gunungkidul are small scale enterprises run by lower class households (Disperindakop DIY, 2015:2).

No	Year	Number of Business Unit	Number of Employers
1.	2010	35.648	119.418
2.	2011	36.446	116.502
3.	2012	37.202	117.993
4.	2013	38.291	122.861
5.	2014	38.569	124.668

Source: Office of Industrial, Trade and Cooperative Affairs (Disperindakop), DIY (Yogyakarta Special Region), 2015.

The provincial and district government claimed that the increasing number of SME producing cassava based food was the result of their five year long empowerment program. Every year both provincial and district government implemented programs aiming to increase production capacity and quality as well as marketing ability. Among the programs implemented by the provincial government (DIY) was trainings for fruits, fish and roots based food producers. The program for root based producers comprised of (1) Indonesian Food Festival, (2) Training on the Improvement of Packaging Quality, (3) Facilitation of Yogyakarta Food Industry Development and 4) Accompaniment to Roots based Food Producers (Disperindakop DIY, 2015:2). Similarly, Gunungkidul district government also conducted trainings and festivals for food producers.

The government's claim is not entirely true. As the government did not provide sufficient fund and manpower such as facilitator and community organizer, while implementing the program, the number of beneficiaries remained limited. The number of trainings they organized was only 3 – 4 per year with 20-30 participants every training. Thus the number of training beneficiaries was less than 0.1 percent of the whole number of business units in Yogyakarta and Gunungkidul District. The emergence of cassava based food business in Gunungkidul was not due to government's effort alone, but more of rural women's initiatives. The reasons why these women worked in cassava based food business were many, namely continuing parent's business, looking for better business opportunities, cassava's being the most available material for business and already having skill to process cassava. They opted to produce cassava snacks because most Gunungkidul people could not abandon rice as staple food easily. Among the snacks they produced were lemet¹, gethuk², opak and tiwul³, of which packages and size were similar with those of wheat or rice flour based snacks. Moreover, the price was reasonable as well.

Tourism development had impacted to the growing number of SMEs that produced cassava based food. In the last five years more tourists, either local or non-local, preferred local food, including the cassava based ones. Many shops selling cassava based foods were built in the region. The products were also sold in other districts outside DIY. SMEs with less than Rp.150.000.000 million production scale per year generated 1-5 million rupiah income per month for women. Some medium scale business owners could even obtain 5 – 15 million rupiah per month. From this income, women contributed to 50-90% of their family income. Cassava based food business is therefore important to improve family welfare and economic reliance.

Along with the growing popularity of cassava, the private sector also initiated cassava food business. They sold products with better taste, package and serving quality. As a result, market was segmented. Cassava products from Gunungkidul were sold in traditional market and kampong resellers as well as among lower class domestic tourists. On the other hand, the products of bigger enterprises were marketed in hotels, for example. Only producers who organized themselves in SME had opportunity to enter wider market segments because the SME enabled them to have market network and new products that were favored by middle-upper class such as modified cassava flour (mocaf) based noodle and cakes.

¹Lemet is traditional snack made from mashed cassava combined with sugar and wrapped in banana leaves.

²Gethuk is steamed mashed cassava, combined with sugar and grated coconuts.

³Tiwul is made from dried cassava, then mashed, steamed and combined with sugar and sometimes grated coconuts. In the past when cassava was the staple food for the people of Gunungkidul, tiwul used to be eaten as part of the main course with other protein source.

Strengthening SME Group's Social Capital

The sustainability of cassava based food business among rural women is supported by their group and stakeholders engagement. When joining the group of SME, permanent members would remain independent producers and the organization became an arena for cooperation in providing materials, capitals for savings and loans as well as facilitating marketing. The case of two business organizations will be presented in this segment in order to reveal the significance of social capital in ensuring the sustainability of cassava based food business. The two respective organizations are Mayangsari and Putri 21 (P-21) Women Farmer Associations; the former is based in Semin Village while the latter Ngawu Village, Gunungkidul District, DIY. Like other Women Farmer Associations in Indonesia, Mayangsari was established by the New Order government in 1980s upon efforts to increase agricultural products. As political climate was more favorable to freedom of organization during the reform era, the 20 members of Mayangsari expressed their dissatisfaction to the organization's goal. They concerned more with cash availability to fulfil their family's daily needs rather than increasing agricultural production. They took initiatives in searching for funding support from village government to finance trainings on cassava processing. They invited trainers from outside their village soon after obtaining the support.

After the trainings they were able to make instant tiwul and gatot that lasted relatively long, easy to keep, cook and serve. Consumers liked the products and the selling was good. In 2008, they decided to establish a business group named Barokah. This SME group aimed to develop production provide savings and loans fund and market the products. A senior member was voted to lead the organization and her main duty was to market the products to various food and handicraft outlets in tourism sites and other places in Yogyakarta. Furthermore, the leader was also responsible to broaden marketing target to buyers from outside Yogyakarta.

Barokah SME organized one monthly meeting where they coordinated marketing plan and divide the profit. The members discussed the sale result and shared information on products the consumers liked in the market. The meeting was also aimed to collect members' contribution which in turn would accumulate the group's capital, tighten their bond and rotate the savings and loans funds among the members. The latter activity enabled producers to have more access to credit than those who worked individually. At the beginning of their establishment Barokah SME owned capital as much as Rp. 375.000 that was collected from their members. They used the money to buy production tools. The member of Barokah SME then conduct rotating saving and credit association (rosca). Rosca have strong impact to increased credit, capital and welfare (Besley, Coate, and Loury, 1993:793). Since 2010, Barokah SME managed Rp. 2.000.000 capital per year, which was collected from member's monthly contribution. Every member contributed Rp. 15.000 per month. The money was used to produce collective products such as manggleng, gatot and instant tiwul. It is important to note that besides producing collective products, every member also produced their own individual products that they marketed on their own.

As they were proven to be able to manage their group's fund, Barokah SME obtained trust from Village Government who provided them Rp. 20.000.000 loan with no interest. As the number of capital increase, every member gained better income as much as Rp. 30.000 – 50.000 per day. This number was much better than that of producers who worked individually. The increase of Barokah SME's material capital thus happened due to increasing trust among the group's members as well as between the group and other stakeholders. Social capital accumulation in Barokah SME had united the members to make progress hand in hand rather than freely competed with each other that might ruin their own business. Therefore, the accumulation of social capital would affect the increasing economic income (Knack and Keefer, 1997:1251).

After conducting some meetings, the members decided to focus on producing cassava based food such as instant tiwul and gathot, cassava sticks, chips and doughnut. They believed their production strength lied in their ability to produce food that represented unique taste of Gunungkidul. Indeed, the SME had been popular as the producers of cassava based food because they had the skill to do so. To expand their market, Barokah SME cooperated with vendors in tourism sites in Yogyakarta. The SME had been able to keep the vendors's trust by always supplying them with products of which quality had been maintained according to standard as well as by complying with

buying and selling rules. The SME's business had been significantly improved in the last five years along with similar improvement in tourism sector. The leaders of the SME urged the vendors to promote cassava based food as the culinary treasure of Gunungkidul to tourists. Their campaign had positive impacts to tourist's food shopping habits. This is in line with Knack and Keefer (1997) that that trust and civic cooperation has a function to strengthen economic performance. With other producers of Gunungkidul typical food such as red grained rice, the producers of cassava based food had made tourists feel already been in Gunungkidul when they consumed their products. Returning migrants and tourists were persuaded taste the local culinary products both in sub-district and district capital.

Different from Barokah SME that was established from Women Farmer Organization (KWT), P-21 was established by a group of local food producers who kept on accumulating their social capital. P-21 started in 1987 when the production of melinjo (GnetumGnemon) in Ngawu village was abundant. Everyone in the village planted melinjo. The women then made melinjo crackers to improve their family income. At the beginning of Reform era, Women and Family Planning Empowerment Agency trained the producers of local food. Several business groups were formed in the village, one per hamlet. Each group produced different type of food. Ngawu hamlet group made instant jamu (traditional herbal and root drinks), Ngasemrejo group made tempe and ampyang kacang, while Sumberejo banana crackers. As time goes by, only Sumberejo group sustained. They named themselves Putri-21, referring to 21 women founders of the group. As melinjo was gradually scarce, the group shifted to banana crackers and other food of which materials were relatively easy to find around their village. A women NGO activist from outside their region helped them to develop the products. She taught how to make snacks using local materials such as banana, cassava and other roots that had marketable taste. P-21 consolidated themselves and elected Ibu Suti as the leader. Ibu Suti mediated the group with vendors, the government, CSR, NGO, private sector and university. She succeeded to play her role and brought some vendors to sell her group's products such as tiwul, gatot, gethuk and lemet.

In 1998, P-21's products were sold in markets in the district's capital and two years later in the provincial market and even to other regions outside Yogyakarta. P-21's popularity in Gunungkidul soared. The district government even claimed to have accompanied the group, they even promoted the group to guests who did comparative study to Gunungkidul government. The group established a training center named Putri-21 Center of Self-Help Rural Agricultural Training (P4S) due to high demand of becoming trainers in local culinary training from several districts. The training center was established in 2006; it conducted internship program, comparative study and trainings in several districts. The chairman and members of P-21 worked as trainers and motivators of women empowerment through the development of SME that produced local food. To maintain their training center's credibility, P-21 kept on making innovation to create better products. The group now had produced at least 30 types of food that was based on roots and nuts including banana roots. Their main products were now mocaf based noodle and mocaf flour that were favored by middle-upper class in the city.

Since the establishment of the training center, P-21 had gained reputation as a rural women association in Gunungkidul that succeeded to win trust from many district governments in Indonesia. There had been hundreds of future local food producers from various regions such as Sumatera, Kalimantan, Sulawesi, Papua and even from other countries such as India and Africa learned from P-21. The chairman of P-21 received award on food security under culinary category as well as AdikaryaPangan Nusantara award from the government in 2012. After learning about P-21 and their mocaf based food production, in 2014 the Corporate Social Responsibility (CSR) division of Bank of Indonesia (BI) worked with two new producer groups in Gunungkidul. Aside from that BI also accompany 13 farmer associations to become mocaf producers, assisting them with fund and working tools. The farmers associations are expected to supply mocaf for P-21 and the new three groups, of which members are 20 people per group. BI accompaniment program aimed to strengthen the group's social capital. They facilitate group consolidation and trained the members to have ability in cooperating with other stakeholders.

In 2015 Centre for Rural and Regional Development Studies (PSPK, Pusat Studi Pedesaan Kawasam UGM) promoted P-21 as the training center of local food production as well as the

facilitator that opened access for women in Ngawen sub-district, Gunungkidul to become local food producers. PSPK argues that rural women's access to develop their capacity was limited due to inadequate material and social capital as well as social network. PSPK invited P-21 trainer to motivate women in Ngawen Sub-district to develop local culinary products. Because of P-21's popularity, many local food consumers bought their products extensively. Now, mocaf based noodles and other snacks made by P-21 are on the menu of Depok City Government officials who implemented "one day without rice" program. Several NGOs in Gunungkidul and Yogyakarta that concern with rural empowerment such as IRE campaigned on returning to local food movement and promoted P-21 and other SMEs products so that they had wider market segment.

DISCUSSIONS AND REFLECTION

The story of Barokah and P-21 SME present previously shows that social capital development is an important element to achieve social entrepreneurship progress. First, at the beginning of their business women from lower class needed a group that was managed participatively as joint forces to learn and work together. The group eased their access to get help entering the market. Facts showed that small scale women producers who worked individually tended to innovate poorly and had less access to capital and limited market. Because their business was usually static and reached only village market, they gained little attention from the government and CSO. Furthermore, facts also showed that this type of producer depended heavily to middlemen to market their products.

Second, in order to ensure sustainability and progress, both groups developed their social capital by managing their group participatively, ensuring accountable leadership, solidify their members, improving public trust and expanding their market network from the government, private sector, NGO and CSO. P-21 succeeded to expand their social network. As a result, they became the part of social movement that aimed to develop local food for food sustainability and women empowerment. Third, in order to expand the market, build social network and gain stakeholder's trust and support, the group of SME developed their life skill and entrepreneurship capacity by innovating new products according to market taste and stakeholder's expectation.

Learning from Barokah and P-21 SME, it is apparent that the progress and sustainability of small-medium scale culinary business needs social capital accumulation. The enterprises gained material capital when the business ran smoothly thanks to incremented social capital. The government did not need to provide huge amount of material capital aid, only small stimulant one was enough. In the case of P-21, the government played important role in promoting the enterprise to other stakeholders as a credible enterprise when they began to expand their social entrepreneurship. As a result, P-21 expanded their market to many regions in Indonesia while their training program even reached women in Africa.

CSO and Universities did not need to aid the groups with huge amount of fund when women could develop their social entrepreneurship based on their own social capital strength. The important roles of CSO and Universities for P-21 were supporting the organization when they promoted traditional food culture within their community, strengthened their social network and improving their role as an agent of social movement. Barokah and P-21 SME are examples of women social movement that aims to strengthen their role in improving their household economy by developing local culinary business. Only women that organized themselves in strong groups were likely to sustain and develop their business well. In Gunungkidul, only a few of such organizations were established, which means most women still worked alone, without collective program, support and networking. These women then had problems in preparing materials, obtaining material capital and marketing their products. Consequently, they depended to middlemen who collected more profits than themselves.

Implementing women empowerment program, the government paid little attention to the role of social capital toward the development of SME. The government has formed economic-social groups in villages and gave them aid package, while paid less attention to developing social capital strengthening. Government, CSR, NGO and university empowerment programs should not be merely about facilitating women to establish organizations as aid receivers. Many cases revealed that the

governmentonly established economic and social organizations during New Order and Reform era, but then many of them turned into defunct organizations once aid were stopped. Grameen Bank already set an example that organization strengthening did not only cover improving production capacity and providing material capital aid. What Grameen Bank did in empowering poor women was strengthening their social capital through group organizing to create solidarity, cooperation, social entrepreneurship and social action. In turn, their program aimed to create gender equality in emancipative way.

In Indonesia the Grameen Bank empowerment model needed to be adapted according to Indonesian context. Unlike Bangladesian women whose poverty was structurally and culturally crafted, cassava based food producers in Gunungkidul were lower class but not the poorest group. Indonesian rural women are able to create nonfarm economic activities based on their own economic resources and utilize their informal social capital such as family ties, friendship, and neighborhood associations. Unlike Bangladesian women, rural women in Indonesia could easily access the capital of microfinance institutions in the villages, so no need to set up a bank like Grameen Bank for the poor. Furthermore the Indonesian Government had already issued some populist policies that were able to improve the welfare of the poor and lower class women.

The best practice of Grameen Bank is capacity building and social capital improvement among the assisted women (Yunus, 1983), In Indonesia, the government has implemented many programs but still has a lack of empowerment agenda and approach. For example, the government implemented National Program for Community Empowerment – Rural Area (PNPM-Mandiri Perdesaan) and established Women Savings and Loans Program as its sub-program (simpan Pinjam Perempuan). This sub-program provided credits for women who have plan to create and develop non-farm business. In the in period of 2007-2013, this sub-program of PNPM Mandiri has distributed loans totaling 6 trillion rupiah to 6 million women in the villages (Sekretariat Kabinet Republik Indonesia. 2014).

Although it appears a lot of compliments about the success of women's savings and loan (see for example Pujiati dan Tauran (2013), many case studies revealed that this program is not berampak on increasing self reliant of economic business customers. Asspuk (2010) and Nihayah, (2015) even found out that the sub-program did not raise the welfare among the poor women . One of the reasons behind the lack of women progrm savings is due to the facilitators were busier completing administrative project works than strengthening the assisted groups (PSPK UGM, 2013). Besides, even prioritize a participatory approach, but in practice often ignored, and mobilizing women to take the credit without strengthening the capacity of business and social capital (Arum, 2013:5; Setyaningrum, 2014:1). Meanwhile, many groups of women's saving and loans had stopped after the PNPM Rural Areas program was completed in 2014. Therefore, this paper argues that women from lower class, such as cassava food producers need better empowerment program by providing facilitator for strengthening capacity building and social capital.

Empowerment Roadmap

Local food business opened employment opportunity for women. Unfortunately, government policies had not yet comprehensively addressed various problems faced by the producers. The government had a lack of manpower and fund to accompany the producers, while their efforts to promote the change of eating habits from rice and wheat flour based to cassava based food were less successful. In fact, the government had opportunity to empower cassava based food producers massively by adopting PSPK and BI's method in doing similar work in Gunungkidul. The key was to working together with CSR, universities and NGO.

Implementing Law No. 6 Year 2014 on Village, the government has an opportunity to empower women who produce cassava based food massively in a more organized way. The government, mainly district government can develop the villages areas (Membangun Desa) such as strengthen the local food small scale industry areas that would increase women welfare and their contribution to the economic development. Moreover, based on Law No. 6 Year 2014, every village has autonomy to develop their community (Desa Membangun) using adequate fund. The Law implied that village would receive 1,4 billion rupiah fund per year. The government is obliged to

recruit thousands of village empowerment facilitator to serve 70.400 villages to be able to reach better self-reliance and welfare. Nevertheless, during the first year of their working period village fund was mainly used for infrastructure development project (Kemendesa PDTT, 2015), while the job activity of the facilitator only covered strengthening village governance and democracy as well (IRE, 2016). The facilitators were also supposed to develop Village Business Unit (BUMDes) yet they only developed the business units owned by village, not strengthening SME existing in the village. In fact, has been proven through studies that empower the rural women of the lower classes will be successful if it is able to facilitate the development of social capital, access to business and marketing (Ratnawati, 2011:5).

Supported by village empowerment facilitators, food businessmen could develop their various kind of social capital, which would strengthen them to have better access to material capital from the village. By involving the facilitators, the government and even village could tackle the problem of inadequate manpower in empowerment programs that are directed both to accompany food SME and to achieve food security.

CONCLUSION AND RECOMMENDATION

Reform era had brought regional autonomy that created favorable climate to creative industry of which products represented regional identity. Such favorable business climate had fostered the development of small medium enterprises that produced local food, including cassava based food. Gunungkidul women initiated the establishment of cassava based food business because cassava were mostly cultivated in the area and used to be staple food in the area. They decided to produce cassava based food when rice and wheat flour had replaced cassava as the main staple food.

Women generally worked individually but when they had the opportunity to develop social capital through business associations, they would use it as a way to sustain their food business. Social capital accumulation is imperative for the organization to become more solid, capable to improve their capacity through reciprocity relation, expand individual and collective business capital based on trust and equality relation and expand production and market through mutual work division. The organization's leaders served as good patrons, of which roles were very important to accumulate social capital. Owning well accumulated social capital, women producers had better access to materials, capital, marketable production quality and market.

Some groups of SMEs had been successful in running their business because they managed their social capital to solidify their organization, make the quality of their products meeting market standard, expand their market and serve as good partners to other stakeholders who aimed to empower their organization. The government, corporate's CSR program, NGO and universities should be in partnership to empower SMEs running cassava based food business. By implementing some empowerment scheme, improving social capital should be the main emphasis. In the era of village autonomy, the government can benefit from village empowerment officers to strengthen the social capital of women producers intensively.

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ENVIRONMENTAL AWARENESS IMPLEMENTATION OF SMEs ENTREPRENEURS: CASE STUDY OF TOFU ENTREPRENEURS KENTENG BANDUNGAN CENTRAL JAVA INDONESIA

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ABSTRACT

Agricultural is an important sector for Indonesia. This sector is the identity and the driver of the economic life of Indonesia. The agricultural base is a village. Therefore, preserving the rural environment is very important. Environmentally friendly farming encourages sustainability of agricultural production systems. Kenteng is a village located in Semarang Central Java. It is central of tofu production that contributes to local tourism. The tofu became feature product of this tourism area. In the production process, entrepreneurs are expected to concern about the environment sustain local economic development. The aim of this study is to describe the implementation of environmental awareness of tofu entrepreneurs at Kenteng Bandungan Semarang. There are 3 (three) aspects of friendly environment implementation: the production process, management systems, and management of environmental sustainability. The object of this study was tofu entrepreneurs who are the members "Damai Business Group". "Damai Business Group" is a group of tofu entrepreneur located in Kenteng. Data were collected using surveys and interviews. The qualitative descriptive analysis was used to analyze the data. The results of this study show, in the aspect of production, the tofu entrepreneurs already running an environmentally friendly production process. For example, saving water and managing waste into other products and alternative energy (biogas). In the system of management, they have participated in various training related to waste management. They were running CSR activities that empower local communities. In the management of the environment, they recycle solid and liquid waste into alternative energy and other products. Overall it can be said the tofu entrepreneurs have started implementing the 3R (Reduce, Reuse, Recycle), although still need to increase the overall environmental awareness activities. Environmentally friendly business practices and concern for the environment can support sustainable rural development.

Key words: rural environment, entrepreneur, environmental friendly production process, sustainable rural development

INTRODUCTION

Rural areas in Indonesia is 80% of the total area of Indonesia. Rural areas dominated by agriculture. Therefore, the agricultural sector is an important sector in Indonesia. Bandungan Central Java, an agricultural center in particular food commodities. The agricultural industry can be developed properly when the natural environment to support the development of the agricultural industry. Therefore, if in area area there are the manufacturing industry, the manufacturing industry activity should managed with preserving the environment. It is intended that the preservation of rural areas are well preserved.

Bandungan Central Java is a nature-based tourist area with excellent products is tofu that characterizes the region. Kenteng is one of the villages in Bandungan which is the center of the tofu. The tofu entrepreneurs have scale of micro, small, and medium enterprises (SMEs). In conducting the production activity of tofu, tofu entrepreneurs are expected to still care about the environment in other words should implement Green Manufacturing activity. Green Manufacturing has meaning how to

design, fabricate and produce products with minimal negative effects on the environment and society (Mittal and Sangwan, 2014).

Green Manufacturing activity is implemented so that all production activities directed at behavior go green. Go green interpreted as a concept that includes ethical behavior, social responsibility, and also of environmental protection (Yozgart and Karatas, 2011). This study aims to describe the implementation of environmental awareness tofu entrepreneurs at Keteng Bandungan Central Java in terms of the production process, the company's management, and environmental management industry. The results of this study are expected to provide benefits for tofu entrepreneurs in order to realize the importance of environmental concerns in their business activities so as to preserve the environment.

LITERATURE REVIEW

Environmental Care Practices in SMEs

Studies conducted Mittal and Sangwan, 2014 identify the practices adopted by SME's in New Zealand related to the environment covers four key practices, namely: 1) operating practices (operational practice), 2) management practices waste (waste management practices) , 3) design environment, 4) the company's environmental management practices (environmental management practices). In terms of operating practices, the company strives to achieve such as:

- Reduce fuel costs.
- Optimizing distribution network.
- Reducing emissions to water and air pollution.
- Establish a set of measurable targets for reducing energy use.
- Reduce pollution emissions of waste
- Shows a preference for the purchase of environmentally friendly products.
- Establish a set of measurable targets to reduce water usage.
- Selecting a method of transportation clearly.

In terms of waste management practices includes activities such as:

- Removing or reducing the waste that may occur.
- Has a recycling program.
- Having a program using recycled goods.
- Minimizing packaging products.
- Make the series of measurable targets for reducing waste.
- Perform re-packing
- Re-packing of the final product.

In terms of designing environmentally conscious practices, activities include:

- Using material that is not a hazard.
- Designing products to be easily repaired and or for the long term.
- Designing products to be easily reassembled or recycle.
- Changing the basic material with recycled material.

In terms of environmental management practices, covering activities:

- Having a policy statement regarding the environment.
- Having staff in charge of the environment.
- In an effort to include environmental auditing.
- Environmental management system.
- Having an environmentally friendly purchasing policy.
- Evaluating the performance of suppliers that are environmentally friendly.

- Collect data related to environmental issues.
- Having a certificate related to the environmental management system.
- Having an eco-labeling.

In a study of the readiness of SME sector in particular environmentally friendly industry which made Bank Indonesia (2012) identify factors friendly / caring environment that made the industrial sector SMEs according to the ministry of Industry, which can be classified in several aspects, such as:

- a) Production processes, covering aspects of raw materials and auxiliary materials, energy, water, process technology, products, human resources, and work environment.
- b) Management of the company, including production efficiency programs, community development (CSR), awards ever received and management system.
- c) An environmental management industry, include compliance with environmental quality standards, waste management facilities and emissions, and environmental management performance.

The detailed guidelines for the implementation component of the green industry by Sustainable Industrial Assessment Guidelines 2012 (Bank Indonesia, 2012) includes three (3) aspects: production processes, management systems, and management of environmental sustainability. Aspects of the production process include: raw materials and auxiliary materials used (material specifications, material substitution, material certification ownership, SOP); certification of products (eco-label); use energy efficiency, the use of new and renewable energy; water saving efforts; possession of machine maintenance program; activity 3R (reduce, reuse, recycle); modification of equipment so efficiently. The management aspects of the company include: production efficiency policy commitments; CSR implementation; green industry related awards; management system. Aspects of environmental management industry include: the use of raw materials that do not harm the environment and management of industrial waste.

Barriers to Environmental Care Practises in SMEs

From the report of Bank Indonesia in Readiness Assessment Sustainable SMEs in accessing finance (2012) found some obstacles SMEs to practice caring environment (environmentally friendly). Obstacles such as, the lack of knowledge related to SMEs for environmental protection; weak aspects of management; technical aspects that are not held to support environmental activities; and the limited sources of financing oriented environmentally friendly. Another obstacle is the lack of support in the development of environmentally friendly SMEs is to strive to increase market absorption environmentally friendly products is still limited. It is also because of the lack of socialization and education needed to raise awareness of consumers to take advantage of eco-friendly products.

RESEARCH METHOD

This research object is tofu entrepreneurs who are members of the Kelompok Usaha Bersama (KUB) in KentengBandungan Central Java. Data used in this study are primary data consisted of tofu business profiles, production processes, the company's management, as well as the environmental management industry. The collection of data through in-depth interview techniques to the chairman of the Kelompok Usaha Bersama (KUB) about business activity and practice of environmental awareness. The technique of data analysis used is the descriptive qualitative approach to explaining and describe the implementation of environmentally conscious practises. Steps to analyze the data are the result of in-depth interviews translates into the data analysis to describe the practical implementation of environmental awareness conducted by tofu entrepreneurs. Description of the implementation of environmental stewardship practices committed by tofu entrepreneurs includes three (3) aspects: production processes, management systems, and management of environmental sustainability.

RESULTS

According to Bank Indonesia (2012) in Prapti, et al (2015), the issue of environmental stewardship practices of SMEs entrepreneurs do not merely lead to the needed capital for investment in equipment in order to efficient production. But also knowledge about the environment and the level of preparedness of SMEs in running / implementing environmentally friendly business management. Results of research conducted Prapti, et al (2015) found in general SMEs are not ready to practice caring environment with many obstacles such as lack of knowledge about environmentally friendly business management practices, limited technical, less capital. The tofu entrepreneurs in Kenteng Bandungan Central Java join into the Kelompok Usaha Bersama (KUB) Damai. This group is the development of Women Farmers Group located in Kenteng Bandungan Central Java, standing start of 1998. The Tofu entrepreneurs are joining in this business group are 5 entrepreneurs. Implementation of environmental awareness by tofu entrepreneurs are as follows:

Aspects of Production Process.

Table 1. Implementation of Environmental Concern Aspect Production Process (Raw Materials, Auxiliary Materials, Products Produced, Energy)

Criteria for Environmental Concerns of Aspect Production Process	Implementation Undertaken by the Tofu Entrepreneurs
Using raw materials have certifications	No, because the raw materials are purchased in the public market of PT Alam Segar Ungaran.
Using raw materials and auxiliary materials renewable	Yes, because it uses raw material soybeans, salt, seeds of tofu.
Substitution of raw materials into environmentally friendly materials	Do not use raw materials substitution.
Ownership certification of material safety data sheets	No
The treatment of residual raw materials unused	No remaining raw materials
The resulting product has a product certificate	Have a halal certificate from the Indonesian Ulama Council (MUI), the permission of the Food and Drug Administration as well as permission from the Ministry of Health.
Ownership ecolabel certification	No
Efficiency of energy use	By using fuel wood taken the steam to drive a steam boiler. And using solar to turn the machine milled soybeans.
The utilization of new and renewable energy (EBT)	Yes. By using fuel wood removed to move the steam boiler.
10.Perform the efficiency of water use	The water is only used for soaking soybeans, mill soybean, and clean the place of production.
Have machine maintenance program	Machine regularly be checked and serviced in cooperation with technicians. When the machine is damaged tofu entrepreneurs get the backup engine form technicians.
Conducting reduce (reducing the use of raw materials and auxiliary materials, energy, water)Conducting reduce (reducing the use of raw materials and auxiliary materials, energy, water)	Reducing energy that can not be renewable by using wood to produce steam to boil the soya
13.Conducting reuse (reusing unused materials, energy, water, waste product packaging)	water results from tofu that has been milled saved one night and used to seed the tofu to the production process in the next day.
14.Conducting recycle (reuse of raw materials, auxiliary materials, energy, water, waste products through the recycling process)	Tofu dregs are used for tempe gembus and tofu flour. Flour tofu can be used for material bread or cake. Water result of the crystallization process of tofu can be used for nata de soya or for animal feed
15. Modification of the equipment as the efficiency of production processes	The use of steam to boil the soya in order to reduce the use of fuel oil.
16. Using the new and renewable energy (EBT)	Using wood to produce steam to operate boilers

Sources : Primary data (2016)

From the table above, gives evidence that the tofu entrepreneurs have an understanding of the practice of environmental concerns. Most of the criteria of environmentally friendly production process show that tofuentrepreneurs implement environmentally friendly production processes.However, related to

the use of raw materials that are certified and eco-labels, they do not understand well. Tofu entrepreneurs have not standard procedures to record the certified raw materials and auxiliary materials certified. The results show that environmentally friendly activities associated with the production process (technology criteria poses) tofu entrepreneurs are already working on the activity of the 3R (reduce, reuse, recycle). They've been doing engine maintenance programs regularly and using renewable energy.

Aspects of Corporate Management

Table 2. Implementation of Environmental Concern of Corporate Management

Criteria for Environmental Concern of Corporate Management Aspect	Implementation Undertaken by the Tofu Entrepreneurs
Commitment of Management in production efficiency policy	Having a caring attitude towards the environment, although not yet able to perform optimally
Conducting CSR	invite people nearby to be an employee or salesperson to sell tofu. It is also training young men to learn about tofu packaging printing. Kelompok Usaha Bersama (KUB) Damai also help local communities to apply to the government to increase the installation of water and electricity to the local communities
Acquisition of green industry related awards	Receive a training certificate and food processing, waste management guidance certificate from the Environment Agency Semarang regency, EIA training certificates, certificate WWTP (Waste Management Insulate).
Management Systems (ISO 14000; ISO 9000 S; GMP; HACCP, etc.)	Do not have

Sources : Primary data (2016)

From the table above, there is evidence that tofu entrepreneurs have a commitment to preserving the environment though not yet done optimally. CSR activities are carried out is also limited to the surrounding communities in the form that is still simple. Tofu entrepreneurs have to get a certificate of green industry, though still at levels attend training on green industries, though still at levels attend trainings on green industries. Tofu entrepreneurs have a business on a macro scale so that the certificate of international institutions is related to the ISO quality management as well as they did not get.

Aspects of Environmental Management Industry

Table 3. Implementation of Environmental Concern of Environmental Management Industry

Criteria for Environmental Concern of Environmental Management Industry	Implementation Undertaken by the Tofu Entrepreneurs
Using materials that do not harm the environment	There are no raw materials and auxiliary materials that damage the environment. Except for the packaging of the final product (tofu) is made of plastic. Packaging the final product in the form of plastic can not be avoided because tofu is moist and juicy. Tofu entrepreneurs cold does not find any other alternative packaging
2.How to dispose of liquid waste.	Liquid waste from soaked soybeans and water to clean the place of production supplied to the biogas tank. Then mixed with cow dung processed into biogas which can be used as fuel for household stoves tofu entrepreneurs. Wastewater from the crystallization process tofu processed into nata de soya and can also be used for animal feed. While the solid waste in the form of tofu made gembus tempeh or tofu flour which can be used to make bread or cake.

Sources : Primary data (2016)

Tofu entrepreneurs are already implementing environmental awareness of aspects of environmental management industry. They aware of the dangers of waste and strive to treat waste by utilizing the waste to be processed into something useful. Of the three aspects described above, tofu entrepreneurs have behaviors that lead to environmental stewardship. Although it can be said they have not been

comprehensively environmentally conscious business activities in accordance with the criteria of the green industry. In order for the activity of care for the environment is integrated as a whole, the role of government is needed to provide socialization and education depth of business management that are environmentally friendly and support facilities for better waste management.

CONCLUSION

Of the three aspects of business management which care about the environment, it can be concluded that the tofu entrepreneurs have implemented environmentally friendly production process. However, related to the use of raw materials that are certified and eco-labels, they do not understand well. They do not have a standard procedure to collect data on certified raw materials and auxiliary materials certified. In terms of technology poses, they are already working on the activity of the 3R (reduce, reuse, recycle). They've been doing engine maintenance programs regularly and using renewable energy. CSR activities have been carried out on surrounding communities but still in a simple form. They are already implementing environmental awareness of aspects of environmental management industry. The behavior of entrepreneurs who care about the environment is expected to improve assuredness and environmental sustainability to the rural environment is the basis for the agricultural industry. The government needs to play a bigger role in socializing and educating depth of business management that are environmentally friendly and support facilities for better waste management.

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FORMULATING FARMER AND FISHERMAN HOUSEHOLD ECONOMIC MODEL: THE CASE OF BEKASI REGENCY

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ABSTRACT

Poverty level in rural areas in West Java eventhough declining yet still counts a significantly greater number compared to 30 other provinces in Indonesia. From the period of 2010 to 2013, annual poverty in rural areas counts to 2.8 million people (2010), 2.71 million people (2011), 2.45 million people (2012) and 2.42 million people (2013). Those numbers account to more than half of West Java's poverty in total. Bekasi as a region of which 80% of its area occupies as agricultural land, would obviously be an interesting case to study. However, taking a closer look to the economic characteristic of Bekasi regency indicated by the PDRB (Produk Domestik Regional Bruto)ⁱ, the economic outlook shows that agricultural sector contributes very little and pale in comparison to the manufacturing sector. Agricultural sector significantly affects the farmers and fishermen households income and the poverty that this group suffers. Farmers and fishermen households constitute only 85.587 people (Source: Susenas Pertanian Kabupaten Bekasi Tahun 2013)ⁱⁱ compared to the rest of other household groups that counts to 742.356 (Source: Bekasi Dalam Angka Tahun 2013)ⁱⁱⁱ. Hence, farmers and fishermen households that constitute only 12% from total, suffer significantly from the burden to supply the people of Bekasi regency basic needs of consumption. The development of household economic model for farmers and fishermen needs to be carried out to explain the economic behaviour as the main focus of this research. Methodology applied to achieve the goals of this research is based on empirical approach. Empirical approach supports stages of household economic modelling for poor farmers and fishermen specifically in Bekasi regency. A relevant theory is placed as a basic model with more leniency in assumption in order to record the reality in the households of poor farmers and fishermen. The result of the modelling is a replica resembling the economy of the household, which then can be used as a tool for planners to formulate and examine policy ideas and poverty alleviation programs for farmers and fishermen households in Bekasi regency.

Key words: Farmer and Fisherman Household Economic Model

INTRODUCTION

Farmers and fishermen are vulnerable in today's economy. Poverty population in agriculture and fisheries is quite numerous, even though they hold significant role in the economy as a supplier of raw material needs and fulfil the needs of public consumption. Poverty in farm households can pose serious macroeconomic problems. Scarcity of primary agricultural commodities may push the economy to import for solving domestic shortage problem both for production of the manufacturing sector as well as food security. In addition to the expense of foreign exchange, commodity import substitution policies will increase the pressure of competition for domestic farmers who are relatively difficult to be efficient because of uncertainty in business and market imperfections.

Bekasi District Government through RPJMD years 2012 – 2017, related to agriculture have a mission to improve regional competitiveness in the fields of industry, trade, and agriculture. This means the agricultural sector become the economic sector encouraged to be growth for regional economic development. This means the motivation of Agricultural growth to be competitive is based

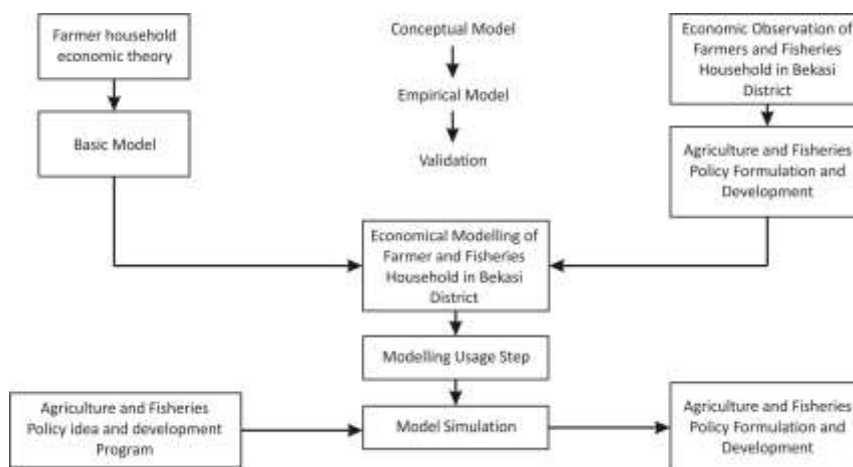
on the phenomenon of domestic farmers and fishermen that only 12% of the population. Thus, the idea to see more clearly how the phenomenon of domestic farmers and fishermen become the first step to help create an impetus for improving the competitiveness of Bekasi district agricultural sector. For those reasons, the idea of poverty reduction policies and development programs to farmers and fishermen require quantitative methods. Quantitative methods can help planners to test the idea of development policies and programs, so that the impact on efforts to reduce poverty can be measured. Based on this insight, Bekasi District Government deems it necessary to draw up a task that can generate economic model or replica of poor households of farmers and fishermen.

CONCEPTUAL HOUSEHOLD ECONOMIC MODEL

This section presents a qualitative explanation of the microeconomic behavior of households of farmers and fishermen. The explanation begins with building a model of the household economy of farmers and fishermen. The model is a correction and development of studies conducted by Sundaya (2007). Qualitative model that abstracts the economic behavior of Household Farmers and Fishermen to draw up a proposition that describes the behavior of consumption, production, and potential participation of Farmer Households Fishermen on agricultural commodity markets. Proposition raised by utilizing and exploring mathematical approach which is deemed to have the ability to display the basic logic behind the proposition. In economic literature, the method known as comparative statics analysis techniques. Technically, from Henderson and Quandt (1980) and Sadoulet and de Janvry (1995), Stone-Geary utility function can be used to describe the characteristics of Farmer Households Fishermen. General model of the household economy can be modified to replicate or abstracting the household economy of poor fishermen. Modification is done by incorporating utility function into the utility function described on the base model.

METHODOLOGY FRAMEWORK

Framework methodology applied to meet the goal of the study is based on an empirical approach. Empirical approach conducted to support the modeling stage of the economic system Bekasi District. Agriculture is a sub of the system. Meanwhile, the relevant theory placed as the basic model (basic model) for loosened the assumption so the economic system of Bekasi District can be recorded. The results of the modeling is a replica of the Bekasi economic system which can be used as a tool for planners to formulate and test the idea of agricultural development policies and programs. The process of implementing an empirical approach is illustrated in Figure 1.



MODEL DEVELOPMENT

This section provides information on the economic model of farmer and fishermen households. The economic model farmer households divided into two groups, farming resource-based land and water resources. Farm-based resources comprises of farming land users the paddy fields, farms and plantations. On the other hand, household fishing effort to replicate the use of marine and coastal resources in Bekasi.

Household Economic Model

Household behavior of farmers and fishermen show their similarities and differences. As shown in this section, the similarities are in consumer behavior, and the difference is in the production behavior.

Farmer household economic model

The economic model of farm households include several sub behaviors or activities, ie consumption, production, and behavior in agricultural commodity markets. All sub models show interconnectedness, where farming production activities become the basis for the consumption behavior and their behavior in agricultural commodity markets. Assumption of the model is that the farmer household each has one hectare of land.

The results of estimation model successfully provide information about the consumption decision and optimum production in farm households of Bekasi District. Coverage of consumption decision are:

- Food Consumption
- Non-food Consumption
- Paddy Rice Self-produced Consumption
- Husband break time
- Wife break Time

The utility representation of the decision presented by equation (1), with the particular X and C variable showed on Table 1.

$$U = (X_m - C_m)^{0.47} (X_{nm} - C_{nm})^{0.36} (X_p - C_p)^{0.17} (X_h - C_h)^{0.18} (X_w - C_w)^{0.18} \quad (1)$$

Equation 1 Gives Information as follows:

- 1 percent increase in food consumption raise the utility of farm household for 0.47 percent;
- 1 percent increase in non-food consumption raise the utility of farm household for 0.36 percent;
- 1 percent increase in paddy rice consumption raise the utility of farm household for 0.17 percent;
- 1 percent increase in husband break time raise the utility of farm household for 0.18 percent;
- 1 percent increase in wife break time raise the utility of farm household for 0.18 percent;

It is seen that the food consumption has great influence for the usefulness of farm households, compared with other consumption commodities. Decision of the type of consumption takes into account factors as follows: the amount of the basic needs of the household or a basic need for every kind of commodity consumption, the consumption of commodity prices, wage rates, and household income generated household. The amount of optimal consumption and basic needs presented in Table 1 presents that for households with one hectare of land, the optimal consumption is greater than the basic necessities. Value index of food and non-food consumption optimal greater than the index of basic needs of the two commodities. So is the case with the needs of the production of paddy rice they produce. Needs of rice per month at an average of 25 kg per month, and the optimum is close to 30 kilograms per month. However, to meet the basic needs, both husband and wife should sacrifice their breaks. Needs of breaking time in growing season until harvest time is 576 hours, while the optimal value is 216 hours, almost half of the time needed to break. This means, they have to work hard to meet their basic needs by using half of his break time to work.

Table 3. The Amount of Consumption and Basic Food Needs, Non-Food, Paddy Rice, Husband Break Time, and Wife Break Time of Farmer Households in Bekasi District

Consumption Type	Optimal Consumption [X]		Basic Needs [C]		Unit
Food	Xm	325.30	Cm	179.23	Index
Non Food	Xnm	317.72	Cnm	168.53	Index
Paddy Rice	Xp	29.99	Cp	25.50	Kg/month
Husband Break Time	Xh	216	Cs	576	Hours
Wife Break Time	Xw	216	Ci	576	Hours

As explained earlier, the fulfillment of consumption derived from the production activities of the farm. Production activities of farming operation can be learned from the production function as shown in equation (2).

$$Q = T_{hi}^{0.55} T_{wi}^{0.55} K_{pkndg}^{0.33} K_{pursa}^{0.065} K_{pSp36}^{0.073} K_{pNPK}^{0.23} K_{opstro}^{0.17} \quad (2)$$

This equation give explanation as follows:

- 1 percent increase in husband and wife work time will contribute 0.55 percent rise in paddy rice production.
- 1 percent increase of manure usage in farming activities will contribute 0.065 percent rise in paddy rice production.
- 1 percent increase of urea fertilizer usage in farming activities will contribute 0.065 percent in paddy rice production.
- 1 percent increase of Sp36 fertilizer usage in farming activities will contribute 0.073 percent in paddy rice production.
- 1 Percent increase of NPK fertilizer usage in farming activities will contribute 0.23 percent of paddy rice production.
- 1 percent increase of petro-organic chemical in farming activities will contribute 0.17 percent of paddy rice production.
- 1 percent increase of pesticide in farming activities will contribute 0.05 percent of paddy rice production.
- 1 percent increase of seeds usage in farming activities will contribute 0.08 percent of paddy rice production.
- 1 percent increase of farming activity area will contribute 0.15 percent of paddy rice production.

It can be concluded that manure usage has vital function in paddy rice production compare to other variables. Production which includes the use of working hours, fertilizer usage, and seeds, the decision will depend on the following considerations:

- Price of fertilizer and seeds;
- Earnings level;
- Surplus target of paddy rice production, ratio between the amount of harvest and household rice needs;
- Price of paddy rice;
- Full income of farm household.

The number presented in Table 2

Table 4. Input Price, Full Income, Wage Rate, and Surplus Target of Paddy Rice Production

Production Consideration	Amount	Unit
Manure Price	1 000	Per Kg
Urea Fertilizer	1 300	Per Kg
SP36 Fertilizer	2 200	Per Kg
NPK Fertilizer	2 300	Per Kg
Petro-Organic Chemical	500	Per Litre
Pesticides Price	75 000	Per Litre
Seeds Price	8 000	Per Kg
Full Income	10 950 000	Per Year
Wage Rates	30 000	Per Day
Paddy Rice Price	3 500	Per Kg
Surplus Target	436.72	Kg

Taking into account the production function, and production considerations in Table 2, it will result in a decision regarding the optimal use of inputs to produce optimal yields of rice. Table 3 shows optimal use of input could have a yield of 4 466.31 kg.

Table 5. Optimal Input and Output Number in Farmer Households

Production Variable	Optimal Amount	Unit
Husband Work Time	175.31	Hours/Season
Wife Work Time	175.31	Hours/Season
Manure	796.84	Kg
Urea Fertilizer	122.59	Kg
Sp36 Fertilizer	88.54	Kg
NPK Fertilizer	254.07	Kg
Petro-organic Chemical	876.53	Kg
Pesticides	1.67	Liter
Seeds	24.35	Kg
Paddy Rice Harvest	4 466.31	Kg

Fishermen Household Economic Model

The economic model of fishermen household includes several sub conduct or activities, ie consumption, production, and behavior in agricultural commodity markets. All sub models show interconnectedness, where farming activities become the basis for the consumption behavior and their behavior on a commodity market of marine fish. Assumption of the model is that households have a boat fishing with a size 6 to 10 GT.

The estimation model has been successful in eliciting information regarding consumption and production decisions on the optimal fishing households in Bekasi. Scope of consumption decisions are:

- Food Consumption
- Non-food Consumption
- Paddy Rice Self-produced Consumption
- Husband break time
- Wife break Time

The utility representation of the decision presented by equation (3), with the particular X and C variable showed on Table 4.

$$U = (X_m - C_m)^{0.47} (X_{nm} - C_{nm})^{0.36} (X_p - C_p)^{0.17} (X_h - C_h)^{0.18} (X_w - C_w)^{0.18} \quad (3)$$

Equation 3 Gives Information as follows:

- 1 percent increase in food consumption raise the utility of farm household for 0.47 percent;
- 1 percent increase in non-food consumption raise the utility of farm household for 0.36 percent;
- 1 percent increase in paddy rice consumption raise the utility of farm household for 0.17 percent;
- 1 percent increase in husband break time raise the utility of farm household for 0.18 percent;
- 1 percent increase in wife break time raise the utility of farm household for 0.18 percent;

It is seen that food consumption has great influence for the usefulness of fishermen households, compared with other consumption commodities. Decision of the type of consumption takes into account many factors: the amount of the basic needs of the household or a basic need for every kind of commodity consumption, commodity prices, wage rates, and household income households generated, with the amount as shown in Table 5. The wage rate of husband and wife on the table is the average wage rate per day on paddy rice farming. Prices of food and non-food, which aggregate various types of food consumed each day, demonstrating the value of the rupiah required to purchase a variety of food and non-food needed per day.

Table 6. Wage Rates, Price, and Income in Fishermen Household with 6 to 10 GT Ship Capacities

Coefficient	Notation	Amount	Unit
Husband Wage Rates	Ph	30 000	Rp/Day
Wife Wage Rates	Pw	30 000	Rp/Day
Food Price	Pm	20 000	Rp/Day

Coefficient	Notation	Amount	Unit
Non-food Price	Xm	16 000	Rp/Day
Total Income	Y	14 000 000	Rp/Season

Observing the amount of optimal consumption and basic needs presented in Table 4, it appears that for fishermen household who have 6 to 10 GT ship, optimal consumption is greater than the basic needs. Value index of food and non-food optimal consumption greater than the index of basic needs of the two commodities. As do the fish consumption of fish they catch. Needs of fish per month on average 25 kg per month, and optimally is approaching 54 kilograms per month. However, interestingly, to meet the basic needs, both husband and wife should sacrifice their breaks. Needs break time per fishing season is 576 hours, while the optimal value is 216 hours, almost half of the time needed break. That is, they have to work hard to meet their basic needs by using his half of break time to work.

Table 7. The Amount of Consumption and Basic Needs of Food, Non-food, Paddy Rice, Husband Break Time, and Wife Break Time of Fishermen Households With 6 to 10 GT Ship in Bekasi District

Consumption Type	Optimal Consumption [X]		Basic Needs [C]		Units
Food	Xm	312	Cm	180	Index
Non-food	Xnm	305	Cnm	169	Index
Fish	Xp	54	Cp	25.5	Kg/Month
Husband Break Time	Xh	212	Cs	576	Hours
Wife Break Time	Xw	212	Ci	576	Hours

As explained earlier, the fulfillment of consumption needs comes from fishing activities. Production activities of fishing effort can be learned from the production function as shown in equation (4).

$$Q = T_{hi}^{0.18} K_{bbm}^{0.39} K_{es}^{0.10} K_{mknan}^{0.44} \quad (4)$$

The equation generate following result:

- 1 percent increase in fisherman work time will contribute 0.18 percent rise in the fish caught.
- 1 present increase in gasoline usage for fishing activities will contribute 0.39 rise in the fish caught.
- 1 percent increase in ice usage for fishing activities will contribute 0.10 percent rise in the fish caught.
- 1 percent increase in food commodity supplies will contribute 0.44 percent rise in the fish caught.

The result shows that Food commodity supplies has the greatest influence compared to the other variable.

The decision of production variable depend on following factor:

- Gasoline, Ice, and Food Price;
- Wage Rate;
- Surplus level of Fish catch, ratio between the amount of fish haul with the household fish needs;
- Fish Price; and
- Full Income of Fishermen Households

Table 8. Input Price, Full Income, Wage Rates, and Surplus Production target

Production Consideration	Notation	Quantities	Units
Gasoline Price	Vp	6 500	Per litre
Ice Price	Vo	60 000	Per cube
Food Price	Vb	250 000	Per Trip
Full Income	g	10 950 000	Per Year
Wage Rate	Ph	30 000	Per Day
Paddy Rice Price	P	25 750	Per Kg
Surplus Production Target	Qm	572	Kg

Taking into account the production function, and aggregates production considerations in Table 6, it will result a decision regarding the optimal use of inputs to produce marine fish catches. The Number presented in Table 7.

Table 9. Optimal Input and Output of Fishermen Households

Variable Production Decisions	Notation	Quantities	Units
Husband Work Time	Tws	588	Hours
Gasoline	Kp	27	Litre
Ice	Ko	29	Cubes
Food	Kb	70.5	Kg
Fish Haul	Q	626.78	Kg

Households Economic Model Simulation

Model simulation conducted by intervening economic household model with several type of scenarios. Generally the simulation scenarios are as follow:

- Output price increase;
- Input price increase;
- Household food commodities price increase;
- General commodities price increase.

Simulation conducted to deem the sensitivity of household economic activities to market price change, both input and output market, as a result the effect to household economic activities can be observed for Bekasi district government concerns.

Farmer Households Economic Model Simulation

The scenario of simulation model of household economy are as follow:

- 10% increase in paddy rice price
- 10% increase in manure price
- 10% increase in urea fertilizer price
- 10% increase in SP36 fertilizer price
- 10% increase in NPK fertilizer price
- 10% increase in Petro-organic chemical price
- 10% increase in pesticide price
- 10% increase in seeds price
- 10% increase in input and output price
- 10% increase in food commodities price

Farmer Household Economic Model Simulation Results Tabel 8.

Table 10. Farmer Household Economic Model Simulation Results

Household variable	Decision	10% Price Increase									
		Paddy Rice	Manure	Urea Fertilizer	SP36 fertilizer	NPK Fertilizer	Petro-organic Chemical	Pesticides	Seeds	Input Output and Food	
Husband Work Time		0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	-17.43
Wife Work Time		0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	-17.43
Manure		0.26	-9.09	0.00	0.00	0.00	0.00	0.00	0.00	-8.86	-17.43
Urea Fertilizer		0.26	0.00	-9.09	0.00	0.00	0.00	0.00	0.00	-8.86	-17.43
Sp36 Fertilizer		0.26	0.00	0.00	-9.09	0.00	0.00	0.00	0.00	-8.86	-17.43
NPK Fertilizer		0.26	0.00	0.00	0.00	-9.09	0.00	0.00	0.00	-8.86	-17.43
Petro-organic Chemical		0.26	0.00	0.00	0.00	0.00	-9.09	-9.09	-9.09	-8.86	-17.43
Pesticides		0.26	0.00	0.00	0.00	0.00	0.00	-9.09	0.00	-8.86	-17.43
Seeds		0.26	0.00	0.00	0.00	0.00	0.00	0.00	-9.09	-8.86	-17.43
Harvest		0.40	-3.13	-0.62	-0.70	-2.17	-1.58	-2.05	-2.33	-8.73	-25.69
Household Consumption Variable											
Food		-0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.07	3.12
Non-food		-0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.07	3.34
Paddy Rice		-5.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-5.42	0.12
Husband Break Time		-0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.02	8.39
Wife Break Time		-0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.02	8.39
Harvest Sales		0.51	-3.19	-0.63	-0.71	-2.21	-1.61	-2.08	-2.37	-8.79	-26.17
Household Monetary											
Income from harvest		10.56	-3.19	-0.63	-0.71	-2.21	-1.61	-2.08	-2.37	0.33	-26.17
Household Spending		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.70
Household savings		15.17	-4.58	-0.91	-1.02	-3.18	-2.31	-3.00	-3.41	0.48	-40.09

Simulation result with 10 % increase in paddy rice price scenario, gives following information:

- The decision variables of production in the form of the Husband working time, Wife Working Time, Manure, Urea, SP36, NPK, Petro-organic chemical, Pesticides and Seed, the amounts will increase with same number 0.26 percent. Farmers will add to his working time, and input volume will be increased by 12.26 percent.
- Harvest potentially increase for 0.46 percent.
- The decision variable of household in the form of food consumption, non-food consumption, paddy rice consumption, husband breaking time, and wife breaking time, on the contrary will decrease as seen on second column. Self-produced paddy rice consumption will decrease for 5.42 percent apparently this happened because farmer household will decide to increase their rice sale to generate more income.
- Harvest sale increase for 0.51 percent.
- Income of farmer household increase for 10.56 percent.
- No significant change in the farmer household outcome.
- Farmer household saving increase for 15.17 percent.

This first simulation results provide general information that the rice price increase will provide additional benefits to domestic farmers, and improve productivity. It can be seen from the increase in their working hours for farming activities. The next simulation results hold by increasing input prices individually, the result will provide information what variable would cause great loss to domestic farmers. Substantial losses can be derived from the increase in the price of manure. When manure is simulated rose 10 percent, household income of farmers fell by 3.19 percent. This decline is greater than the impact of the increase in other inputs. When input prices rose, optimal use is going down, so the yield will also decrease. With the price of rice unchanged, the decline in production will reduce household income of rice farmers.

The ninth simulation raising the entire input and output prices of the same magnitude, providing information that domestic farmers will suffer losses. The strength of the impact of rising input prices, can't be substituted by the force of the impact of rising rice prices. The result is the whole use of inputs will decrease, and on the financial side, the household income of farmers will decrease by 8.79 percent. Considering its major impact, the observation of the rising prices of fertilizer and insecticides is vital, yet the price of grain is a presidential decision so it is difficult to control by district government.

Last Simulation, providing information that local governments must pay attention to the national inflation rate. Especially for food commodities. The simulation results showed that the rise in food inflation of 10 percent, the economic impact is very significant for farmer households. Variable production decisions usage would decrease by 17.43 percent. Harvests will decline significantly by 25.69 percent, consequently the household income of rice farmers will decrease by 26.17 percent.

Fishermen Households Economic Model Simulation

Economic simulation model for fishermen household conducted with following scenario:

- 10% increase in marine fish price
- 10% increase in gasoline price
- 10% increase in ice price
- 10% increase in ship crew food supplies prices
- 10% increase in household food commodities price
- 10% increase in general commodities price

Table 11. Fishermen Households Economic Model Simulation Results

Decision Input Variable	Base	Fish	Gasoline	Ice	Ship Crew Food	Households Food	General
Husband Work Time	587.71	8.83	0.00	0.00	0.00	-0.26	0.01
Wife Work Time	587.71	8.83	0.00	0.00	0.00	-0.26	0.01
Gasoline	27.13	8.83	-9.09	0.00	0.00	-0.26	0.00
Ice	29.39	8.83	0.00	-9.09	0.00	-0.26	0.00
Food	70.53	8.83	0.00	0.00	-9.09	-0.26	0.00
Production	626.78	0.00	0.00	0.00	0.00	0.00	0.00
Food Consumption	311.91	-0.50	0.00	0.00	0.00	-6.33	-0.01
Non-food Consumption	305.03	-0.48	0.00	0.00	0.00	-2.63	0.00
Fish Consumption	54.09	-1.74	0.00	0.00	0.00	-1.09	0.00
Husband Break Time	212.96	-0.18	0.00	0.00	0.00	-1.01	0.00
Wife Break Time	212.96	-0.18	0.00	0.00	0.00	-1.01	0.00
Fish Sales	572.69	0.16	0.00	0.00	0.00	0.10	0.00

The result of the simulation by increasing the price of marine fish providing information as follows:

- The decision variables of production in the form of husband work time, wife work time, gasoline, ice and ship crew food supplies, will increase at the same amount by 8.83 percent. Fishermen will increase their work time.
- Different from farmer, increasing in commodity being produced don't affect the yield.
- The decision variables of household in the form of, food consumption, non-food consumption, paddy rice consumption, husband breaking time, and wife breaking time, on the contrary will decrease as seen in second column of the table. Rate of yield consumption decrease by 1.74 percent, apparently fishermen household decide to increase yield sale to increase income.
- Yield sale increase by 0.16 percent.

The next simulation results, namely by increasing input prices individually, provide information that fishermen household affected in the use of inputs only. Use of each of the inputs will decrease, but the decision variables of consumption and income were unchanged. Fishermen household are particularly vulnerable to inflation. The evidence can be seen from the results of the simulation fifth, by raising inflation of 10 percent. The inflation will affected the usage of all fisheries inputs by decreasing for 0.26 percent. Variable consumption decisions will decline with various amount. To deal with this inflation situation, fishermen have a strategy by reducing the consumption of fish, to increase sales of fish, so that they could increase their revenue to overcome increase in the cost of fishing and household consumption.

STRATEGIC FORMULATION

The formulation of strategies that can be offered by the Bekasi District Government to strengthen farmers food crops are:

- Maintain the fertilizer subsidy to maintain continuity of production of farmers;
- Protecting the changes in agricultural land conversion from residential and industrial pressure;
- Conduct training aimed at changing the way traditional management toward professional management;
- Strengthen cooperation among farmers through joint efforts, to have a strong bargaining position, both in the fertilizer market as well as in the seed market;
- Assisting farmers in the form of old-age insurance profession for farmer

Strategies to strengthen fishermen are:

- Providing aid to fishermen in the form of the addition of fishing vessels with a larger size, so that affordability and catch coefficient enlarged, so the impact on the increase in the catch of fishermen and household income, anticipate the use of fishing gear that is not environmentally friendly;
- Conduct training aimed at changing the way traditional processing toward professional management;
- Strengthen financial institutions in the fishing communities to facilitate social funds for fishermen today and in the future through change in management function of fish auction place.
- Assisting the system to provide old-age insurance/ retirement fund for fishermen.

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PROFIT, PEOPLE AND PLANET: GREENING SCHOOL CURRICULUM THROUGH RECONTEXTUALIZING AGRICULTURE VALUES AND PRACTICES IN EDUCATION FOR SUSTAINABLE DEVELOPMENT

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ABSTRACT

For more than a millennium, agricultural landscape system has played an important role in educating and training young generation about rural sustainable resource management; however the role of this system is reduced drastically due to globalization school education curricula, that tend to ignore the student opportunities to learn from the local environment as well as their ancestral heritage. This paper seeks to initiate discussion of education reform in addressing global challenges for future development. Ethnography approach was used to explore four programs of re-contextualization of agricultural values and practices into education for sustainable development. It was found that greening school curriculum with locally relevant and culturally appropriate may contribute to achieving sustainable development goals. They're thus, education reform should be focused on place, culture, and community to encourage youth in using their cultural traditions and practices as a source of inspiration and motivation in building the future

Key words: local environment, education reform, global challenges and building the future.

INTRODUCTION

Greening the curriculum is a growing trend which aims at the preparation of professionals and citizens capable of meeting the challenge of converging global environmental problems through increasing levels of ecological literacy (Katherine, n.d.). Greening the curriculum means that the most important learning objective is developing a comprehensive understanding how these ecological concepts relate to sustainable human communities (Green Heart Education, n.d). It's not only essential for the development of students as emerging professionals and individuals but because it is fundamental to the survival of our planet (Bevan, 2013). There thus, the greening curriculum is parallel with three pillars of education for sustainable development (ESD): profit (economy), people (social) and the planet (ecosystem). The ESD is learning to needs of the present and future (Roberston, 2008). While Capra (2005, p. xiv) defines ESD as "... teaching the basic principles of technologies and with them a profound respect for living nature, through an experiential, participatory and multidisciplinary approach." It empowers everyone to make decisions and act in culturally appropriate and locally relevant ways to re-address the problems that threaten our common future (UNESCO, 2002). All sustainable development programs, including ESD "must take into consideration the local environmental, economic, and societal conditions" (Abu-Hola et al., 2009, p. 1290).

Agricultural landscape values and practices as a complex dynamic interaction between humans and natural systems, are true and tried the model of ESD. Disturbances and stress may come frequently to

this system, but farmers have a “resilient capacity” to change the farm according to external changes, to produce farms that are attuned to the local ecological carrying capacity, and to use learning and innovation as targeted outcomes (Darnhofer et al., 2010). Learning in agricultural context is a complex adaptive management for achieving the balance between profit, people, and the planet, mainly through borderless the gap between generation and their cultural heritage. There thus, learning should be bottom up, resilience thinking, problem solver, and competency driven. These contrast with currently education scholars that are questioning content-driven, top-down, and deterministic educational approaches, in which ineffective in developing critical thinking; forget the variety of the learning styles and diverse local knowledge; not focus on student realizing their own goals and potential; and they may reinforce predominant power structures (Krasny, 2009).

The goal of this paper is to begin to address the gap between the school education situation with their local communities and mainly between generation and their local cultural heritage by learning about resilience thinking from agricultural concepts and practices. Resilience is emphasized on the interdependence between humans and nature, a concept that can be usefully adapted to encourage more holistic and participatory approaches to planning, based on local as well as scientific knowledge.

METHODOLOGY

This paper overview of four education program on ESD, then “discusses learning as moving from an inexperienced to skilled participant in authentic social and environmental practices, generally outside of the classroom” (Krasny, 2009, p. 38). All these programs were designed by participatory action research that combined participants’ resources, knowledge, networks and energies to maximize community benefits (Green & Kearney, 2011). The core of the design was an action research, which is a form of research that builds knowledge, improves practice, and attends to the moral, political, and emancipatory dimensions of teaching and research (Newton & Burges, 2008). Thus, action research is a cyclical process of progressive problem solving with a dual focus on change (action) and understanding (research) (Green & Kearney, 2011).

The main subject of the program was undergraduate students teacher from University of Mahasaraswati Denpasar (Unmas Denpasar). In addition, several other groups (such as farmers, community leadership, local government, primary and secondary education students and teachers) had been involved to maximize the program impact. The author used an ethnographic approach as both a qualitative research method (process) and product (outcome) to provide a detail and in depth description of these programs. Data were collected through participant observation in which author has a long-term engagement in all the education program examples. By providing specific and in-depth case studies, the author re-contextualizing model of ESD with locally relevant and culturally appropriate. Recontextualizing in this case, means a process to transform concepts and practices of agriculture as the original context of education as another context (Douglas, 1994; Haugen, 2009).

RESULTS

Eco-literacy: Food security and Biosecurity

The first case was multi-years education program entitled “across generation eco-literacy of food security and Biosecurity (AGL)” funded by the Ministry of Education and Culture, Indonesia (2009- 2010) and Plant Biosecurity Cooperative Research Centre, Australia (2007-2012). The AGL was teacher students who already understood the concepts of eco-literacy and has extensive experiences in cooperative learning, acted as facilitators in engaging teachers, elementary school students and communities around the schools in raising awareness of local food as well as biosecurity (Surata & Agung, 2010). Eco-literacy

or ecological literacy means understanding the basic principles of ecology, which include learning about and understanding how nature works, how our society and economy ("human systems") depend on clean air, water, and soil and other resources (products of "natural systems"), and how human interactions with the environment can have both positive and negative impacts on people and the natural world (The Toronto District School Board, 2006). Eco-literacy is consist of three components: the knowledge necessary to comprehend interrelatedness, an attitude of care or stewardship and the practical competence required to act on the basis of knowledge and feeling (Orr, 1992).

The core of AGL activities was small, real and local action to promote ESD through planting edible native plants in the school garden and home yard. More than a hundred student teachers from Unmas Denpasar, school students, and teachers, and local communities in Bali were involved in this program, based on the concept learning self, learning from the classroom, learning from schools, and learn from the communities. The project found, beside AGL has the capacity to promote local food management into students, parents, and teachers, it's also enhanced the students' ability in facilitating service learning as a social process through strengthening their social network (Surata et al., 2010). This project shows up the inadequacy of focusing on a single analytic category of community capital as described in the literature (Flora, 2008); but they needed for better understanding of the complexity of the concepts, such as the role of "communities' capacity to change, for working constructively and collaboratively with communities to manage Biosecurity" (Falk & Surata, 2007, p. 321). The understanding of social structure and process were very important in facilities AGL or other community activity (Surata, 2008). Finally, the AGL may be a tool for promoting cross-cultural communication and common understandings of food security and Biosecurity as the key factors for successful community action on these areas (Surata, 2011).

Incorporating Agriculture into Education

The second project entitled: Incorporating Bali's Subak heritage into Primary and Secondary Education: Curriculum development, teacher training and action research, 2.6 years (June 2012 –October 2014) funded by PEER-USAID. The *subak* reflect the Balinese philosophical principle *Tri Hita Karana* (three causes of well-being) which promotes a harmonious relationship between the individual and the realms of the spirit, the human world, and nature. The *subaks* also practice egalitarian and democratic institution and build a water temple network as a center for ecological, economical and socio-spiritual management. Thus *subak* not only a farming system, but its sustainable living practices that can bridge the border between countries, religions, generations, and cultures. However, *subak* is endangered by the most serious threat come from the low participation of local young people in the management of the subak system.

This project responds to two challenges: incorporated ESD into primary and secondary education in Indonesia and improved the training of future teachers in three areas, ESD, the creation of effective teaching materials, and the assessment of pedagogical methods. The project was organized as a series of projects embedded within the teacher training curriculum at Unmas Denpasar. The student teachers participated in data collection in the field, gaining firsthand awareness of the concerns and perceived vulnerabilities of the farmers. Teamwork has designed to build capacity through seven cycles of participatory action research, starting from indoor learning and workshop to enhance students understanding, concerns, commitment and skill (phase 1); observed rice field, discussed with local leaderships and interviewed farmers to collect information about their knowledge, attitudes and practices (phase 2); visited primary and secondary schools to observe teaching and learning processes (phase 3); a workshop with experienced teachers to reveal problems, find solutions and develop strategies of inserting local cultures into school education (phase 4); constructed contextual modules that integrated Bali's subak cultural landscape into the primary and secondary education curricula (phase 5); designed research proposal (6), conduct action learning research (phase 7) and writing scientific paper (phase 8).

A student' book was distributed to introduce the agro-ecology of Bali mainly the outstanding universal values of the Balinese *subak* (Surata, 2013a). Other Course materials were also produced in this

project, such as learning modules (Surata et al., 2015) and various of participatory mapping approaches and tools (Surata, 2014a,b). This project has promoted place-based education approach of ESD called eco-pedagogy. It was a form of cross-culture learning that integrating the socio-ecology principles, cultural literacy and technoliteracy (Surata, 2013, 2015). The eco-pedagogy has encouraged creative-critical thinking taking place in a fun atmosphere and leads to the achievement of basic learning competency: learning to know, learning to do, learning to be, and learning to live together (Surata et al., 2012). This project demonstrated how the concept of “learning from the past to build the future” of ESD can be implemented by encouraged students in incorporating traditional knowledge into existing curriculum (modern science) (Surata et al., 2013a). For sustaining this project, the second edition of student’s book has printed by Deputy Minister of Cultural Affairs, the Indonesian Ministry of Education and Culture (Surata et al., 2014c); developed grand research design for Unmas Denpasar with focus in inserting traditional knowledge into modern science (Surata et al., 2013b), and built a *Bale Subak* (community hall) at Subak Pulagan, that can be utilized as outdoor venue for ESD (Surata et al., 2014b).

Three Pillars of Indonesian Higher Education

The third program was re-contextualizing ESD through elaborate the universal outstanding values of subak (2014-2015), funded by the Ministry of Education and Culture, Indonesia. The project aims to develop a place base approach (eco-pedagogy) of ESD by design, apply and validate an integration model of three pillars of the Indonesian Higher Education (*Tri Dharma Perguruan Tinggi*): learning, research and community service. Student teachers from Unmas Denpasar carried-out the re-contextualization of economic, social and ecological of subak into into secondary and primary education curriculum, through action research and learning services. A key principle of re-contextualization was “deep learning, critical thinking, and fun” for giving students experience, collaboration and learning service. The major strategy for achieving the project goal was participatory mapping approaches and tools. As an interactive approach participatory mapping draws on local people’s knowledge, enabling participants to create visual and non-visual data to explore social problems (Pathways through Participation, 2010). The integration of three pillars of Indonesian Higher Education was constructed through analyzed, evaluated and synthesized a series of activities, such as developed revised and innovated student-centered learning; conducted innovative research in biology education; applied “local, small and real” actions of community service. This program reinforced the importance of an understanding of an interaction among all community capitals in promoting resilience thinking for students (Surata, et al., 2014a).

For example, encouraging student teacher to design, develop and evaluate learning modules, have enhanced student’s ability to solve novel problems, improved course structure and provided “future educators with a methodology for designing and evaluating the effectiveness of a place-based education approach” (Surata et al., 2015a, p. 142). Meanwhile engaged student teachers in elaborating the village temple network into nested of course, research and learning service has indicated the possibility to implement the integrated model of three pillars of Indonesian higher education through local, small but real actions (Surata et al., 2014d). Unmas Denpasar has designed eco pedagogy (ecology, culture and technology literacies) to grounding this model (Surata et al., 2014e). This may help solve the problem of formal education in which usually the knowledge and behaviors of learner were inadequate, although they displayed positive attitudes toward the conservation as well as the preservation of agricultural landscape (Surata & Vipriyanti, submitted).

Science, Technology, Society, and Environment

This research project has recently declared by Directorate General of Higher Education (Indonesia) to be funded in 2016. The motivation behind the undertaking this project is to renew the local agroecology of rice-paddy cultural landscape as a wellspring of advancement in planning the science, innovation, society and environment (STSE) learning approach. This anticipates not just urge the students to consider STSE,

but instead to enhance the instructing of STSE itself and make it more important (with regards to the progression of connections past-present-future), through the evaluation of resources, development, implementation, modeling and design of learning innovation.

The main subject is a World Heritage of the Balinese Subak Cultural Landscape, student teachers, teacher and student (elementary and secondary education), farmers and other stakeholders. This is three-year research project. The first year, aims to find a strategy in improving the skills of student teachers in fostering the ability to identify the concept of learning based on evidence, including (a) the ability to explore openly issues of STSE; (b) determining a prediction, proving both the perspective of modern science and ethnoscience; and (c) explain the findings that led to the well-being of individuals, communities and the environment. Through the study of history, applied research and case studies, it will be found strategies to enhance the skills of student teachers in exploring, thinking, clarify the interconnection between the complex issues STSE and multifunctional of the rice paddy cultural landscape.

During the second year, student teachers are involved in designing, developing and testing innovative models of STSE. These will be done by the integration between ethnoscience and modern science (Western Science) of the rice paddy cultural landscape. Participatory action research will be also conducted to obtain a model student engagement in learning, and responses of stakeholder to the innovative STSE. In the third year, implementation, and evaluation of innovative STSE will be applied by student teams through action research based on the three principles of learning (ie experience, collaboration, and services). A researcher team will conduct a meta-analysis of process and product to validate the innovative STSE, and to assess the effectiveness of innovative STSE toward learning basic competencies (awareness, attitudes, skills and understanding).

The long-term goal of the innovative STSE model is to advance a cross-cultural action research, encourage eco-pedagogy, community service, and learning to take into account research. A cross-cultural research implies learning not just exploratory procedures in connection of Western Science, but additionally borderless amongst science and non-science, schools and communities, learning and work, and primarily between youth and their ancestral heritage. Teaching and learning can be support sustainable living if we can engage youth to use their local culture as a source of inspiration and motivation in building the future (Surata, 2013a). Hence, why is eco-pedagogy very crucial to urge learner not only to literate on modern technology but also on the basic principles of ecology as well as their local cultures (Surata, 2013b). It will be different from a traditional curriculum that stresses the mastery of scientific content knowledge, innovative STSE has a major goal of developing social responsibility in collective decision making on local of social-ecological issues related to science and technology.

DISCUSSION

In all four program education described above, the learning that was implemented in locally relevant and culturally appropriate may contribute to the ESD goals: profit, people, and planet. These programs point-out of the importance of exposing students to real and contextual challenging situations in ways that require them to directly engage in resilience thinking with three central aspects: resilience, adaptability, and transformability (Folke et al., 2010). The resilience is the capacity of a social-ecological system to continually change and adapt; adaptability is the capacity to adjust responses to changing external drivers and internal processes; transformability is the capacity to cross thresholds into new development trajectories (Folke et al., 2010). According to Krasny (2009, p. 36), “by becoming nested in existing adaptive management of agricultural practices, the educational programs may contribute to resilience in the local systems.

The four program examples also indicate that “teaching in ways to reduce traditional transmission modes of information delivery to increase students’ ownership and responsibility for learning” (Fazey,

2010, p. 9). Through ongoing interactions with the social and ecological elements of the larger systems, students develop the capacity to play a meaningful role in shaping their own future and that of their larger community (Krasny, 2009). In addition, by working collaboratively with major stakeholders in the system, all of the education program examples may be able to produce students who are actively engaged in addressing and intervening in the crisis in their society and in the world (Abu-Hola et al., 2009). For successful major challenges to mainstreaming ESD, lecturers should conceptualize in it ways that are relevant and appropriate to the local context. Thus, greening school curriculum as part of education reform should be addressed to take into consideration the local environmental, economic and social conditions (McKeown, 2002). Each project suggests possibilities for universities as well as schools about fostering resilience thinking through participation in action research and working collaboratively on local ecological practices (Krasny, 2009). Finally, these examples offer insight how re-contextualizing agriculture values and practices into school curriculum may contribute to the higher level thinking to address ESD goals: profit, people, and the planet. Community members and education policy makers in a position to determine what extent they need to integrate these values and practices to maintain the cultural balance they require for survival (Douglas, 1994).

In each of the four project training portrayed over, then discovering that was executed in locally significant and socially suitable may add to the ESD objectives: benefit, individuals, and the planet. These projects bring up on the significance of presenting understudies to genuine and relevant testing circumstances in ways that oblige them to specifically take part in versatility thinking with three focal angles: versatility, flexibility, and transformability (Folke et al., 2010). Versatility is the limit of a social natural framework to constantly change and adjust; flexibility is the ability to modify reactions to changing outside drivers and inside procedures; transformability is the ability to cross the edges into new advancement directions (Folke et al., 2010). Agreeing Krasny (2009, p. 36), "by getting to be settled in existing versatile administration of horticultural practices, the instructive projects may add to flexibility in the neighborhood frameworks".

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PEOPLE-CENTERED DEVELOPMENT APPROACH ON MUARAGEMBONG COASTAL ZONE MANAGEMENT, BEKASI DISTRICT

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ABSTRACT

Muaragembong is one of the coastal areas in Bekasi are currently experiencing environmental degradation due to the decrease in mangrove ecosystems that exist in the region. To overcome this, it can be seen from several approaches. One of the main approaches to resolve the matter through people-center development approach. In the perspective of people-centered development approach, looking at it gives a role to the individual and not as an object but as a subject that determines the objectives to be achieved, controlled sources, directing the processes that determine their life and behavior. In this case, through a group of people who belong to a community called Save Mugo, Muaragembong society do some activities to solve the problem. In this study, to examine how the people-center development approach on these communities in the management of coastal areas due to the decrease in mangrove ecosystems conducted by Muaragembong society. In support of this study, conducted field observations and interviews in the field. While the methods of analysis used qualitatively to conduct a literature review.

Key words : people centered development, coastal zone management, Muaragembong

INTRODUCTION

Muaragembong is one of the main districts in Bekasi Regency directly adjacent to the Java Sea to the north side and sandwiched between North Jakarta and Karawang. The district is located approximately 64 km from the center of the city of Bekasi. Most of the population Muaragembong livelihood as fishermen. Seafront residential neighborhood with a total land area of 15,852 hectares of land is dominated by water. Physically, District Muaragembong is a mangrove area. The mangrove ecosystem is currently a lot of decline. A decrease in land area in the coastal mangrove District of Muaragembong have occurred due to floods and land conversion in some areas of mangrove forests into agricultural areas and settlements. It affects fisheries production, as evidenced by decreasing some types of fisheries production was developed with the mangrove as a breeding facility.

The negative impact of the loss of the mangrove community, at this moment was felt by people Muaragembong due to loss of function of protection and coastal protection . It happened in the form of flooding, the area of mangroves in the District Muaragembong reduced. As a result of erosion and floods , until 2013 there is damage in three villages in the district Muaragembong of + 2,800 Ha . These villages include Desa Pantai Bahagia, Pantai Mekar and Pantai Sederhana. To handle the damage to mangrove ecosystems in Muaragembong, can be assessed using a variety of approaches. One of the main approaches used by Hilwati, Asyiwati, and Akliyah (2015) in the study of mangrove ecosystems in Muaragembong namely sustainable development approach. In these studies assess the extent of damage to the mangrove ecosystem influence on the economic level of society there.

Another approach which is a slice of the three domains in development, namely: the economic domain, the domain of social and ecological domains, namely various development paradigm. The

development paradigm include: social development, environmental development, and people-centered development. In this article will examine how people centered development paradigm in dealing damage to mangrove ecosystems in Muaragembong. Model approach to people-centered development more emphasis on empowerment, emphasizing the fact that people's experiences in the history of the occupation and its position in the international economic order. Therefore this approach argue that society should sue the structure and situation of underdevelopment simultaneously in various stages.

Korten (1993) suggests the concept of development centered on people perceive the creative initiative of the people as the main resource development and looked at the material and spiritual welfare as an objective to be achieved by the development process. This concept emerged as a result of the failure of a product centered development concept, which development is simply more emphasis on industrial output in the form of increased production is massive. In tackling the decline in the function of mangrove ecosystem in Muaragembong due to the exploitation of resources on a large scale of increased fish production and agriculture alone , then it is time oriented development in the region on human development. Public awareness of the importance of maintaining mangrove ecosystems began to emerge with movements spearheaded by environmentally committed by young people in the area. One of the movement performed in 2013 the movement of rescue saving initiative of mangrove ecosystems in Muara Gembong initiated by the Community Bekasi Green Attack. Thus , in this article will try to assess how those aspects in people centered development approach to address the issue in Muaragembong .

Objectives

The objective of this article is to examine how the approach to development centered on the community in the management of coastal areas due to the decrease in mangrove ecosystems conducted by Muaragembong society .

Beneficiaries

The benefit of this study can be used as input for the government and the District of Bekasi district Muaragembong make referrals Muaregombong development policy .

MATERIALS AND METHODS

The People Centered Paradigm

CJ Schenck & H Louw (1995) said that the people centred paradigm could be constructed by comprising three aspects:

- A people centered perception of development
- A people centred perception of people: individuals and communities .
- A people centered perception of the development worker.

Citing his opinion above, this article will also discuss people centered development approach in the management of mangrove Muaragembong through three aspects.

Theory of People Centered Development

The emergence of people centered development paradigm is the antithesis of failure product centered development paradigm. This paradigm was first proposed by Korten (1984). Korten (1993) suggests the concept of development centered on people perceive the creative initiative of the people as the main resource development and looked at the material and spiritual welfare as an objective to be achieved by the development process. Bryant & White (1987: 22-23) considers the development minded "people centered" as the process of improving the human ability to determine its future and this means that people

need to be involved in the development process and or community needs to participate. In addition it also affirmed that the development is not merely to improve the material benefits at the level of praxis often led dehumanizes. And for that, the people centered development paradigm in establishing human dignity requires aspects, among others: (1) capacity, (2) equity, (3) empowerment, (4) sustainability, (5) interdependence.

Furthermore Korten suggests three important themes were considered decisive for the concept of people-centered planning, namely: 1. Emphasis will support and development of self-help efforts of the poor to address their own needs; 2. The realization that although the modern sector is a major source for economic growth are conventional, but the traditional sector into a vital source of livelihood as poor households; 3. The need for new institutional capabilities in the effort to build the capacity of the beneficiaries are poor, for the management of a productive and self-help based on local resources. People-centered development strategy has the ultimate goal to improve the quality of life of all people with aspirations and expectations of the individual and the collective, the concept of cultural traditions and habits of those who are in effect. The immediate objectives in the strategy of people-centered development at the core eradication of absolute poverty, realization of distributive justice, and increased community participation significantly. Initial priorities earmarked in areas that are not profitable and social groups are prone to be affected, including women, children, young people who can not afford, the elderly, and other marginalized groups.

Methodology

This article use qualitative research approach. Qualitative research is research that is descriptive and tend to use inductive analysis approach. Processes and meanings (subject's perspective) is highlighted in qualitative research. The theoretical basis used as a guide to focus research in accordance with the facts on the ground. Besides the theoretical basis is also helpful to provide an overview of the background research and as a discussion of research results. Data collection techniques in this study conducted library research, interviews, and field observations. In-depth interviews conducted specifically to pioneer the movement Save Mugo. Field observations conducted by researchers from 2014 as part of a study conducted by researchers over the past 2 years. The analysis technique used in the form of qualitative assessment based on the components in a people centered approach to development.

RESULTS AND DISCUSSIONS

Overview of the District Condition Muaragembong

Geographical, District Muaragembong is at 6 ° 00' - 6 ° 05 ' south latitude and 106 ° 57' - 107 ° 02 ' East Longitude with total area of 15,473.40 ha (see Table 1). Administratively District of Muaragembong have 6 (six) villages, namely Jaya Sakti Village, Pantai Sederhana Village, Pantai Bahagia Village, Pantai Bakti Village, Pantai Mekar Village, and Harapan Jaya Village, with a limit of the administration as follows : north and west with Java sea ; south Cabangbungin District, Tambelang District, and Babelan District; and east by the Karawang Regency (see figure 1).

Based on the results of ground check conducted in 2015 in the District Muaragembong , the result that land use activities predominantly for aquaculture (fish farms, shrimp and seaweed) in the amount of 6242.62 ha (41.24 % of total land area) . The use of other land used for agricultural activities covering 5,720 ha (37.79 %) , and the remainder used for settlement of 460.62 ha (3.04 %) .

Table 1. Size District Area Muaragembong 2014

No	Village	Size Area (Ha)
1	Pantai Harapan Jaya	4,948.00
2	Pantai Mekar	1,457.00
3	Pantai Bakti	3,442.00
4	Pantai Bahagia	3,010.00
5	Pantai Sederhana	1,244.00
6	Jaya Sakti	1,751.00
Total		15,852.00

Source: Kecamatan Muaragembong Dalam Angka 2015

Muaragembong demographic situation in the district is dominated by people whose livelihood in the fishing sector, namely for fish farmers amounting to 10.03 % of the population of sub-district and the fisherman was 1.62 % of the population of sub-districts. While other livelihood in the form of agricultural crops (4.55 %), and the rest as trafficking, and others.



Figure 1. Map of the District Administration Muaragembong.

Source: RTRW Kabupaten Bekasi, Tahun 2009 – 2029

People Centered Development Paradigms in Muaragembong Management

The essence of democracy based development is that development does not merely explore the natural resources for increased production alone, but building society itself. Similarly, in the management of rural areas in Muaragembong which is actually a mangrove ecosystem is not solely the village building activities by exploiting the existing natural resources, but to build human resources there that are the subject of planning. According to Bryant & White (1987: 22-23) that the development-minded "people centered" as the process of improving the human ability to determine its future, which means people need to be involved in the development process and or community needs to participate. Therefore, people centered development paradigm in terms of building human dignity in Muaragembong need of aspects, among others: (1) capacity, (2) equity, (3) empowerment, (4) sustainability, and (5) interdependence.

Capacity

In general, the capacity can be defined as the ability to organize or carry out a variety of functions, solve various issues, and to design or find the goals to be achieved. While capacity building is defined as a case for developing a variety of strategies to improve the efficiency, effectiveness and responsibility performance. Aspects of capabilities in terms of building human Muaragembong can be seen from two sides, namely the ability of the public and government officials. The ability of the community is that the ability to make choices to manage and utilize its natural environment in order to have a benefit economically without damaging the environmental conditions for sustainability. While the ability of government officials who assessed in guarding development activities and making development policy in Muaragembong.

Human resource capabilities Muaragembong can be seen from the quality of human resources in the region. Based on data from the District Muaragembong in Figures 2014, a resident who was educated at both the elementary to college only amounted to 27.12% of the total population. Based on interviews conducted on Muaragembong society, the low level of public education there because in general people's livelihoods in the form of fishing that do not require higher education. As a result of their limited knowledge of hereditary experience in exploiting existing resources. At this time, people began to realize the importance of education Muaragembong to manage their environment, so that not a few who send their children to pursue higher education. Other forms of consciousness is the establishment of a movement called Save Mugo to save the mangrove ecosystem in which they live and depend. The movement was initiated in 2013 led by a young man there named Syamsul Bahri. Bang Samba (nickname Syamsul Bahri) is one resident of Muaragembong who has concern for the environment. Until now he devoted himself to empower people to care about the environmental problems in Muaragembong.

Awareness is owned by Bang Samba to care about the environment and take advantage of without damaging the environment is one of the main capabilities that should be owned by the community Muaragembong in developing the village. For that, it takes the role of community leaders and government officials who have the ability to inspire and build community. Thus, rural development is not just the pursuit of economic value but also to build the capacity of its human quality. The ability to be owned by the community in managing the region Muaragembong by Garlick in McGinty (2003) should at least meet the five main elements in the development of the following capacities: 1. Build knowledge, including enhancing skills, facilitate research and development, and support learning; 2. Leadership; 3. Build a network, including efforts to establish cooperation and alliances; 4. Respect for the community and invite the community to work together to achieve goals; and 5. Support information, including the capacity to collect, access and manage the information useful.

Equity

Equity means that in expanding the options and opportunities to humans must be justice, which means access to equal opportunity. In this case also highlighted term growth with equity by income distribution, that an increase in the GNP distributed to the public. Thus, in human development in Muaragembong in addition to the necessary human resource capabilities must also be justice. Which means that all levels of society are entitled to the same rights in development. In Muaragembong area management, the public is entitled to information, knowledge, facilities, and financing to facilitate the community in managing its environment. In order to improve the condition of existing mangrove ecosystem in the region, the public is entitled to acquire knowledge about the mangrove ecosystem management, public facilities that can be enjoyed together, and help to restore the mangrove planting environmental conditions there.

By Save Mugo movement, government and private sectors who intend to help restore the environmental conditions in Muaragembong can provide assistance through this movement. So that what has been tabled by Save Mugo in restoring conditions Muaragembong not only physically but also build community alone there fair and equitable manner. So it can be used as social capital to society Muaragembong.

Empowerment

Empowerment intends development based on full participation of the community, the community not only as recipients but active in determining the choice of how their lives should be formed. According to McArdle (1989) in Wisdom (2010: 3) defines empowerment as a process of decision-making by people who consistently implement the decision. People who have reached a collective goal empowered by their independence, even a "must" for a more empowered through their own efforts and the accumulation of knowledge, skills and other resources in order to achieve their goals tnpa rely on the help of external relations. Muaragembong form of community participation in the form of an institutional form of movement Save Mugo was the forerunner form of community participation in environmental management. Through programs that build community capacity, forms of public participation can be further enhanced Muaragembong role. So that people who had only acted as a recipient of development is starting to feel a need to transform their existence in determining how to manage the region. Although it was only a few percent.

Sustainability

Sustainability is a very important component as well which means that the level of prosperity that is enjoyed today must also be enjoyed by future generations, so sustainability here is preservation rather than human development opportunities. In other words, the preservation of all the capital, namely: physical capital, financial, environmental, and human resources, with a capacity renew and regenerate the capital. Sustainability in Muaragembong area management, not just knowledge or means to manage a sustainable environment, but also build the entire system in a sustainable manner. Including one of them is human resources sustainably. If people Muaragembong own ability to manage resources environment and have the ability to participate actively, then it must be continually passed to the next generation in various forms of activities that initiate them to always preserve the environment with the support of government policies are pro-people.

Interdependence

Besides the four aspects above, the orientation of the Muaragembong community-centered development must also see aspects of interdependence. Society should not just depend on the natural resources in their area. Muaragembong society must take the initiative and creativity in the process and manage existing resources in the region. Community are required to innovate in processing fishery products they get from the sea and the ecosystems in which they live. In addition, the reduction of dependency on the public with the exploitation of natural resources can also be utilizing their Save Mugo. With the Save Mugo movement is one of the main agenda is to form a group of tourism awareness to build ecotourism in Muaragembong mangrove areas, then the whole society can be involved in this activity.

Thus, to manage Muaraagembong coastal areas necessary measures so that all five of the above can be implemented within the framework of people centered development, including:

- a) Increased capacity and awareness for the various forms of training, education in order to equip communities to manage their environment to meet their needs;
- b) Increased capacity of government officials in order to apply the techniques of participatory planning to guard the public to actively participate in Muaragembong development;
- c) Reducing the dependence of communities in the exploitation of natural resources through a range of skills and training for processing fishery products that have value added;
- d) Utilize Save Mugo movement as a forum for the community in a variety of activities scheduled for managing the region.

CONCLUSION

Integrated rural development at this time and indeed most ideal for both central and local government using people-centered development paradigm. It is more due to that society today is not like the past that only obedient. Society today is a society that has always wanted to participate in development especially with the slogan of, by and for the community, so the pattern is most appropriate is what is desired by the community, which was proposed by the people so that they are not just waiting for what you want and it will be made by government. Aspects capacity, equility, empowerment, sustainability and interdependence must become the foundation of the development so that sustainable development can be maintained.

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RURAL LIVELIHOOD CHARACTERISTICS AND IMPACT TO FARMERS' WELLBEING

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ABSTRACT

Indonesia is the fourth most populous country in the world where 46.7% of its citizens live in rural areas and 32.8% work as farmers. Considering the importance of rural development and farmer empowerment in Indonesia, this study attempts to understand the characteristics of rural livelihood of rice and vegetable farmers: their capabilities, assets, and activities. Furthermore, through Somer's d and Kendall Tau-b correlation analysis, the study tries to recognize the connection between the characteristics of farmers' livelihoods and their welfare. The farmer's capabilities and assets such as participation on trainings, land ownership, education and access to credit has a significant correlation with the farmer's welfare condition, thus intervention on those variables will make a profound impact on the farmer's welfare.

Key words: rural livelihoods, capability, assets, activities, rice and vegetables farmers, welfare

INTRODUCTION

Indonesia is an archipelago with 17,540 islands, a home for 252 million people in 64,771,600 households (BPS, 2016). Despite its fast economic growth and development, 46% of the citizen still lives in rural area. It justifies that rural areas are still an important spatial element with a vital function as the location of agricultural production, local wisdom and authentic culture and practices, and other ecological function. In Indonesian law, a rural area is described as a region consisting of rural settlements, government services, social services, and economic activities where agriculture is its main activity (UU No.6/2014). As the main activity of rural areas, agriculture is the second highest economic sector that contributes 13.5% of the overall GDP in Indonesia. It is also the main occupation of 32.8% of the population of Indonesia, the highest among all occupations available. Unfortunately, there are strong impressions in the society where the agriculture sector is identical with a marginalized sector, and that farming is an inferior profession (Sunarti & Khomsan). It is confirmed by the fact that among 28.59 million poor citizens in Indonesia, 51.18% come from agriculture households (BPS, 2015).

The importance of a farmer's role in food supply and security in Indonesia is seemingly unbalanced with the quality of their own livelihoods, particularly for rice and vegetable farmers. In order to fulfill the demand of the market, they have faced many problems and obstacles that often harm themselves. These problems and obstacles are often varied and so complicated that farmers and other stakeholders sometimes fail to solve it. Thus, the conditions, needs, and problems in a farmers' everyday livelihood needs to be fully understood in order to make a better intervention to finally enhance a farmer's welfare. Therefore, this study attempts to recognize the characteristics of farmers' livelihood in order to fully comprehend the many conditions and problems faced by both rice and vegetables farmers.

MATERIAL AND METHODS

The data and information used in this paper consists of primary and secondary data. The secondary data is collected from other related institutions while the primary data is based on the evidence found from field study in Sukamanah Village in Pangalengan District and Sukajadi Village in Soreang District, Bandung Regency, in 2015. The villages were chosen through purposive sampling because the economic activity in the districts, particularly these villages, are dominated by agricultural practices; Sukamanah Village in Pangalengan District is dominated by vegetable farming while Sukajadi Village in Soreang District is dominated by rice farming. Questionnaires were used to gather the data and information from farmers' households which were selected through stratified random sampling in each area. The number of sample was calculated using Slovin formula with a 15% error tolerance which resulted in 43 samples in each area. Moreover, interviews with key-informants were conducted to obtain the general description of the area and enrich the analysis.

The quantitative data were processed using a statistical program (SPSS version 23) and analyzed using descriptive statistical analysis and correlation analysis. The descriptive statistical analysis is used to describe the condition of farmers' livelihood characteristics. The correlation analysis used in the study are Sommer's d test to define the connection between characteristics and farmer's welfare and Kendall Tau-b test to find the correlation among livelihood characteristics.

Agricultural Circumstances in Sukajadi and Sukamanah Village

Agriculture is the art and science of cultivating the soil, growing crops and raising livestock. It includes the preparation of plant and animal products for people to use and their distribution to markets (National Geographic Society, 2016). In Indonesia, the agriculture sector is segregated into 6 subsectors based on the type of natural resource cultivated: staple food crops e.g. rice and corn, horticulture plants e.g. vegetables and decorative plants, plantation trees like e.g. palm and mangoes, animal husbandry, forestry, and fisheries. All of these subsectors have unique and different characteristics and problems. This study focuses on the livelihoods characteristic of rice and vegetables farmers since they supply foods that are crucial for people's life. The characteristics of rice farmers are obtained from farmers in Sukajadi Village, Soreang Sub-District while the characteristics of vegetables farmers are collected from farmers in Sukamanah Village, Pangalengan Sub-District. Both of the villages and sub-districts are the member of the Bandung Regency, Indonesia. The Bandung Regency is located among hills and mountains: Tunggul Hill and Tangkuban Perahu Mountain are on the north side and Patuha, Malabar, Papandayan, and Guntur Mountains are on the south which forms a basin-like terrain in the middle called "Cekungan Bandung". Its geographical condition, climate, temperature, and humidity forms a great hydrology potential for agricultural cultivation in Bandung Regency (Bandung District Government, 2011)

Sukajadi Village is located on the lowlands of "Cekungan Bandung", 1.2 km from the main city of the Bandung Regency and can be reached by around 30 minutes using ground vehicle. The highest point of the village is 900 m above sea level with temperatures ranging from 21°-32° Celsius and 6 months rainy season. Its topography, climate, and soil texture are suitable for paddy fields. There are 67,500 ha of paddy fields in Sukajadi Village, with 440 smallholders and 3,351 labors who rely their livelihoods on it. The paddy fields are generally harvested 3 times in a year with a production upwards of 15 kilograms per 10 tumbak⁴ (140 meter square) per season. Farmers usually rent tractors or manually plow the paddy field with buffalos for 6,500 rupiahs per square meter. They plant the seeds that they bought from the Koperasi Unit Desa (KUD) or from the good seeds from the last season. All farmers plant the same seed type at a time to prevent pest in one particular area. There is a 2,400 m irrigation system in the area with the width of 2.5 m. Farmers in this village cultivate rice for their own food supply and if they have more, they sell unhulled rice to the owner of paddy huller and local traders for 360,000

⁴ Traditional measures of planting area, 1 tumbak equals to 14m²

rupiahs per 100 kg. There are only 2 individual huller owners in the village and they can sell the rice for 10,000 rupiahs per kg or one million rupiahs per 100 kg, almost 3 times the unhulled rice price. The rice is usually sold to the villagers themselves or the nearest market in the district.

Compared to Sukajadi Village, Sukamanah Village is located on the south highlands of the Bandung Regency with the height of 1,570 meters above sea level. The distance from the main city is 32.3 km and can be reached approximately 1.6 hours by ground vehicle. Because of its topography, the average temperature ranges from 18°-23° Celsius and 70-90% humidity with 10 months rainy season. Its topography, climate, and soil texture are suitable for horticulture or vegetables cultivation. There are 299,971 ha of dry soil or about 44.9% of the total village area with 47% of villagers or 19,720 people relying their livelihoods on it. The cultivation process is generally executed 3 times a year, but on lands far from water sources, it is only executed 2 times a year. Unlike farmers in Sukajadi Village, the vegetable farmers in Sukamanah Village plant various seeds independently per season depending on their desire and financial ability at the time. The main commodity of the village are potatoes, broccoli, corn, and radish; there are also red beans, spinach, spring onions, chilies, mushrooms, carrots, tomatoes, and lettuces. Farmers usually buy the seed from a store or a seed breeder (penangkar) -- farmers that specifically grow vegetable seeds. The vegetables are watered by rain in the rainy season or by sprinklers on dry season. The production per season varies based on the vegetable types and the ability of farmers. For example, potatoes can be harvested up to 6 ton per 100 tumbak per season but not broccoli. Farmers usually sell their product to local traders with prices that are determined by the traders, so most of the time, farmers do not have the power to set the prices of their own product. It is completely based on the dynamic market prices and the traders.

Rural livelihood concept

The concept of rural livelihood has become one of the major important research topics under the theme of sustainable development of the marginal rural agricultural communities since the last decade (Dharmawan & Manig, 2000). Livelihood in its simplest sense is the means of gaining a living (Conway, 1991). Furthermore, Gordon and Conway (1991) proposed a definition of sustainable rural livelihood as “A livelihood that comprises the capabilities, assets (stores, resources, claims and access) and activities required for a means of living: a livelihood is sustainable which can cope with and recover from stress and shocks, maintain or enhance its capabilities and assets, and provide sustainable livelihood opportunities for the next generation; and which contributes net benefits to other livelihoods at the local and global levels and in the short and long term” (Conway, 1991). Therefore, capabilities, assets, and activities are required for a means of living is the core of the rural livelihoods characteristics adapted in this study.

Capabilities, according to Amartya Sen (1984; 1987), is ‘what people can do or be with their entitlements’ (Sen, 1984;1987 in Scoones, 1997), or in other words, it refers to being able to perform certain basic functioning, to what a person is capable of doing and being (Sen, 1984,1987 in Conway,1991). At any scale, livelihoods are composed in complex ways, with multiple and dynamic portfolios of different activities, often improvised as part of an on-going ‘performance’ (Richards, 1989 in Scoones, 1997). Thus, the combination of different jobs or occupations conducted by farmers is also essential for their livelihoods. Moreover, assets or resources are interpreted as ‘capital’ according to Ian Scoones (1997) in his framework for analyzing sustainable rural livelihoods. He offered a simple set of capitals for empirical investigation as follows (Scoones, 1997):

- Natural capital – the natural resource stocks (soil, water, air, genetic resources etc) and environmental services (hydrological cycle, pollution sinks etc) from which resource flows and services useful for livelihoods are derived.

- Economic or financial capital – the capital base (cash, credit/debt, savings, and other economic assets, including basic infrastructure and production equipment and technologies) which are essential for the pursuit of any livelihood strategy
- Human capital – the skills, knowledge, ability to labour and good health and physical capability important for the successful pursuit of different livelihood strategies
- Social capital – the social resources (networks, social claims, social relations, affiliations, associations) upon which people draw when pursuing different livelihood strategies requiring coordinated actions

Other capital

This paper attempts to recognize the rural livelihood characteristics of farmers, therefore the concept is adapted specifically to farmers condition. There are three main characteristics of farmers that are being investigated: their capabilities, assets, and activities. The capability characteristic is judged by a farmers experience, knowledge, and technical skill while the assets are determined by their natural, social, human, and economic capital. The activities characteristic is assessed by the number of occupation as their means to fulfill the household needs. Factors and variables used to describe the farmers’ characteristics in this study can be seen at Table 1.

Table 12 Factors and Variables Used

Characteristics	Factors	Variables	
Capability	Experience	Years of farming	
		Level of education	
	Knowledge	Attended and practicing agricultural training	
		Technical skill	Knowledge about proper cultivation process
		Ability to do proper cultivation process	
Actually practicing the proper cultivation process			
Assets	Natural capital	Land ownership	
		Land area	
	Social capital	Farmers group membership	
		Actively involved in community events	
	Human capital	Number of workers	
Economic/financial capital	Savings		
	Access to loan		
Activities	Occupation	Number of occupations	

RESULTS AND DISCUSSIONS

Farmers livelihood condition

Usually, farming is a hereditary activity that is passed through generations. Thus, based on this study, 37% of farmers have worked as farmers for more than 20 years because they start farming from a young age. Through their experiences, farmers are expected to be able to perform their function better in order to fulfill their needs. Farmers can be supported by an adequate education and training in order to have a better performance on their job. Unfortunately, 58% farmers only finished their elementary school because most of them cannot afford school fees and do not feel the urgency to have a higher education. Besides schools, farmers can also absorb information and educate themselves through trainings, but there are only 40% of farmers who has attended at least one agricultural training and 38% rarely practices their knowledge because they have a low access to capital and loan. The lack of training participation is because usually the trainings are held only for farmer groups’ member which are large-land owners, while the majority of farmers are smallholders and workers who are not members. But according to them, they

all feel that they already have the knowledge of the cultivation best practiced and have the ability to perform it, and actually doing it. The farmers' capability conditions can be seen in Table 2.

Table 13 Farmers' Capability Condition

Factors	Variables	Classification	Rice Farmers		Vegetable Farmers		
			Persons	%	Persons	%	
Experience	Years of Farming	< 5 year	8	18%	10	20%	
		5-10 year	9	20%	11	22%	
		10-15 year	8	18%	7	14%	
		15-20 year	4	10%	2	4%	
		>20 year	15	34%	19	39%	
Knowledge	Level of Education	Did not attend	1	2%	1	2%	
		Elementary School	36	82%	17	35%	
		Junior High School	4	9%	17	35%	
		High School	3	7%	12	24%	
		College	0	0%	2	4%	
	Agricultural Participation	Training	Had attended	11	25%	26	53%
			Never	33	75%	23	47%
	Practicing agricultural training	agricultural training	Never	1	10%	8	27%
			Seldom	1	10%	2	7%
			Sometimes	2	20%	3	10%
Often			5	50%	6	20%	
Always			1	10%	11	37%	
Technical skill	Knowledge about proper cultivation process	Poor	1	2%	0	0%	
		Below Average	1	2%	3	6%	
		Average	15	34%	5	10%	
		Sufficient	25	57%	27	55%	
		Excellent	2	5%	14	29%	
	Ability to do proper cultivation process	proper cultivation process	Poor	1	2%	0	0%
			Below Average	2	5%	3	6%
			Average	13	30%	2	4%
			Sufficient	26	59%	26	53%
			Excellent	2	5%	18	37%
	Actually practicing the proper cultivation process	the proper cultivation process	Never	1	2%	4	8%
			Seldom	0	0%	3	6%
			Sometimes	17	39%	4	8%
			Often	23	52%	18	34%
			Always	3	7%	24	45%

There are some different characteristics of rice and vegetable farmers. For the capability, level of education vegetable farmers is higher than rice farmers; 82% of rice farmers are primary school graduates while 63% of vegetable farmers have higher degrees and even 4% of them even have college degrees.

Moreover, 53% of vegetables farmers have attended at least one agricultural training to learn better agricultural practices which can make their plants grow better, while most of rice farmers (75%) have not attended any agricultural training. This happened because there are no trainings ever held in Sukajadi Village, so only some farmers who have more motivation and funds can attend trainings held outside of the village. Trainings are usually held for farmers group which usually only consists of large farmers; while most of rice farmers in Sukajadi Village are labors and smallholders whose land are less than 2 ha. The complete information about farmers' assets can be seen in Table 3 below.

Table 14 Farmers' Assets Condition

Factors	Variables	Classification	Rice Farmers		Vegetable Farmers		
			Persons	%	Persons	%	
Natural capital	Land Ownership	Yes	23	52%	18	37%	
		No	21	48%	31	63%	
	Land Area	<=0.5 ha	38	86%	31	63%	
		0.5-2 ha	6	14%	11	22%	
		>2 ha	0	0%	7	14%	
Social capital	Member of Farmers Group	Yes	10	24%	18	37%	
		No	31	76%	31	63%	
	Community Participation	Events	Never	0	0%	1	2%
			Seldom	4	9%	5	10%
			Sometimes	10	23%	7	14%
			Often	27	61%	19	39%
			Always	3	7%	17	35%
Human capital	Number of Worker	0	32	43%	28	38%	
		1-5 persons	1	1%	10	14%	
		5-10 persons	9	12%	6	8%	
		>10 persons	32	43%	29	40%	
		Economic or financial capital	Savings	Yes	24	55%	33
	Access to Loan	No	20	45%	16	33%	
		Bank	0	0%	9	18%	
		Cooperatives	3	7%	0	0%	
		Other Person(s)	0	0%	6	12%	

Generally, most of the farmers work in a very small land area which is less than 2 ha⁵, thus they cannot join farmer groups and have workers. However, there are also differences between rice and vegetable farmers in terms of assets or capital ownership. 52% of rice farmers have their own land to cultivate while 63% of vegetable farmers work as labor in other's land. Although most rice farmers have their own land, 86% of it are less than 2 ha while vegetables farmers' field varies between 0.5 until 20 ha. This might happen because the purpose of most rice farmers is only to fulfill everyday needs or subsistence, so having a small hereditary-land area is enough for them. In the other hand, vegetables farmers tend to sell

⁵ In Indonesia's Regulation, 2 ha is the minimum size of agricultural land area (Government Regulation in Lieu of Law No 56 year 1960)

their products outside the area so the amount of production is crucial; it makes most of them work in large land owned by a company or large land owners. Besides, the irrigation system in paddy field is provided by the village while watering the vegetable field needs more tools and are managed by farmers themselves, so it is harder for vegetable farmers to work alone. Furthermore, rice and vegetable farmers have different source of loans although both are still limited. Rice farmers in Sukajadi Village have a local vendor called KUD (Koperasi Unit Desa) which can give soft loans to its members. All of the rice farmers cannot access bank loans because they do not have any guarantees; they only have very small land area and no valuable goods. Meanwhile, vegetable farmers in Sukamanah Village do not have local vendors like the KUD, so some more-fortunate farmers are able to request a loan from a bank which usually has more complex requirements, and the less-fortunate farmers take loans from a local trader which sometimes makes them too dependent with the trader. These factors along with external factors such as seed and fertilizer prices that always increases while the selling price always fluctuates, makes it hard to have savings and fulfill secondary or even tertiary needs.

Apart from capability and assets, a farmer's activity is also an important characteristic in their livelihood. Rural people, including farmers, usually have more than one occupation to fulfill their needs, such as construction workers and fishermen. This study shows that most farmers only have 1 job, (57% of rice farmers, and 61% of vegetables farmers), and only 18 farmers have 1 other job (2 jobs in total), while only 1 farmer has more than 2 jobs. The fact that most farmers can only do farming could mean 2 things; that only farming is enough to fulfill household needs, or it is not enough but farmers simply do not have any other skill than farming. As Chambers (1981) stated, the combination of these various activities can be seen as a livelihood portfolio where there might be specialization and concentration in one aspect or another. Apparently, in this case, most farmers are concentrating in one aspect only to fulfill their needs.

Farmers characteristic's impact to welfare

The notion of welfare has been defined and understood in many and various ways (Greve, 2008). Welfare can be related both to the individual and to the collective and involve material as well as immaterial needs, and can also be seen in economic, biological, and sociological perspective (Greve, 2008). However, welfare concept used in this study is defined as the condition where farmers' household life necessities are fulfilled in both physical and psychological needs (Angelissa, 2015). The fulfilment of those necessities was assessed using a set of indicators that was built through various welfare standards study. The physical needs are determined by the fulfilment of basic necessities: foods, clothes, and housing; and also household revenue and expenditure. The psychological needs are determined by the level of life satisfaction, health, education, security, and recreation. The study found that 87% of farmers have a high physical well-being and 13% of farmers have a moderate physical well-being. The majority of farmer's psychological well-being is moderate (52%) while the high psychological well-being is 33% and the low psychological well-being is 15%. This means that the psychological conditions of farmers needs more attention at the moment. This applies for both rice and vegetables farmers: 91% of rice farmers and 84% of vegetables farmers have a high physical well-being while 63% of rice farmers and 41% of vegetables farmers only have moderate psychological well-being (Angelissa, 2015).

Based on the Somer's d analysis of farmers livelihood characteristics and their welfare, there are significant correlations between farmers' capabilities and their psychological well-being. This is related with the basic concept of capability (Sen, 1984), which is a concept that is far more than just material concerns of food intake or income; it represents the value of someone who has diverse specific meanings for different people in different places (Conway, 1991). The meanings or value could be as self-esteem, security, happiness, stress, vulnerability, power, exclusion (Scoones, 1997) which mostly are psychological condition, so the result of this study that capability has significant impact on psychological well-being makes sense. Furthermore, capability variables that have the most impact are participation and practice on agricultural training where farmers can improve their capability through input from others so that they are able to enhance their value. This is related with Swift's (1989) point that capabilities may be enhanced again through investment in (useful) education and training, and in apprenticeship. The results

of successful investments are an added variety or quality of assets and/or capabilities which can be used for further production or in responding to future contingencies and threats to survival (Conway, 1991). Therefore, training could enhance farmers' welfare because it enables farmers to do their function and fulfill their needs better.

Moreover, there are also significant correlations between assets and a farmer's physical and psychological well-being. All assets are important, but the level of importance may diverge between families and can also change upon the time (Bebbington, 1999). In this case, assets have a great impact on welfare, notably land ownership, farmer group membership, and employment. Subsequently, access to loan has a particular impact to farmers' physical well-being while household savings have particular impact to farmers' psychological well-being. Land ownership and farmer group membership have great impact because if farmers do not have large land or not a member of farmer groups, they will have a very limited access to subsidized fertilizer and seeds, trainings, and other advantages. Then, if they do not have workers, the cultivation process could be less efficient. Meanwhile, access to loan has a direct impact to income and household consumption which makes the impact of access to loan, towards the physical welfare, very significant. The difficulties faced by farmers often make it hard to fulfill their everyday needs, let alone to have savings, hence, they feel depressed and unhappy. This affects farmers' life satisfaction as one of the greatest substance of their psychological welfare.

Based on the Somer's d analysis, the number of activities does not have significant impacts on a farmers' welfare. Most farmers only do farming as their means to fulfill their needs, whilst the welfare condition is very diverse. This is in line with Chambers (1981) idea that combination of various activity that farmers do, not necessarily has impact on their condition or well-being. Anyhow, based on Kendall Tau b analysis, there are correlations among rural livelihood variables. The variable that has the most correlation is the level of education; it connects with 12 other variables such as technical skill, land area, production tools, and savings. This means farmers who have higher degrees in education proved to have better living in terms of better capability and more assets. Surprisingly, years of experience do not necessarily have impact or correlation to other variables. This breaks the public perception that farmers do not need a high level of education, which makes most farmers dropout in an early age and start farming, because education clearly makes a difference.

CONCLUSION

Farmer is a crucial occupation in Indonesia, it supports food security and also provides job for one-third of the population. However, farmers' rural livelihood has a diverse condition and problems, for instance between rice and vegetables farmers. They have many common characteristics but also many differences. Mostly they are farming for more than 20 years, but they have a different level of education – vegetable farmers are higher. Moreover, most of the farmers are confident that they have enough knowledge and capability about the proper cultivation process, and actually doing it, although they rarely participate in trainings because they are not a member of any farmer groups or there are no trainings ever held in their area. It is because most of the farmers are smallholders; the rice farmers work in their own narrow-land while the vegetables farmers work in a company or large land-owners. Hence, they also cannot access subsidized seed and fertilizer which usually given to farmer groups member, and also loan from bank because they do not have enough guarantee.

Those rural livelihood characteristics have an impact on farmers' welfare which defined as the condition where farmer household life necessities are fulfilled in both physical and psychological needs. Based on the Somer's d analysis, farmers' capability is proved to have an impact on farmers' psychological welfare, notably the participation and practice on agricultural trainings. In the other hand, assets owned by farmers also have a great impact on farmers' physical and psychological welfare. Farmer who has his own land, farmer group membership, and workers, tend to have a better condition of well-being. There are also significant impacts from access to loan to farmers' physical well-being and from

production tools ownership and household savings to their psychological well-being. There is also a correlation among livelihoods variables that was found in the study through Kendall Tau-b analysis. The analysis shows that the level of education has a significant correlation to other variables. This leads to some suggestion to improve farmers' welfare as follows:

- a) Creating farmer groups for smallholders to transfer knowledge and resources such as subsidized fertilizer and seeds for farmers who really need it, and later to build cooperatives for loan and selling products.
- b) Hold an agricultural training specifically for smallholders and workers regularly so they can perform a good agricultural practices, or even better, build an agricultural school for farmers at any age to improve their capability and general knowledge.
- c) Control the land use conversion to ensure farmers have sufficient land area for cultivation while also give incentive for farmers who preserve their land.

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CARRYING CAPACITY ANALYSIS OF URBAN'S LAND FOR INFRASTRUCTURES IN MPUNDA DISTRICT OF BIMA, 2015-2035

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ABSTRACT

This thesis is done based on the phenomenon of development in Bima city which impact the physical condition of the area and the development of infrastructures that are not evenly distributed. It leads to the study on analysis of the carrying capacity of land as urban's infrastructures development of Mpunda District of Bima City in 2015-2035. The aim of this study is to determine the carrying capacity of Mpunda District's land as an effort to provide suitable land to develop the urban's infrastructures. The analysis covers the qualitative and quantitative description of Mpunda District's area which explains the general overview of geographical condition of land and the distribution of urban's infrastructures. The analytical methods used is based on Peraturan Menteri Pekerjaan Umum No.20/PRT/M/2007 about Technical Guidelines for Physical & environmental analysis. The need analysis of infrastructures in the planning year is always in accordance with the tendency of population growth. The calculation of the projected needs of the infrastructures in Mpunda is done based on SNI 03-1733-2004 about Procedures for Residential Area in the City and Needs Analysis of that Area. The analysis result of carrying capacity of land as urban's Infrastructures Development in Mpunda District of Bima is by establishing conservation areas based on the physical condition and directing it to the area with land capability class 4 or land with low and very low capability with land coverage ratio in 2035 is 0 percent. The control on functions of the buffer zone or the land with capability class 3 with land coverage ratio in 2035 is 0 percent and there are still 20% developing land. For the cultivated land or land which is suitable to be developed is directed to land with capability class 1 and class 2 with land coverage ratio in 2035 on land capability class 1 has reached the maximum score which is 70%, while the land coverage ratio for the land capability class 2 is 49% from the maximum score which is 50%.

Key words: Carrying capacity of land, land capability, Physical Planning of Area, urban's Infrastructures.

INTRODUCTION

Along with the development of urban areas and the increasing number of inhabitants in Mpunda District of Bima, the need of land for provision of urban's infrastructures is also increasing. Based on the data of the data from Badan Pusat Statistik or The Central of Statistic Institution of Bima in the last five years, in 2010, there were 26.474 inhabitants in Mpunda. However, in 2014, the number of inhabitants was 35.648 people. It means the number of population during 2010 until 2014 increased by 9.174 people, with the density of population in 2014 reached 2.333 people / km².

The pattern of land usage in Mpunda develops partially and linearly following the development of road chain. The development and land usage in Mpunda showed significant growth. The existence of educational facilities centered in this district, starting from the elementary grade until university,

improving the urban's development to be more dynamic. The shifting of central government of Bima from Raba to Mpunda is also one of the reasons of Mpunda's development.

Physical aspect, especially the topography, is one of dominant factors which caused the differences of development pattern among different districts. Based on the report of Area arrangements planning of Bima in 2015-2035, most part of those areas are in slope of 0-2% and 3-15%. This city also divided into some villages such as Lewiratom Penatoi and Santi. The areas with relatively flat slope currently are utilized as cultivation area and the area to develop urban's infrastructures. In the southern part, there are Panggi village and Saminae village whose area mostly are hills with slope 16-40%. Consequently in village of Panggi, Saminae and Matakondo, due to its topography, their development is hampered. Another effect of this topography condition is Mpunda is centered in the area with slope 0-15%. Thus, the development of Mpunda district is uneven either in the provision of infrastructure or other public infrastructures.

Based on the physical condition of Mpunda, whose inhabitants are increasing each year, land for developing residential area is needed especially to support the inhabitant activities. On the other side, the land surface of Mpunda is relatively small with other restraining factor such as the topography condition where the land mostly consists of steep slope. However, the development of land in Mpunda tends to be centered in relatively flat slope. However, the width of flat slope keeps shrinking. Consequently, the area to be developed is increasingly limited. The current condition is very vulnerable to the land conversion and uncontrollable development as an impact of the increasing number of population but with decreasing width of land. To minimize and prevent this, an appropriate strategy and solution for proper, systematic and sustainable land allotment in Mpunda are needed. One of the ways is reviewing the carrying capacity of land and projecting the needs of residential area and other urban's infrastructures.

Based on the background explained above, the problems of this research can be identified as follows.

- How is the carrying capacity of land in Mpunda as an effort of land provision to support the development of urban's infrastructures?
- How many needs of urban's infrastructures which have been projected based on the number of Mpunda's Population in 2015-2035?
- What direction of urban's infrastructures development planning which is appropriate with the carrying capacity of land in Mpunda in 2015-2035?

Based on the problems identification above, the aims of this study can be formulated as follows.

- Analyzing the carrying capacity of land in Mpunda as an effort of land provision to support the development of urban's infrastructures.
- Analyzing the needs of urban's infrastructures which have been projected based on the number of Mpunda's Population in 2015-2035.
- Formulating the direction of urban's infrastructures development planning which is appropriate with the carrying capacity of land in Mpunda in 2015-2035.

METHODOLOGY

Design of Research

The research design used in this study is descriptive study. Descriptive study is a design of research whose aim is to describe the existing phenomenon, either natural phenomenon or man-made phenomenon. This phenomenon can be in form of activity, characteristic, transformation, connection, similarities and differences between phenomena (Sukmadinata, 2006: 72)

Data Analysis

Analysis of Land Capability

The analysis of land capability is a systematic assessment of land and its classification into several categories based on its own characteristics which include the land's potential and obstacle in its sustainably use. In this study, the analysis of land capability is based on Peraturan Menteri Pekerjaan Umum No.20/PRT/M/2007 about Technical Guidelines for Physical & Environmental Analysis. The data needed are in form of Land Capability Units which includes

1. Climatology
2. Topography
3. Geology
4. Hydrology
5. Mineral Resources
6. Natural disasters
7. Land Use

The aim of Land Capability Unit (LCU) analysis is to acquire the overview of land capability level to be developed as urban areas and as a basis for directions of land's suitability. More detailed information can be seen in the table 1 below.

Table 1. Scaling System of Land Capability Unit

No	Land Capability Unit	Weight
1	LCU of Morphology	5
2	LCU of Project's Convenience	1
3	LCU of Slope Stability	5
4	LCU of Foundation Stability	3
5	LCU of water availability	5
6	LCU of Drainage	3
7	LCU to Erosion	5
8	LCU to Waste Disposal	0
9	LCU to Natural Disaster	5

Source: General Work Minister Law No.20/PRT/M/2007

The classification is based on the total score. There are several classes made with regards on the minimum and maximum score of total score. The calculation use formula by Effendi (1987), which can be seen below:

Where:

- I = width of interval
 R = range of interval
 N = total of interval

$I = R/N$

Based on the calculation of the interval, the classification of land capability was separated based on the range of interval of maximum and minimum score, which can be seen in the table 2.

Table 2. Classification of Land Capability Unit

No	Class of Land Capability	Development Classification
1	Class A	Very Low Capability to be Developed
2	Class B	Low Capability to be Developed
3	Class C	Average Capability to be Developed
4	Class D	High Capability to be Developed
5	Class E	Very High Capability to be Developed

Source: General Work Minister Law No.20/PRT/M/2007

Analysis of Carrying Capacity of Land

The analysis of land's carrying capacity is based on Soerjani (1987) and has been explained in Peraturan Menteri Negara Perumahan Rakyat No: 11/PERMEN/M/2008 about the Guidelines of Compatibility between residential area and the classification of land's carrying capacity based on land capability which can be seen below.

- Capability of land class 1 (Very high development potential really high), the maximum ratio of land cover is 70%
- Capability of land class 2 (High development potential), the maximum ratio of land cover is 50%
- Capability of land class 3 (Average development potential), the maximum ratio of land cover is 20%
- Capability of land class 4 (Low and very low development potential), the maximum ratio of land cover is 0%

The formula which is used in determining the carrying capacity of land related with the determination of Building Coverage in a location was formulated by Mock F.J (1983). The basic principle is calculating how much area which will be kept opened or reserved. The formula can be seen below.

Note:

BC = Building Coverage
A = Area
OS = Open Space

$$BC = \frac{(A - OS)}{A} \times 100\%$$

Demography Analysis

The purpose of inhabitant projection analysis is to know the development and growth of inhabitant in each year. As what have been explained in the background of theory, based on Mantra, Bagoes Ida (2006), the method used is Geometric Rate of Growth which means the growth is in phases where every year is considered as one phase, and the projection is done for the next 20 years. The calculation of this of projection use Geometric method whose formula can be seen as follows.

Note:

P_n : The number of inhabitant in n year
P_o : The number of inhabitant in the beginning
n : Difference of year (20 years)
r : Percentage of Growth rate each year

$$P_n = P_o (1 + r)^n$$

City Infrastructures Analysis

The needs analysis of infrastructures in the planning year is always based on the development and growth of inhabitant, the calculation of the projected needs of the facilities or infrastructures in Mpunda is based on SNI 03-1733-2004 about Procedures for Residential Area in the City and Needs Analysis of that Area. The infrastructure and facilities which are meant by SNI 03-1733-2004 include:

- Residential Area
- Infrastructures of Government and Public Service
- Educational Infrastructures
- Health infrastructures
- Infrastructures for Religious Activities
- Infrastructures of Trade and Services
- Infrastructures of Culture and Entertainment
- Infrastructures of Open space, Park and Sport Field

Mpunda's General Overview

Mpunda is a District of Bima. The boundaries of Mpunda consist of:

Northern Part : District of Asakota

Eastern Part : District of Raba

Southern Part : Bima Regency

Western Part : District of West Rasana'e

The width of Mpunda is 15,28 km² or 1528 Ha which consist of 10 villages. The width of Mpunda is relatively small and only covers 6,86% of the total area of Bima (222,25 km²). For more detailed information about the Villages of Mpunda can be seen in the table 3.

Table 3. The Distribution of Village Area in Mpunda

No.	Villages	Width (km ²)	Percentage (%)	Number of Inhabitant
1	Lewirato	0,49	3,2%	2.202
2	Mande	0,69	4,5%	4.678
3	Manggemaci	0,52	3,4%	3.841
4	Matakando	1,87	12,2%	2.546
5	Monggonao	0,63	4,1%	5.444
6	Panggi	3,51	23,0%	2.886
7	Penatoi	0,74	4,8%	4.490
8	Sadia	0,68	4,5%	4.546
9	Sambinae	5,43	35,5%	2.681
10	Santi	0,72	4,7%	2.354
Total		15,28	100,0%	35.468

Source of Data: Mpunda District in Number, Year 2015

Land in Mpunda is used in different way such as for: rice field area (320 Ha), developed area and yard (466 Ha), farm (388 Ha), forest (116 Ha) and other (257 Ha). On the other hand, if it is viewed from its physical condition, most area of Mpunda is in slope 0 – 2% and 3 -15%. The area on this kind of slope are mostly used as cultivated area and urban's development area. The southern part, which includes Panggi and Sambinae village, is a hills and mountains area whose steepness of its slope is more than 40%. On the other hand, the northern part, which includes Matakando, its steepness of slope is around 16 – 40%. The type of soil of Mpunda is dominated by geological formation in form of Alluvial Soil (Qa) and old volcanic sediments (Tlmv). On the other hand, the geological formation of the small part of Mpunda is in form of Limestone and volcanic sediments.

RESULTS AND DISCUSSIONS

The Analysis of Carrying Capacity of Land in Mpunda'

Peraturan Menteri Pekerjaan Umum No.20/PRT/M/2007 about Technical Guidelines for Physical & environmental, economical and socio-cultural analysis in Spatial Arrangement explains that the carrying capacity of land is a part of physical and environmental analysis of land or planned area which belongs to natural resource that is limited in accommodating human activities and especially in their utilization. The physical and environmental analysis aspect which becomes a comparative factor will be assessed and will be a basis of Land Capability Unit (LCU) which can be seen clearly in the table 4.

Table 4. Analysis of Physical Aspect of Mpunda District

Morphology And Slope	Geology	Land Utilization	Hydrology and Climatology	Disaster	Mineral Resources	Score
Mountains and Hills whose steepness of Slope is > 40%	Old Volcanic Sediments (Tlmv)	Garden, Farm, bush, forest	In Mpunda, the Rainfall rate is 136,33 mm / year and is a location of three river such as : Sadia River Rontu River Ntobo River	Earthquake Flood Typhoon Landslide	Mineral class C in form of andesite	1
Mountains and Hills whose steepness of Slope is 25 - 40%	Sediments as a result of Old Volcano (QT)					2
Hills whose steepness of Slope is 15 - 25%	Limestone (Tlml)	3				
Valley whose steepness of Slope is 2 - 15%	Alluvial (Qa)	4				
Valley whose steepness of Slope is 0 - 2%	Alluvial (Qa)	5				

Source: Result of Analysis based on Peraturan Menteri Pekerjaan Umum No.20/PRT/M/2007

The analysis of Land Capability Unit (LCU) is based on the physical aspect of Mpunda. The analysis is done after combining all items of Land Capability Unit by using Overlay technique on LCU map, which form a classification of land capability. Based on the total score of land capability, the land capability unit can be classified into 9 with the adjusted score based on physical component, which can be seen in the table 5 below.

Table 5. Score of Mpunda's Land Capability

Land Capability	Weight	Weight x Score				
LCU of Morphology	Weight: 5	5	10	15	20	25
LCU of Project's Convenience	Weight: 1	1	2	3	4	5
LCU of Slope Stability	Weight : 5	5	10	15	20	25
LCU of Foundation Stability	Weight : 3	3	6	9	12	15
LCU of water availability	Weight : 5	5	10	15	20	25
LCU of Drainage	Weight : 3	3	6	9	12	15
LCU to Erosion	Weight : 5	3	6	9	12	15
LCU to Waste Disposal	Weight : 0	0	0	0	0	0
LCU to Natural Disaster	Weight : 5	5	10	15	20	25
Total Score (Overlay Map)		Minimum Score: 32 Maximum Score : 169				

Source: Result of Analysis, 2015

From the result of Over map of land capability unit, it can be seen that the minimum score is 32 while the maximum score obtained is 169 with the interval score 33.8. By looking at that point, the classification of land capability based on the interval score, the result can be seen in detail in table 5.

Table 5 Classification of Area Development in Mpunda

Total Score	Class of Land Capability	Development Classification	Width (Ha)
0 – 33,8	Class a	Very Low Capability to be Developed	8.39
33,8 – 67,6	Class b	Low Capability to be Developed	171.98
67,6 – 101,4	Class c	Average Capability to be Developed	523.90
101,4 – 135,2	Class d	High Capability to be Developed	296.97
135,2 – 169	Class e	Very High Capability to be Developed	654.13

Source: Result of Analysis, 2015

The whole analysis of area development capability in Mpunda shows the classification of land in the cultivated area for developing residential area and urban's infrastructures which consist of :

- Area with very high and high capability to be developed is an area whose capability is considered as good and suitable with the development in Mpunda.
- Area with average capability to be developed is an area which are less capable or can be developed but with several conditions if the area still want to be developed.
- Area with very low and low capability to be developed is an area whose capability is considered as low and inappropriate with the development in Mpunda.

Figure 1 shows the map of Land Capability Unit in Mpunda.

Analysis of Land Carrying Capacity

The concept of land with good carrying capacity can be achieved if the maximum building coverage (BC) is not more than 70% from the total area which can be utilized in the area with very high capability to be developed. On the other hand, in the area with low and very low capability to be developed, the maximum building coverage is 0%. Based on the calculation and analysis of carrying capacity of Land in Mpunda, the result is (see figure 2) :

- Class 1 is area with very high capability to be developed (area of development) in Mpunda whose area is 654.13 Ha with 350.81 Ha of it is still not developed. With the Constanta ratio of building coverage is 70% and the other 30% is established as open land.

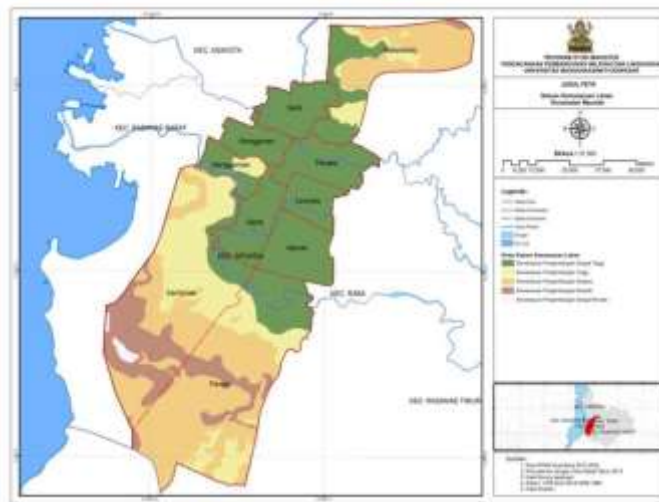


Figure 1. Map of Land Capability Unit in Mpunda. Source: Result of Analysis, 2015

$$Bc = \frac{654.13 \times 350.81}{654.13} \times 100\% = 43\%$$

Based on the analysis, the coverage ratio existing in the land with capability class 1 in Mpunda is 43% or 267.23 Ha. Therefore, the land which can still be utilized is 27% or 165.40 Ha and the other 30 % of land (185.41 Ha) is established as open land.

- Class 2 area is high land (problematic area) in Mpunda whose width is 290.76 Ha and 259.90 Ha of it is undeveloped area. With the statutes of maximum building coverage is 50%, the rest 50% is established as open land.

$$B_c = \frac{290.76 \times 259.90}{290.76} \times 100\% = 11\%$$

Based on the calculation, the result of coverage ratio existing in land capability class 2 in Mpunda is 11% or 20.86 Ha. The amount of developing land which can be utilized is 39 % or 113.51 Ha. The rest of land whose width is 114.52 or 50% of the total area of Land with capability class 2 is established as open land.

- Land class 3 is the land with average capability to be developed (problematic area II). In Mpunda. The area's width is 522.20 Ha. The statutes of maximum coverage ratio of land is 20% and the other 80% is established as open room

$$B_c = \frac{522.20 \times 522.20}{522.20} \times 100\% = 0\%$$

The building coverage of land with capability class 3 in Mpunda is 0% or still is not utilized yet as built area. The area which can still be developed is only 20% left or 104.44 Ha. However the utilization of land with average capability is 80%. This type of land can still be utilized with some condition as long as it will not destroy and change the function of area.

- Land Class 4 is a land with low and very low capability to be developed in Mpunda whose width is 180.38 Ha. The land d coverage is 0% and usually established as reserved or limited area.

$$B_c = \frac{180,38 \times 180,38}{180,38} \times 100\% = 0\%$$

Based on the calculation, the building coverage land for the land capability class 4 is 0% which means the entire area of land of class 4 is an open land and can be utilized as Conservation Area.

Analysis of Inhabitant

Based on demographic analysis of Mpunda from year 2015 – 2035, it can be summarized that the increasing number of inhabitant is evenly distributed in every village. The average number of inhabitant growth rate each year is 0.069%. Additionally, the number of inhabitant in 2035 is 136.167 people from the number of inhabitant in 2014 which is 35.648 people.

$$\begin{aligned} 2015 &= 35.648 (1 + 0,039)^1 = 38.119 \text{ people} \\ 2020 &= 35.648 (1 + 0,039)^5 = 49.836 \text{ people} \\ 2025 &= 35.648 (1 + 0,039)^{10} = 69.671 \text{ people} \\ 2030 &= 35.648 (1 + 0,039)^{15} = 97.401 \text{ people} \\ 2035 &= 35.648 (1 + 0,039)^{20} = 136.167 \text{ people} \end{aligned}$$

The increasing number of inhabitant in each village can result on the increasing number of inhabitant in the district. In 2015, the number of inhabitants in Mpunda is 38.119 people and the width of Mpunda is 15.28 km². The population density in Mpunda is 2.495 people/km². With the increasing number of inhabitants in 2035 where the total number of population will be 136.167 people, the population densities become 8911 people/km². Figure 3 shows the growth rate of population in Mpunda from 2015-2035.

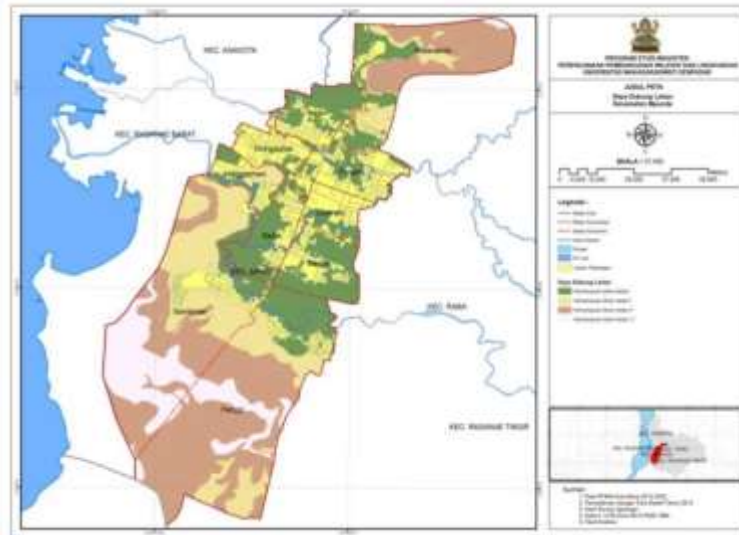


Figure 2. Map of Carrying Capacity of Land in Mpunda. Source: Result of Analysis, 2015

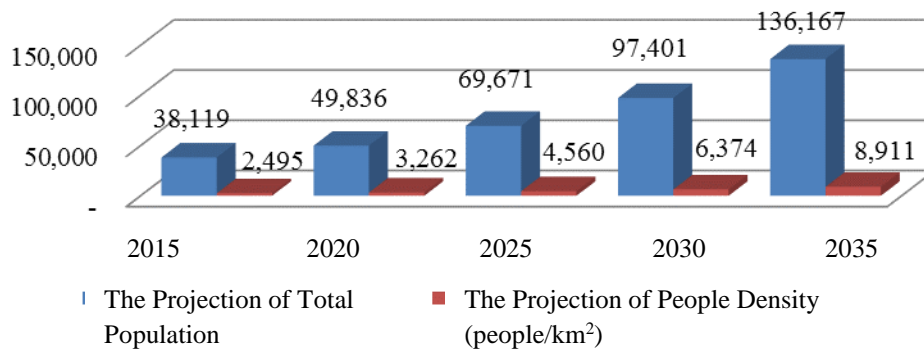


Figure 3. Growth Rate of Population in Mpunda in 2015 – 2035. Source: Result of Analysis, 2015

Need Analysis of Infrastructures and Residential Area

Based on SNO 03-1733-2004 about Procedures for Residential Area in the City, the needs of infrastructures and residential area projection will follow the trend or tendencies of inhabitants growth rate which has already been analyzed starting from 2015 until 2035 in Mpunda. After the analysis, the needs of land to be developed into urban's infrastructures and residential area can be planned. The total of land needed to be developed as urban's infrastructures and residential area is 807.75 Ha in 2035. However, in 2015 the needed land to be developed as urban's infrastructures and residential area is only 333.14 Ha. It can be seen that the number of total land needed increased by 474.61 Ha. For more detailed explanation of land needed to be developed to urban's infrastructures can be seen in the figure below.

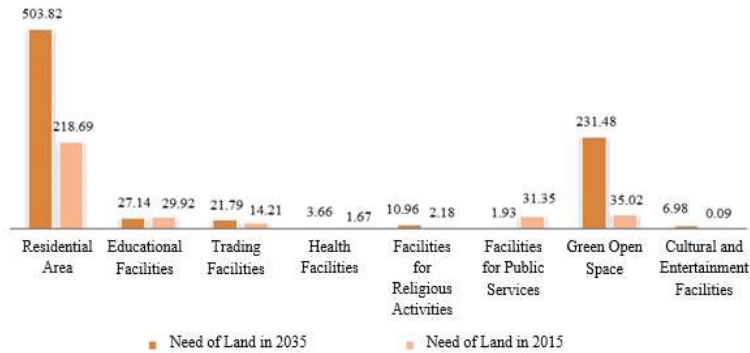


Figure 4. The Need of Land to as Development Area in Mpunda. Source: Result of Analysis, 2015

Based on the projection, the land for Educational and public service infrastructures in 2035 will decrease compared with in 2015. This thing happens because there is a suggestion that the allocation for university and public services and governmental infrastructures in the district level should be removed from the projection.

Direction of urban's Infrastructures Development based on Carrying Capacity of Land in Mpunda

Direction of Land as Conservation Area in Mpunda

The management of conservation area includes planning, utilizing and managing the space. The planning activities cover the establishment of borders for the conservation areas in Mpunda. Physically, the establishment of conservation area is directed toward the land with capability class 4 or the land with low and very low capability. The width of this kind of land is 180.38 Ha which become a conservation area. The land is mostly located in Panggi, Sambinae and Matakando.

Direction of Land as Buffer Zone of Mpunda

The establishment and management of buffer zone in Mpunda covers land with capability class 3 or land with average capability. The width of buffer zone in Mpunda is 522.20 Ha. On the other hand, the statutes state the utilization of land class 3 which can be developed is 20% of total width of buffer zone which is 104.44 Ha. However, physically, this area need more management and control from land misuse by giving rules and condition. By this way, the buffer zone is not damaged. The buffer zone on Mpunda includes Panggi, Sambinae and Matakando village.

Direction of Land as Cultivated Areas in Mpunda

The planning of cultivation area which has been set will be done in the land with capability class 1 and class 2 or land with very high and high capability. This kind of land can be seen in most of villages in Mpunda. Figure 5 below will show the diagram about the coverage rate from 2015 – 2035. Physically, the cultivated area is very suitable to be utilized as residential area and urban's infrastructures. The width of land with capability class 1 is 654.13 Ha. However, the land which is utilized is 432.63 Ha or 70% from the whole land with capability class 1 in Mpunda. However, the other 185.41 Ha land is established as open land.

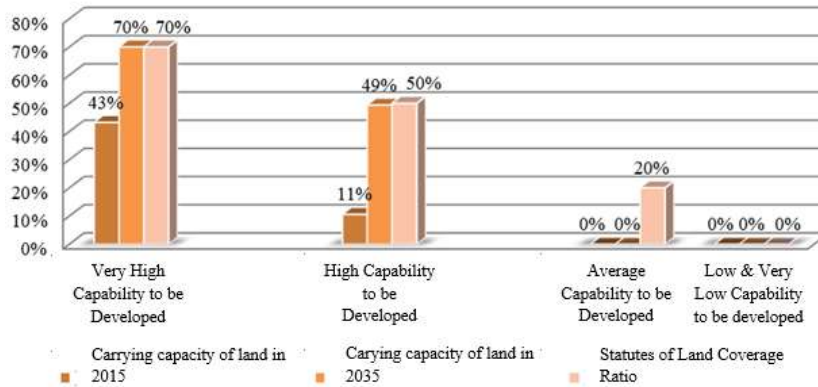


Figure 5. Carrying Capacity of Land of Mpunda in 2015 – 2035. Source: Result of Analysis, 2015

In 2035, based on the projection result and the analysis of carrying capacity of land for land with capability class 1 has increased to 70% which means the land with capability class 1 has reached the maximum rate of land coverage. The land with capability class 2 or land with high capability is a part of cultivated area whose width is 290.76 Ha. The land that can be utilized is 145.38 Ha or 50% from the total amount of land class 2. On the other hand, the rest 50% of land or 145.38 Ha is established as open land. The utilization of land for the land class 2 until 2035 has increased by 49% or 143.63 Ha. The followings figure shows the planning of land utilization based on the carrying capacity of land.

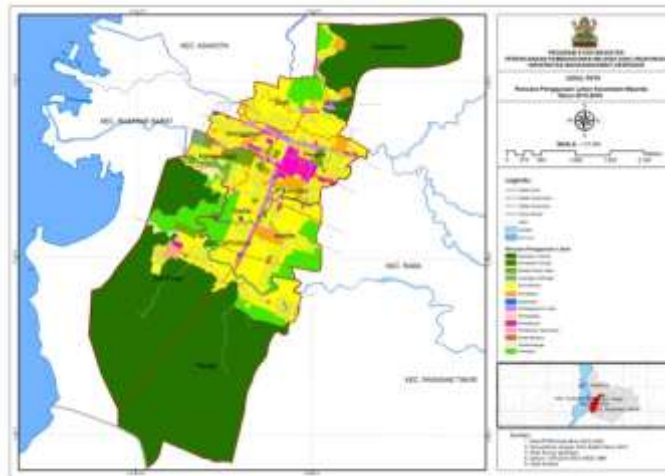


Figure 6. Planning Map of Land Utilization of Mpunda in 2035. Source: Result of Analysis, 2015

CONCLUSION

Based on the analysis of carrying capacity of land as urban's infrastructures development in Mpunda of Bima from 2015-2035 which has been explained before. There are several conclusions which can be seen as follows. The result of analysis shows that the carrying capacity of land in Mpunda in 2035 can be divided into 4 parts. They are land with capability class 1 whose width is 654.13 HA, and 27% of it can still be developed. The second one is Land with capability class 2 whose width is 290,76 Ha and there are still 39% of land that can still be developed. The next one is Land with capability class 3 whose width is

522.20 Ha with 20% of it is still left unused. However, to be developed, there are rules and condition that needs to be fulfilled. The last one is land with capability class 4 whose width is 180.38 Ha. It has been established as conservation or limited area. Based on the result of infrastructures and residential area needs projection which has been analyzed from 2015 – 2035 in Mpunda, it can be projected that the need of land for residential area and infrastructures development which have been planned. The total of land needed for residential area and infrastructures development is 646.34 Ha in 2035. However in 2015, the need of land has reached 333.14. It means the land needed has increased by 313.20 from 2015. The suggestions for the planning of carrying capacity of land in Mpunda are by establishing conservation area and directing it, which is based on physical aspect, to the area with land capability class 4 or land with low and very low capability. The management for buffer zone is done by giving rules, limitation and conditions to utilize the land. The buffer zone is meant to land with capability class 3. For the cultivation land or land which is suitable to be developed, it will be directed to the land with capability class 1 and class 2.

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SPATIAL PLANNING, RURAL LAND TANURE AND RURAL DEVELOPMENT

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ABSTRACT

Spatial Plan has a principle of land utilization for social welfare, are dealing with the problem of land ownership and other rural resources. And also the implemented of rural spatial plan are often not synergies. Land regulation provides social role which have to be considered as a public obligation to the land ownership. The indogenous public interest such as common land property or “adat land” is build in rural land property. These social obligation of rural land landowneship, in rural communities, in order respecting the values of kinship, they can be performed well where spatial plan can work in harmony. Since modernization goes to rural development, the village community has begun to shift towards the modern capitalism norm, urban-hedonism life, the selfless people so providing land for public or community, have to be economically calculate and not merely social obligation. Event in the condition the rural administration have supported budget for development, rural spatial plan are still dealing with failure.

Key words: spatial plan, land regulation, rural development, adat land

INTRODUCTION

Long before the promulgation of Environmental Law (UU No. 4 tahun 1982 and Spatial Planning Law (UU No. 24/1992 then UU no 32/2007), rural communities have traditionally through customary rule had known about the conservation of the environment and the spatial arrangement of settlements , such as the tradition of " sasi " (Maluku) , the culture of " Cadu " (taboo) fishing Kancra (golden fish in Cibulan, Kuningan - West Java) or taboo clearing rainforest springs or select a location for a settlement with the concept of " garuda ngupuk " (Priangan, West Java), or " kantung semar " select parcels of land shaped (Java).

Tradition traditional order to build a house, choose a location where direct settlement or village development not only to the interests of individual and social life of the community, but also the values of socio-cultural in preserving natural resources into a community asset. Settlements are not only physical meaningful, but also a part of the social order and inherent values system of in the community tradition. Zoning certain areas do not pay attention to the foundations of the society. Some particular rural areas that have been accordance in with the capacity of natural resources, shifted to broader economic activity, often lead to the displacement of the social life and values, vice versa. Meanwhile, a new formal institutional mechanisms in layout capable of implementing principles preserving the environment, has not yet formed. Even if the construction of new settlements want implement the principles of local knowledge not only about the naming is localized but also the norm, the norm is more salable using imported norm. For example, today in many new residential and new town developments, the growing demand by importing concept of Chinese traditional concept, “feng-shui” or “hong-shui” is believed to improve safety, wealthy, healthy and lucky to the occupants. The concept is basically an elaboration of the concept of the macro space in choosing the location of settlements in the landscape of the area, then lowered into the micro space in planning for house per house, so the concept of macro and micro space arrangement can be

aligned. In contrast, the implementation in urban settlements in Indonesia the concept of feng-shui applied directly to the micro space particularly for building in which the concept of linkages space, macro and micro spaces are not identified anymore.

This paper intends to issues in the implementation of UU No. 26/2007 on Spatial Planning in rural areas that often cause problems dilemma. The solution is not enough just with the attitude of partiality officials or government policies, but also an academic challenge. Realize full well that basically every major destination (grand goals) the issuance of a law not only differ between the government and society (channeled through representatives). However, implementation of good legislation that lowered to government regulations and instructions, frequently make government officials and community members are exposed to conflicts that force into warring parties. Lawmakers should be able to anticipate how the implementation on the ground and the laws are made not only quite satisfied with the agreement in people's representative institutions.

Unimplemented and distortion a law that has been issued, that people do not care about the existence of certain laws, then the alternative (1) the government should reassess the attitude and role (reinventing government) to oversee the implementation, (2) conduct social engineering community so that citizens obey carry it out - correctional - or (3) laws should be repealed or repaired through the mechanism of the existing legislation. Although it is to get something done the problems that the issuance of a law, it is difficult to produce the satisfaction of all parties (win-win solution), but will always be dealing with parties who are dissatisfied (win-loose) because the current condition has been included in the conditions of rural land in Pareto optimal ,

SOURCES OF LAW IN THE IMPLEMENTATION OF SPATIAL PLAN REGULATION (LAW NO. 26 OF 2007)

In connection with the essential concepts of the law relating to Spatial Plan Regulation (SPR), there are three legal concepts need to be understood as an instrument to be effective implementation of SPR , namely the human right concept of property rights, the concept of a lawsuit (standing to sue) and the legal concept of public property. The concept of human right regarding the rights of land ownership is basically a simple notion of property where a person (individual or group) may utilize freely (using, selling, amortizing or redeem) due to his favorite objectives on the benefits it has. The rights protected by law or customary law formally (no endorsement thereon). Natural resources include land, water, forests, air and energy, are natural materials being very important for humans and other living creatures. Recognizing the importance of natural resources, both individuals (private) or collectively owned (common property rights), people naturally want to control or have it that there is freedom in use. Therefore, in the utilization of natural resources , the Agrarian Law No. 5 of 1960 on the fundamental property right principles which provides principle of private property right as well as common property right. This land ownership sorted out again, in accordance with the scope of (a) property right, (b) the right to cultivate, (c) the right to build, (d) the right to use, (e) rental rights, (f) the right to open a business, and (g) rights to collect the product (forest}. For the ownership of water resources and air passed their (a) the right to water, (b) custody and fishing, and (c) tenure space.

Property rights are the main personal rights (private rights) which is one of the human rights that are important in determining a person's status on an object or items that can be derived (inherited), exchanged or transferred to another party in accordance with his will. The other party that may transfer of private rights is regarded as a secondary private rights, while property rights are collective (joint) is known as common property rights were confirmed by public property, in the hands of a group of people / communities / tribes / villages. These customary rights implies that the utilization (consumer, selling, redemption) must meet the needs of all members of the group / community / village together. Hence outsiders, strangers, tribal or other people who are not allowed to object or goods or resources that had it. Nevertheless, Agrarian Law, does not provide assurance that the government can take control of the

village property right when the land is an integrated into community property right, the rural government and the administration should be able to maintain and oversee the collective property rights. This is due to the existence of Act No. 6 of 2014, on Rural Governance where the government only intends to regulate the status of the village administration without entering or common property right or the right to offend local custom. The absence of common property (collectively) of the goods or natural resources, which also means the absence of power to monitor the use of the goods and natural resources, attached to the village government provides opportunities for the appropriation of property rights over natural resources or the utilization of natural resources located in the region of the village administration, such as the entry of others into the village freely, illegal logging and land grabbing village. In Article 33 of the Constitution 1945 mentions the state controls all the earth, water and space, including the natural resources contained therein, gives the sense that it is the state that has the traditional rights on the entire territory of the country (national customary rights). The application of the concept of national customary rights often cause social conflicts between the center and regions or between government and society.

The concept of public law relating to the instruments / devices available for use in carrying out government policy with regard to the general public property to assure the natural resources and the environment for welfare. The basic act of the government to implement policies that are (a) the power of eminent domain, the powers granted to the government to revoke or provide a property for public purposes, (b) the public power or legitimacy government, namely power GOI to regulate the behavior of citizens in relation to the general welfare, safety and security of the nation and moral national identity, and (c) taxation, namely the power of the state to impose taxes as a revenue source public welfare or as a form of supervision (disincentives) to activities or actions which can be detrimental to the community.

The concept of a lawsuit (standing to sue) is the complaint of a person (human rights) relating to civil law or public law. With the increase in development activities that would bring consequences to the growing conflict of interest or the intensive use something natural resources lead to conflict. The parties who feel aggrieved have a right to sue for damages suffered. In this case, the plaintiff must have (a) believe their actions violated the law and (b) actions themselves are real (material evidence). Recognizing the role of government (positive, active) in public life and became an institution to find justice which may arise from the clash of interests of all parties, includes the government have the same degree then issued Law No. 5 of 1986 concerning the State Administrative Court (Administrative Court). In order for any government action in the form of decisions can be rectified and corrected, person or body of civil law can denounce the violations or disputes arising in the field of State Administration.

The room containing the natural resources should have a formal legal basis and substantive law. Every law must have a formal law and substantive law. Legally formal legislation provides a basis to adjust the layout, ie how to plan, exploit and control room. Material legally regulated in the Law on Spatial Planning was clarity around the use and utilization of the earth (land resources, water, air) and the wealth it contains for the welfare of society. With the growing strength of the materialistic economic market mechanisms into the public life, the gap values as a formal legal principle of normative society to the logic of rational economic decision making everyday life.

Thus, growth and high economic levels increasingly exposes the community to the increasingly complicated situation in regulating the use of natural resources and sustainability. Natural resources that need to be considered as formal law and the law is often not aligned to the material as follows:

1. Land resources, allowing their development activities, the lives and welfare of the community. In addition, the wealth of land resources, such as minerals, fuels, minerals, and the other is a capital / asset of a society. Utilization of land resources for production activities will affect other life activities. Excavation of the earth's surface mining for example, in addition to foster settlement activities, other services will also interfere with the suitability of its use for agriculture, livestock or forestry. The use of land for the settlement would reduce the amount of land for agriculture or open space (open space). Become the general rule since Von Thünen explains the economics of land, land use will always shift to the use of the value of economic rent is higher. Changing of

agricultural land, from lower land rent to higher rent easier settlements to implement than the other way around.

2. Water resources, is a natural resource that is vital to every living creature. Interests to rescue each living things (plants, animals and humans) becomes a potential natural conflict. Therefore, if human beings increasingly unwise superior in treating the water resource that is easy to move this (movable) then the damage to the ecosystem even easier. Agriculture cultivation fields or inland fisheries (ponds, dams) which is often neglected as a natural water conservation efforts, easily damaged man with the land conversion to non-agricultural (residential, industrial) are not easily returned to the initial conditions (irreversible). In addition to the potential conflict of interest between living things, also very easily contaminated widespread because it is movable.
3. Air resources, which is often difficult to be taken into account in any arrangement of the user, while the air is important in supporting life.

In the production factors of industrial process activities use material as main sources and medium of industrial waste could hardly be separated. We rarely organize complex interactions of inter natural resources (land, water and air). Be aware that in every natural resource use conflicts there, where the use of a natural resource will reduce the benefits of other natural resources (externalities). The use of land for residential or industrial, in addition reducing the opportunities for other uses, will affect water quality. Development of transportation infrastructure will increase the flow of surface water (run-off), the flood also diminishing air quality (air pollution by CO, Pb, SO).

So, basically spatial planning is an effort to synchronize of utilization the combination of resources in an integrated manner, although in practice this principle is often unclear which also means that the material law is not clear. Completion judge actions of environmental pollution or destruction of natural resources in the court, as an institution in which to decide a criminal or civil matter that can not be resolved through public consultation; always in need of evidence as part of the implementation of substantive law. Incomplete fulfillment of substantive law, something it difficult to decide the case. Therefore, Act 34/2007 on the Principles of Environmental Management implementation becomes less effective as a tool to control environmental damage. Similarly, Law No. 26 of 2007 on Spatial Planning Regulation (SPR) weightier, formal law rather than substantive law such as in terms of space utilization in the spatial plan is charged as a normative value than the formal legal definition of land use is more loaded with material law.

The Case of South Lombok Tourism Area. On March 5, 1996, a tragedy of common property right for rural development of Rowok, Lombok Regency, South where 600 local officials destroy crops and prying open houses in the villages of the coast because the government has declared that area as a tourism area of South Lombok (Asiaweek April 25, 1997). Four hundred of rural families displaced his live and farm as the source of life that had exist for decades disappear in a few days. Since the Agricultural Guidance Program up to intensive agricultural program launched by the government, the villager mostly farmers Rowok eagerly for agricultural development programs is in line with the needs of their daily lives. Reforestation efforts with land conservation and encouragement to grow seaweed as an alternative for farmers cultivating the coast, they do it quite successfully. The presence of the Pronas (National Program for Land Certification) encouraged the villagers to have land certificated as valid proof of land tenure and ownership, the government of Rowok attempt to get over the land legalization, in sense of land privatization rather than common property of land.

Limited access of rural communities to the environmental law, government bureaucrats make this legalization process, left behind. Developers who come from outside the village in a short time, who are drawn by white beaches, the wind of sea breezy, immediately came to the scene, accompanied completeness formalities like having a license in principle and permission-location to develop tourism in this area, claimed the existence of villagers to occupy rural landscape. At the old time, during the Dutch colonized, the local government to respect the existence of the local community property (land and water) with legalized as "yasan ground" (property of land community). Today the history of the ground (origin

landowners) becomes an important consideration, although it has long cultivated land can only set public ownership or control rights of others by the government. Thus, evictions of local residents due to the establishment of a new functional area based on the spatial plan which determined the local government (regulations), as happened in the village of Rowok, not as unusual cases. Cases that appear in various rural areas throughout the country this only increases the number of statistical problems of land tenure shifts to the side of the village outside the village and revocation roots rural communities alone.

SHIFTING LAND OWNERSHIP AND TENURE IN RURAL AREAS

Since starting their colonialism in the entire archipelago, it was also happens in colonial economic process which destroys the order of the agrarian nature of communal ownership of land become the property of the individual and personal. Originally in Indonesia, land control in the rural area, in general, are central to the community (Vollenhoven, 1909) termed the seigniorial rights or ownership rights. The most important characteristic in this communal right is the total lack of authority to transfer the land and the land retained as a community asset. In the Dutch period, often essential change of property rights of community into private property ownership such as Western systems, causing uprisings or social revolution. The principles that has led to the formulation of Article 33 UUD 1945 on the right of states to control of natural resources (land, water, and assets held), but the government is often difficult to realized. Laws have faced formal on the substantive legal but differences in empirical reality. Similarly, the implementation of the Law on Spatial Planning (SPR) are facing difficulties because of lack of substantive law has, as described in the following examples. SPR more character than the normative principles aspects of its operations, although already issued various technical guidelines and technical directives

Diversity of micro-credit in rural and village communities shift to individualistic independence. Today more and more credit is offered for rural communities, for example for small businesses there is no BMT SMEs, macro credit, KUK and TPI; for underprivileged households there Takukesra, P4K, BK31; No Instruction for underdeveloped villages (IDT), P3DT, and so forth. Each program granting of loans or assistance that have the criteria and range of each is different, which is very confusing rural communities. Overlap and confusion villagers facing credit entered the village also often encountered because of the inconsistency of the target as happened in the LDT (Raharjo, 1997). The criteria directed at disadvantaged rural communities, but instead individual credit administration and absorbed for breeding purposes (70%). In conditions of different and separate it into the village a small credit program will not provide independence and increase the scale of economic enterprise more accumulative enlarged. Similarly, the various institutions in the village economy, such as cooperatives, IDT, BMT, RB, KUK or Kukesra under the auspices of the sector / not guarantee the different departments will be the establishment of an integrated institutional system and permanent (Mind, 22 April 1997). Kulak Candak Credit Program which commenced since the 1970s and today turned into KIK and KMKP not managed to bring a little more independent entrepreneurs. Nonetheless, the impact of the most difficult to be avoided with the more vigorous rural credit delivery system, the more it was inevitable rural economy to a more commercial and increasingly widening spread between the low income class (the poor) and high incomes in rural areas. Penny endlessly criticized the inclusion of a free market system into the rural economy more harm than good for small farmers in rural areas. Many studies have shown, failure to cooperatives as an economic system of rural communities due to increasingly lax unity of rural communities are increasingly shifted to individualistic. Land wealth of the village is often no longer maintained as an asset of the village community togetherness, but released as a free market system particularly to individuals village officials

The tendency of conversion of farmland to non-agricultural part of the eviction process in rural communities. In a period of ten years (1983-1994) following the adoption of 18,000 hectares of industrial area to accommodate the location of foreign investment, on the northern coast of West Java has happened

shrinking agricultural area of 36 830 hectares. Depreciation of wetland acreage was due to the conversion of sawah land farm to non-agricultural uses. In this wetland conversion, an average of 9230 hectares per year turned into a housing development (32%) and industrial area (48%). There are five compelling reasons the conversion of agricultural land to non-agricultural. First, the division of inheritance systems that tend to make more land fragmentation, small agricultural land tenure so that the economic scale of agricultural production with less economical land margin. Second, the exchange rate of the agricultural product to of non-agricultural products (trade off) decline that does not give incentives to farmers businesses. Third, the shift of agricultural employment stratification of jobs that are a bundle of work into segments of agricultural production work. Fourth, the economic rent of agricultural land use is lower than the economic rent of non-agricultural use. Fifth, the entry into the market economy that impact rural economic system increasingly polarized of land resources in certain groups.

Specialization farm work is value-added production is distributed among the farmers who own the land, tenure, tenants, free-lance sharecroppers based on the type of work (carpenters, plowing, teak plantations, graft, workers spraying pests or laborers fertilizer, share cultivate, reaper, paddy, workers rice packaging, traders rice, and rice middleman). Specialization farm work that spawned job classes and rural social classes increase differences sharply. Diversification of class work in rural area begin with willingness to improve the efficiency of agricultural productivity ultimately increase social stratification of rural society that no longer bounded as a whole farming community. History of cultivation of paddy fields in Java, which has spawned a system mechanisms integrated work with characteristic strong mutual cooperation, today is increasingly loose for the stratification of the agricultural mechanism that leads to the ability of an individualistic sphere.

The application of advanced agricultural technologies as part of the intensification of agriculture as mechanism agriculture technology increased separating landowners to peasants, the agricultural laborers and buffaloes workers, agricultural intensification eliminating free time to carry out the art and culture of agriculture. Some agricultural research in villages in Karawang (West Java) in the 1980s on the use of new seeds (IR-5, PB-8) to increase the yield per hectare, has resulted in profound changes in the socio-economic and socio-cultural of farmer society. System sharecrops, the result of the increasingly unfavorable sharecroppers, the role of farm worker women who increasingly displaced by agricultural laborers men resulted in increased migration of women workers outside the village, rest land by agriculture increasingly short, in addition to the saturation of farmland on fertilization. All this boils down to the condition of the transfer function of agricultural land can no longer be maintained, either by family farmers and the farm community as a whole rural community.

Conflict of space utilization of Urban Fringe Area (North Bandung area). The State Minister of the Environment has repeatedly appealed to the local government (Level I and Level II Provincial District / Sub Bandung) immediately restore a function of Bandung Region North as water catchment areas (Harlan, 22 April 1997). GOI Level II Regional District / Bandung municipality actually has a Spatial Technical Plan (RTRK) stipulates that the region as a water catchment area (area of protection functions). Construction of medium and luxury neighborhoods, KPR BTN in North Bandung area, has threatened the balance of water management areas that lead to floods steadily during the rainy season occur more frequently, while in dry seasons is bigger. All parties understand that the carrying capacity of water resources of Bandung Area diminishing and approaching the critical threshold condition. Several studies of the difficulty of restoring the function of North Bandung area as water catchment areas, states as : (1) real estate has issued a substantial investment for the construction of facilities / infrastructure for housing before the permit is obtained, (2) many buildings owner are private or residential complex of lecturer of Universities in Bandung, both as a villa in rural as well as the main house, (3) many citizens who have taken KPR BTN for the construction of a simple house, if the house is demolished it is other than the owner who earn barely lost homes, banks face credit jam, and (4) the local government (Level II regional District / Sub Bandung) are not able to carry out RTRK. In terms of controlling the environment, Ministry of Environment planned opening BAPEDAL (Environmental Impact Management Agency) at the local

level so that problems can be resolved environmental damage. In terms of spatial control (both normative and material) it seems clear there is no institution responsible for overseeing the implementation of spatial plan and only handed over to the competencies of Regional Development Planning Board (Bappeda).

Conflicts of Forest concession rights between regulation and traditions of local communities. Since the start of National Long Range Development Plan, 1975's when the oil crisis, the forestry sector is regarded as the savior of the national economy. Since then, the forest resources used intensively as an alternative to foreign exchange, other than petroleum. Ways of managing forests highly exploitative less attention to sustainability, are controlled through the provision Forest Tenure (HPH) and each concession holder must implement certain rules set by the government, such as Selective Logging Indonesia (TPI), then in the late 1980s an improved with the rules of Indonesian Selective Logging (TPTI), must have an Annual Logging Plan. Determination of concessions as a part in supporting the national economy, has resulted in the sacrifice of the local community on the benefits of releasing customary rights of forest resources that they "have". Here appears the national communal rights on which to base their nation's right to issue concessions often conflict or lack of respect for their local customary rights. Compensation (compensation) values contained in the commons on a local community land rights can not be fully replaced by the construction of various the right to collect forest produce for generations. The extent of which can not be determined with certainty in accordance with the carrying capacity of the environment to support life. With the grant concessions (minimum extent of 98,000 hectares) by the central government (MoF) the determination of the boundary between the concessionaire and the local community living environment department (not undefined), should be discussed agreement deliberation results that can not be construed as formal legal ties. Therefore, these agreements often lead to conflict between local communities and concessionaires. The Government should not make concessions as a shield holders conflict. And exploitation of forest resources by residents outside the commonly referred to foreigners by the locals, not benefited the local community.

RURAL SPATIAL PLANNING AND RURAL DEVELOPMENT POLICY

National Development Policy (Guidelines 1993) gives mandate to the government to be able to developed rural area and rural communities are progresses and independent with the main targets as follows:

- 1) Creating the rural economic conditions are solid, able to grow independently and sustainably by improving the quality of human resources.
- 2) Enhancing production capabilities of rural communities in order to enhance economic linkages with the rural economy-economic system more integrated region through the efforts of regional development and regional integration.
- 3) Alleviating the problem of rural poverty in order to realize the welfare of rural communities with the provision and development of rural infrastructure.
- 4) Strengthen government agencies and institutions of the village community.

Rural development base agricultural development. Rural environment is closely related to the activities of the agricultural sector, the achievement of these goals are often imposed on agricultural development approach. Various packages agriculture program since Development First Stage, such as Development Guidance, Mass Intensification, cooperatives and the opening of new agricultural lands, indirectly giving major influence to the increased expansion of employment opportunities, increased agricultural production, rural economic growth and improving the welfare of rural communities. Nevertheless, the success of agricultural development was also give a new problems in rural areas, such as rural income distribution gap, polarization of land ownership but also the structure paternalistic of rural communities thus supporting the creation of the elite get richer and the poor get poorer and poorer.

Rural development base basic needs approach. Rural development through the fulfillment of basic needs, which provides a variety of programs to meet the basic needs of life of rural communities,

such as the provision of clean water (including family toilet, MCK), reserves of food (rice barns), health (such as polio, hepatitis, eradication of mosquitoes) , education (primary PI), improvement of public nutrition (PKK), the provision of basic rural (rural roads, bridges, markets, transit stations village, boat moorings). That program targets families and the whole community of the village with other objectives to be achieved is to eliminate inequalities and poverty alleviation. In the concept of provision of facilities / village public infrastructure is often done, to the concept of central places approach, namely putting the location of facilities / infrastructure efficiently and economically serve the whole society. This approach was often face the problem of inconsistency in service. Planning locations that are not integrated, as in the construction of primary PI or KUD center, resulting in a building which was established only last a few years because the number of students is less, the supply of teachers is limited, cost management and management education that does not exist. Community participation is often not included in planning the location of the buildings, so that people feel responsible for the presence of the building. It happened anyway for economic facilities, such as market development, clean water, sanitation, roads and facilities / other infrastructure of land resources, "poverty sharing". Maybe this is not solely due to the income distribution failure, development results, but also the structure of the rural population is paternalistic to support the creation of the elite get richer and the poor highly support the richer classes.

Rural development base community development approach, with an emphasis on growth and self-reliance of rural communities, may not result in the lack of participation of rural communities to rural development programs. Empowerment of the Village Community Resilience Institute (LKMD) as part of the village, many made a significant contribution to the development of the village. As an illustration of the success of the empowerment program LKMD may be mentioned a program implemented in Bandung called Manunggal Satata Sariksa (MSS). Bandung municipality government in 1995/1996 spent stimulant (pangjeujeuh) amounting to Rp 814 million through 139 LKMD / wards. Of the funds were able to raise nongovernmental Rp 2,450 billion with the implementation of the project amounted to 197 projects. Similarly, with the help of the Family Welfare Program (PKK) amounted to USD 91.5 million has been able to absorb non amounting to Rp 146 million. Programs like this are done in various places, such as the Movement Thousand Minang (Minang passionate) in West Sumatra, Hutanabe Marsipature Movement (Martabe) in North Sumatra, South Sulawesi and other regions. People movement stimulated by this government is implementing the concept of alternative capital empowerment (empowering people). In addition to the success of the development movement that empowers the community potential, many objective conditions of the field face a dilemma because of various things, such as heterogeneous societies, shifting of value system of society, the changing forms of mutual cooperation, and the meaning of self-help.

Therefore, its implementation in the field often collide, but the inconsistency with the development plan or spatial plan cities or the emergence of various external constraints that impact on the order of use of facilities / infrastructure of the city, social and economic city. The projects were implemented in the MSS for example, almost 80% consists of a road-building project that is also being addressed by the Department of Public Works Bandung municipality and only 19% that is the development of social infrastructure (mosques, chapels) that fosters social ties are great because the program -Program LKMD was more oriented to the villages, the interests in the village, it is often a conflict of interest with the neighboring villages. On the other hand the success that is more focused on the criterion of the amount of donation money to implement development, it will be very different from rural areas, where people are not public money economy, in which the sacrifice of labor, donations of land or other materials are not always fully converted to in the value of money, tend to participation considered less successful.

Area Development Unit, at District Level (Kecamatan), work to introduce a spatial approach in rural development. In an effort to integrate the interests among the villages and the implementation of sectoral programs, the government is to create a model approach to the planning system called unit area development work (with the scope of the districts). In the early era of development implemented by the government, it can not be denied the government's role is dominant. The government is taking the

initiative, finance and carry out development for the community (top down). This model has been criticized because it is often assumed that the ability of communities and poor people in development is small. As a result, the concept that inhibit participation, local interests and development potential of local and community-owned. Contrary to this concept is the bottom-up approach that is similar to the 'basic needs approach, which involves the greatest possible local communities in establishing programs needed. Although this attempt to integrated the UDKP top down and bottom up process, the planning system is often not running because of gravity deploy development in the village is not on the plan, but the financing. Therefore, the development projects implemented in the village is dominated more than the integration of central department proposed project of UDKP program through the village. In this case, UDKP has introduced a system of inter-village development priorities through the plans for the project site through the spatial plan. Needs of spatial extent of the need to explain where the projects are planned to be built. On the other hand, the Directorate General of Cipta Karya (Human Settlement), Ministry of Public Works to develop an integrated approach to rural development through the principle TRIBINA (human development, the environment and businesses). TRIBINA coaching and rural basic infrastructure development priorities focused on the village serves as a center of growth for other villages or the so-called Rural Growth Centre (DPP). The choice of location as the center of the village between the villages of growth requires a form of spatial planning approach that is called by the process of planning an inter-village Growth Centre (PPAD). This alignment approach does not approach the village administration authority or department funding scheme, but agreement on the use of space in order to avoid conflicts of land use or other natural resources which resulted in a decreased quality of the human environment. The approach through the integration of spatial structure will face the same constraints as the implementation UDKP, because of the limited authority, the competent institution vagueness and obscurity law regulated material,

CONCLUSION

Rural Spatial Plan, seen from the level of spatial arrangement over it (the provincial spatial, spatial districts) are in the cultivated area settings "handed over" to local governments (provincial, level I, level area II district), as details of spatial plan. The interpretation of the regulation submitted to the local government (local or regional level I and level II) can give rise to conflicts of authority and operational implementation. Formal legal basis establishes the rights and obligations of spatial planning, the rural areas are the responsibility of the government (the first level local and regional level II) and not the rural communities. In Article 4 paragraph (1) and (2) clearly stated that any person (or maybe also a group of people collectively) are entitled to enjoy the benefits of space to improve prosperity. This means that people, groups of people and / or people have the right to set its own spatial plan, which is due to this spatial arrangement they receive benefits, taking into account the harmony and balance with other spatial planning. Therefore, the responsibility of spatial planning in government hands (the first level local and regional level II), often the interests of local communities or rules / norms of local spatial planning is neglected. As a result, local communities displaced by the interests of more importance upon it, when traditionally many local communities have had the norms of spatial arrangement itself wiser to protecting its natural resources. Viewed in terms of the interests of preserving the environment and its contribution to the protection of property rights of citizens in maintaining the natural resources of the transfer of his property to foreigners, it is necessary to put the authority of the spatial arrangement of rural areas in the local community. Benefit laden space over the formal legal and normative must be translated into tangible form such as the use of the land, because the meaning of the benefits of space is more abstract things that can cause interpretations can vary. The gap between substantive law of the normative value may result in ineffectiveness of a regulation.

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TRANSFORMATION OF TRADITIONAL DWELLING LAYOUT DUE TO TOURIST ACTIVITY DEVELOPMENT OF TOURIST VILLAGE IN YOGYAKARTA

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ABSTRACT

The current situation indicates that tourism is changing from mass tourism to a small group which focused on nature and culture. Yogyakarta, cultural city which major of tourist destination both domestic and foreign, is experiencing this phenomenon. Village tourism become one of the reliable to satisfy the needs of tourist trend today. The things that support the success of ecotourism activities are homestay and tradisional handicraft. Related to the tourism industry, homestay can be understood as two things: as a tourist attraction and as tourist accommodation. Transformation of dwelling as a form of local participation becomes the most often encountered in the development of rural tourism. This research investigated at two tourist village which have different characteristics tourism attraction i.e. Pentingsari village with rural daily life attractions in a natural environment and Lopati village with traditional handicraft attractions. This paper aims to find the transformation of dwellings related to the development of rural tourism. The method used case study research to determine the uniqueness of the tourist village of the research object, and followed by participation research action method to involve communities in order to get information of dwelling transformation, before and after becoming a tourist village. The results showed that the characteristic of dwelling transformation is influenced by the development of tourism character of the village.

Key words: tourist village, traditional dwelling, ecotourism, rural tourism, transformation

INTRODUCTION

Rural tourism is a new tourism model, often also known as special interest tourism. Rural tourism as ecotourism, internationally has been set since October 1999 by the WTO [1] with issuing "Global Code of Ethics for Tourism" as an encouragement to the countries in the world to develop sustainable tourism. Based on the decision taken together [2] in 2005, Sustainable tourism can be defined as " Tourism which considers the impact of economic, social and environmental present and future, address the needs of visitors, industry, environment and local communities ". Yogyakarta as a tourism city is also affected by that "new trend". Activity-based ecotourism and cultural tourism began to appear in Yogyakarta, mainly around Sleman and Bantul. Sleman in 2012 has 38 tourist villages [3]. Changes occur as a result of the economic boom in the form of variety of modernization such as the increase in the built environment quality, the increase in the number of bed rooms or homestay, improvement of space quality in terms of form and order, thus the meaning of space will change according to community's perception towards modernization. Tourist attractions, local-based activities such as production of traditional handicrafts contribute to the change of community's perception. The efforts of society adapt to increasing prosperity made through Home Based Enterprises (HBEs) finally become a tourist attraction which attracts tourists. Home Based Enterprises [4], has distinctive characteristics, i.e (a). Size and space Working area; a large number of houses are not allocating HBs activity in a separate space, (b). The frequency and distribution

of each type of HBS has its own market conditions, require resources, and blend with a competitive environment, (c). Profitability; HBE income was supported by other income, (d). Working conditions; the work done by their own because they do not have workers who are authorized, (e). Worker; HBE tend to depend whether there is any additional worker, or there is free to calculate the number of workers. HBE, which has become a tradition, ultimately requires the change according to the needs of tourist attractions. Changes as a result of tourism activities is anticipated with providing tourist support facilities such as homestay.

This research aim to identify the changing patterns of dwelling as a micro unit of settlements by comparing tourist activity characters from two different tourist villages in D.I. Yogyakarta. First Pentingsari Village – Sleman, that has a beautiful natural landscape character with agriculture-based rural atmosphere on the slopes of Mount Merapi. The village provides a homestay with the concept of natural attractions. Second, Lopati village - Bantul, has traditional handicraft industry as it’s character, is near the coast Srandakan. The village provides a homestay with the concept of an educational tour. Some tourist attraction in these two village are shown in figure below.



Figure 1. Tourist attraction in Pentingsari Village i.e : a. tracking b. traditional fishing game and Tourist attraction in Lopati village i.e : c. “bakpia” traditional culinary, d. traditional bamboo handycraft (research doc. 2014 and 2015)

Dwelling transformation of these two villages character is unique. Despite having the same goal of providing live-in experience for tourists but in a different way. The pattern of transformation expected to be a model of rural tourism development based on conservation that maintains the traditional elements as tourist attraction.

MATERIAL AND METHODS

Methodology

This research used a comparative method based on data from field observations. Data collecting used participatory methods involving community action research as a research object [5]. Flow chart of discussion in this reseach are described according the following scheme

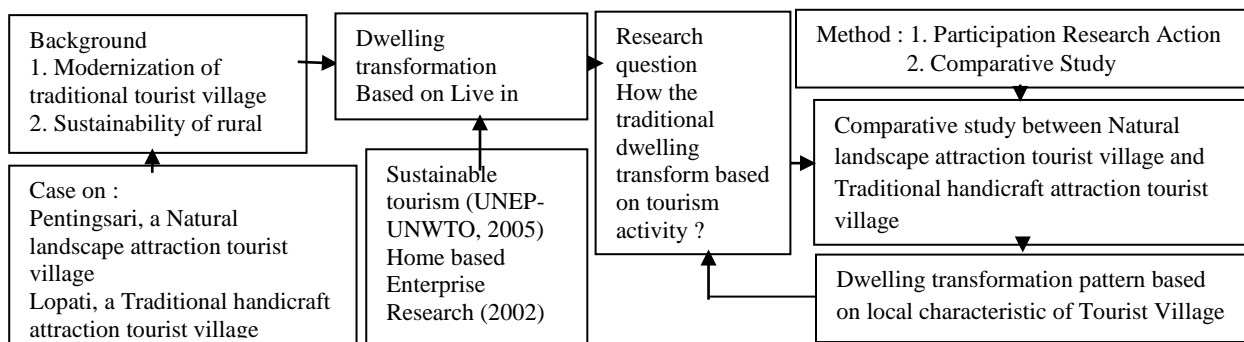


Figure 2. Research flowchart

The purpose of this research is to get a pattern of transformation of dwelling based on characteristics of tourist village that developed on the basis of preservation of the environment and culture.

Overview of Location

The location of this research is in D.I.Yogyakarta province focusing on two districts, namely Pentingsari village in Sleman regency and Lopati village in Bantul regency. The location can be seen through the map below.



Figure 3. Location of research study (research data, 2015)

Both villages have different characteristics, which is reflected on their geographical location. Pentingsari in the north side of Yogyakarta city, offers the advantage of a beautiful view of the mountains with a natural rural atmosphere. Lopati in the south side of Yogyakarta city, offers a traditional craft with the rural atmosphere of humble crafts industry.

Characteristics of the dwelling-homestay in Pentingsari

Pentingsari rely on live-in attraction as the concept of traditional village. The village was declared into a tourist village since 2007 and earned several awards as the best Tourism village in provincial and national level. The success of a tourist destination is measured by the level of tourists and length of stay. It really depends on the facilities provided as a mean of support. This condition develops through the support of community participation. These developments bring progress for the people. Tony Siswoyo [6] said that after becoming a tourist village, local community welfare is better now and this can be felt by the public directly. Physical changes become physical markers of modernization that occurred in Pentingsari. Dwelling of society slowly changed according to needs of tourists. Existing condition of homestay in Pentingsari can be seen below.



Figure 4. Existing homestay in Pentingsari village (a. Mr. Doto's Homestay, b. Omaha Simbok homestay). (Research doc. 2014)

Currently, Pentingsari has 50 active houses used as homestay, overall can accommodate a maximum of 400 tourists.

Characteristics of the dwelling-home industry in Lopati

Lopati rely on tourist attractions in the form of traditional crafts. This condition is due to the village is not supported by good natural resources. Communities survive by developing the craft industry for ages. Home craft industry process relies on local potential such as bamboo plants, and traditional food products made from cassava, soybeans and green beans. The development of this attraction is supported by the existence of a homestay which integrates with local home industry. Community participation in tourism activities is proven by the existence of homestay, which integrates with the workshop of home industry. Conditions of homestay in Lopati can be seen in figure below.



Figure 5. Homestay in the Lopati village. (a. bamboo workshop and homestay of Mr. Suwarji, b. Milk product workshop and homestay of Mrs. Sri Indarti). (research doc. 2015)

There are 34 homestay-home industry in Lopati, total accommodation can provide for staying of 300 tourists.



RESULTS AND DISCUSSIONS

Spatial changes on dwelling in the Pentingsari village

Spatial changes on dwelling occurring in Pentingsari tourist village is the development of homestay which is done as a form of community participation in the development of rural tourism. The development is based on state-owned land and the ability of citizens financial [7]. This has resulted a variation of the spatial changes on dwelling. Spatial changes on dwelling of residents in Pentingsari can be divided into three categories, shown in table below.

Table 1. Categories of the spatial change in Pentingsari's dwelling

NO	Catagories	Schematic layout	Explanation
1	Re function of space	<p>Example for first category dwelling transformation in Pentingsari (house of Mrs. Warto)</p>	<ol style="list-style-type: none"> Existing homestay, living room became communal area for the hostess and tourist Used Private bedroom became tourist accommodation Main Access use one access




		<p>These changes occurred in some large houses which originally had many family members. By the time, family members left the village so that the existing space then converted into a homestay facilities for tourists. It is profitable for homeowners because the maintenance costs obtained from the rental rooms. Family sphere occurs among the tourists and the owner of the house, because the position of transition which is part of the house owner.</p>	
	<p>The addition of building took place in the rear area.</p>	 <p>Example for second category dwelling transformation in Pentingsari (house of Mr. Doto)</p> <p>These changes were made by residents who do not have the remaining space in the house. Community participation is shown by constructing buildings on available space within the plot. It occurred in some residents who previously only had a small core houses with limited members. However, with the sufficient financial support, local residents invest in a homestay facility. They consider the cost can be covered by renting out the accommodation. The advantage of this type of development is the separation of private areas for residents with a public area for tourists, although interactions still occur through shared areas such as family room.</p>	<ol style="list-style-type: none"> 1. Additional area at the backyard for homestay facility 2. Separate Access for the hostess and the tourist. 3. living room as the communal area
3	<p>Building additions in the side area</p>	 <p>Example for third category dwelling transformation in Pentingsari (house of Mr. Nugroho)</p> <p>These changes were made by residents, similar to the second type, but the rest of the empty land is only found in side area of the house. Based on the characteristics of the development, factors that affect the changes are availability of empty land, over the function of space, accessibility and fulfillment of the tourist needs.</p>	<ol style="list-style-type: none"> 1. Additional area at the side of main house for homestay facility. 3. Separate Access for the hostess and the tourist. 3. Living room as communal area


Source : research analysis

Spatial changes on dwelling in the Lopati village

Spatial changes on dwelling occurring in Lopato tourist village is the development of homestay which is done as a form of community participation in the development of rural tourism. The development is also based on state-owned land and the ability of citizens financially. This has resulted a variation of the spatial changes on dwelling. Spatial changes, on dwelling of residents in Pentingsari can be divided into three categories, shown in table below

Table 2. Categories of the spatial change in Lopati's dwelling

NO	Categories	Schematic layout	Explanation
1	Re function of space	 <p>Example for third category dwelling transformation in Lopati (house of Mr. Japon, owner of the "bakpia" traditional culinary)</p> <p>As happened in Pentingsari, this re function utilizes the space that has been unused. The difference is the consideration of the existing traditional craft workshop area</p>	<ol style="list-style-type: none"> Existing homestay, living room became communal area for the hostess and tourist Used Private bedroom became homestay area Use one access
2	The addition of the building is in the rear area	 <p>Example for second category dwelling transformation in Lopati (house of Mrs. Sri Indarti as owner of the milk product traditional culinary)</p> <p>Community participation by constructing buildings on the available empty land. Besides to the rear area, the development can also be made vertically. The development still considers the existing condition of industrial workshops household.</p>	<ol style="list-style-type: none"> Additional area at backyard and above main house Separate access for the workshop area and hostess area Livingroom as communal space
3	The addition of the building in front and side area.	 <p>Example for first category dwelling transformation in Lopati (house of Mr. Suwarji, owner of the bamboo handycraft)</p> <p>These changes were made when the area of craft workshops require access to display in front of the building. Development of homestay directed to the rest of the empty land located in the side area. In the example above, development is directed at one side of the building, whereas there is a workshop area in front of the house. Access into the main building from the main access.</p>	<ol style="list-style-type: none"> Additional area at in front of main house and side of the main house Main Access to access the house but split in the corridor to the homestay area and to the main house Livingroom as communal space


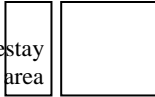

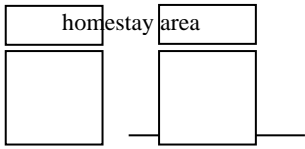
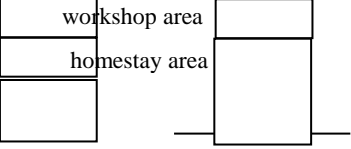
		 <p>Example for first category dwelling transformation in Lopati in other version (house of Mr. Purwo Sugianto as owner of the koro tempeh traditional culinary)</p>	<ol style="list-style-type: none"> 1. additional area at the left and right side of the main house as workshop and homestay area 2. Separate access for the main house and the workshop area 3. Livingroom as communal space
		<p>The development also can be made on both sides. Community participation by constructing buildings on available empty plot. Similar to what happened in Pentingsari, the direction of development is not only considered the rest of the empty land, but also the areas of existing craft workshops.</p>	

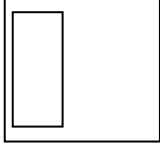
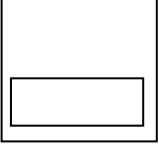
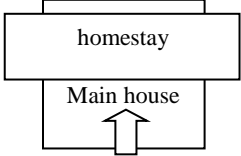
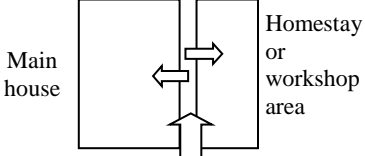
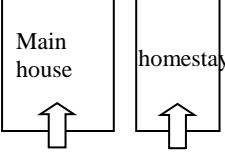
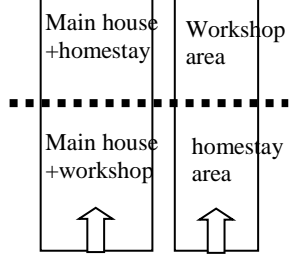

Source research analysis, 2016

Comparison of spatial changes on dwelling in tourist village

Spatial changes on dwelling in both tourist villages have similar characteristics. Factors that influence are empty plot, availability of space that can be repurposed, accessibility and the needs of tourists activities. Comparisons between these factors can be seen in the following table.

Table 3. Comparison of the support factor in dwelling transformation in Pentingsari and Lopati village.

NO	Factor		Pentingsari village	Lopati village
1	Availability of empty land	In front of area	-	 <p>There is addition in the front area due to the additional function as a home industry</p>
		Side area	 <p>There is additional areas in the side of the main building</p>	 <p>There is addition of area on the side of the building, separated between homestay and workshop, flanking the main building</p>
		Back area	 <p>There are additional areas</p>	 <p>There are addition of areas, horizontally at the rear of the main house and</p>

		horizontally at the rear of the main house and vertically to the top of the house.	vertically to the top of the building. Although in the rear area, but this expansion is located in separate area. Vertical development is used for the workshop area.
2	Re function of Space	<p>Refunction of the existing room as homestay facility</p>  <p>Function changes occur in bed room that are not occupied as a homestay facility</p>	<p>Workshop area of HBE</p>  <p>Refunction of the existing room as homestay facility</p> <p>Changes in the function found in the unused space into a homestay facility, workshop area merges with the main house as a home industry</p>
3	Accessibility	<p>Unified access</p>  <p>There is a single access to the house and homestay, usually found in buildings that experienced a re function of space.</p>	<p>Unified access</p>  <p>There is a single access in the building but there are separate access to the zone of the main house and homestay or workshop area. Usually found on the building, which experiencing re function of room or additions, in the area next to the main building</p>
		<p>Seperated access</p>  <p>There are separate access, to the house and to the development of homestay</p>	<p>Seperated access</p>  <p>There are separate access, between the house and the area homestay industry, or home homestay and industrial area. It depends on the type of industry and the availability of land owned by resident.</p>
4	tourist needs	<p>Improvements facilities are room, bathroom and lounge area</p> <p>Examples :</p>  <p>Livingroom Bedroom</p>	<p>Improvements facilities are : room, bathroom and display area of domestic industry workshop</p> <p>Examples :</p>



Source : research analysis, 2016

Spatial changes in dwelling in tourist village both in Pentingsari and in Lopati are the result of community participation for rural development. Different characters provide uniqueness in each location but has the same motivating factors. Residents define forms of participation were conducted in accordance with the capabilities and existing conditions that previously owned. For tourists, it is a value added for excursions conducted in both villages.

CONCLUSION

This research concludes that the change occurs as a form of citizen participation for the development of rural tourism. The development of village-based nature tourism travel prioritizes the comfort of accommodation for tourists, with the aim of extending the length of stay. The development of tourism village-based traditional craft workshops priorities on the development areas of craft displays, with the aim to allow tourists to re-visit. Factors affecting the change of dwelling space in the tourist village are:

- (1) space availability on plot, land availability is affecting the physical transformation of the traditional dwelling. The difference is in the village of handicraft-based tourism, the development of the front area plays an important role as a display area, while in rural nature, this has no effect.
- (2) The transformation of the building. The existence of a building that has large size and has plenty of space is common for people who have high positions in society. The transformation occurs in a room that is not occupied.
- (3) Accessibility, there are two types of accessibility affecting spatial changes, and applied to both types of tourist villages. The types are single access for residents who have limited empty land and separate access for people who have large empty land. The difference is in the tourist village craft, despite having single access, a workshop area and the main building remained in separate zones. As for separate access on a tourist village crafts, this can happen to separate the workshop area or homestay and the privat home.
- (4) The needs of tourists. Both types of tourist villages meet the needs of the tourist in accordance with its unique character. In the village of nature-based tourism, tourist needs met by improving the quality of tourist accommodation. Whereas the traditional craft-based tourism village, tourist needs met through higher quality craft workshops open area for tourists.

Spatial changes in dwelling in tourist villages can be categorized into two types, namely: (1) No change, in other words, buildings were re-functioned it's rooms. (2) Changing with the development of the building to the front, side, rear and vertically upwards. Spatial transformation do not changed the main structure of the house so that the interaction of tourists and homeowners stay remain in a family sphere. Core pattern that occur is as follows.

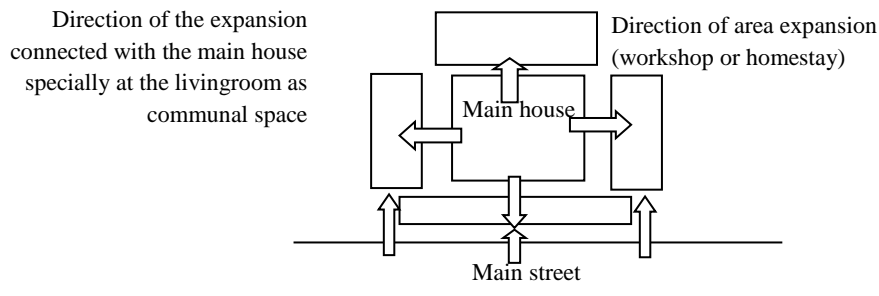


Figure 6. Schematic of room organization as the main pattern of the dwelling transformation at the tourist village. (Research analysis, 2016)

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SUSTAINABLE RURAL RESOURCE MANAGEMENT: THE ROLE OF LOCAL KNOWLEDGE IN PADDY CULTIVATION

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ABSTRACT

Local knowledge (LK) plays an important role in rural development especially among rural farmers. It is also used in preparing foods, medicine, fisheries and so on. For rural and indigenous peoples, LK informs decision making about fundamental aspects of day to day life including rural resource management such as in agriculture. Although there are many previous studies on LK but they did not focus on the role of LK in ensuring the sustainability in rural resource management in the context of paddy cultivation. LK should be revived as a tool for natural resource management decision process, especially in rural areas. Therefore, this paper aims to study the role of LK in paddy cultivation in sustainable rural resource management. This study is based on the experiences from farmers who are located about 11 kilometers from the town of Bintulu. The results showed that farmers utilize LK in maintaining the use of natural resources such as land, water, trees and inputs for paddy cultivation by clearing the most suitable land for planting paddy, using manipulative method in pests control, and etc.

Key words: local knowledge, resource management, sustainability, rural, agriculture

INTRODUCTION

Agriculture is the main economic activity in rural Sarawak especially among the natives such as Iban farmers who are involved in paddy cultivation. Paddy cultivation is mainly for their self-sufficiency while surpluses are sold to buy basic needs such as sugar, salt, petrol and some time for special case expenditure such as education, especially during the end of year before the school activity begins (Daniel Ugih, 2014). Iban farmers practice local knowledge in every phase of paddy cultivation (Jackson, J, 1979; Mohd Taib, 1989; Lyndon et al., 2011; Daniel Ugih, 2014). LK becomes the basis for decision-making among the rural communities especially the farmers with respect to food security, human and animal health, education and natural resource management (Beckford & Barker, 2007).

LK encompasses several generations' experiences related to agricultural practices, medical herbs and livestock production, which generally provide effective strategies for natural resource management. It evolves and adapts to new circumstances and considered unique to a particular culture or society and it differs in terms of quantity and quality among community members according to age, gender, social standing and profession (Warren, 1991). LK is also a knowledge which is developed and used over time by local people and is influenced by environmental and socio-economic realities. It is based on experiences which have been empirically tested and proven often over many generations and is adapted to local culture (Daniel Ugih et al., 2014; NUFFIC, 1999). Scholars like Chambers (2000) believed that LK is created naturally and is emanated from geographical circle.

He also believed that the phrase rural people's knowledge is more sensible than the other phrase such as ethnographic knowledge, ethnic classification and ethnic ecology. Scoones and Thompson (1994) also mentioned LK, which provides a framework for decision-making in a plethora of social, economic and environmental activities and livelihoods among rural peoples and facilitates dynamic information systems critical in daily decision-making. LK is an underutilized resource in the development process. The contribution of LK towards sustainable development such as rural resource management is getting wider acceptance especially in today's development such as in rural agricultural practice. This is due to the role of agricultural activities as a main economic sector in rural development.

In the context of this study resources refer to water, land, rivers and flora and fauna. Sustainable resource management is a planning and decision making process that seeks to coordinate and balance the social, economic and environmental demands on resource use to achieve long-term sustainable benefits and reduce conflicts among resource users. It is currently accepted that the incorporation of the knowledge and perspective of people who utilise natural resources into the joint formulation of knowledge and decision-making generates positive results in management programs and policies.

METHODOLOGY

This study is conducted at Kuala Tatau, located in Bintulu, Sarawak. In this study, a total of 17 farmers were interviewed, eight of which were farmers from Kuala Serupai and the remaining nine were farmers from Sungai Semanok. For the purpose of obtaining the data, qualitative research methods through in-depth interview techniques, group discussion and observation were utilised and the data were analyzed using content analysis. Guided questionnaire is also used to identify farmer's profile which include information such as gender, income, marital status, age and other important details. In the focus groups discussions, which were conducted in both villages, a group of five farmers were involved in each session. The data collected was then analysed by using the content analytical method by recording the verbal responses given by these farmers and later transcribing them into textual data to facilitate the coding of themes which was chosen and the frequency of words being repeatedly used amongst the farmers.

RESULTS AND DISCUSSIONS

Sustainable rural resource management in this study can be classified through LK practiced by Iban farmers and the way it contributes to minimize the impact of agricultural activities to rural resources. The first stage of agricultural activities that is related to this study and LK is site clearing. Site clearing through LK minimizes the use of land for paddy cultivation. For the land selection before clearing, the farmers only choose tanah ladu because of its moist conditions and the soil structure is more compact compare to the other soil which insects detest because they are not comfortable living in this type of soil (Daniel Ugih, 2014). The farmers also choose tanah pengerang area to plant paddy because it is the most fertile soil which is commonly used for agricultural. Therefore, the farmers experiences and knowledge in selecting fertile soils for paddy cultivation prevents the needs for forest clearing and the lost of rural resources such as trees, wild animals, and pollution to rivers and etc. It means land selection, maintenance process and source of paddy indicate that this system is designed to preserve biodiversity, not to destroy it (Beckford & Barker, 2007). The farmers also try to minimize the inputs cost including manpower and pesticides by practicing "berdandang" systems. This system is the practice of planting paddy next to other farmers to reap the benefit of reciprocal maintenance and harvesting and reduce pest attack through an integrated and synchronised pest management. So, it helps them in reducing the maintenance cost because every farmers is doing the same task for their paddy. In addition, this system also increase the competition

between pest because by planting in a group at the same time, the acreage of paddy planted is higher compared to just planting alone in an area (Daniel Ugih et al., 2015).

Therefore, the maintenance task needs to be conducted periodically to make sure that the paddy field is free from any objects such as leaves because the abundant of leaves will attract insects and birds to the paddy field since pests or insects like moist condition from the pile of leaves. Farmers also sustain the supply of paddy seeds because all farmers exchange the seeds among themselves. In addition, farmers also planted intercropping crops at the paddy field for family usage and surpluses are sold for extra income or exchange for other crops and paddy seeds among the farmers via a batter system. There are about 20 types of local paddy seeds identified and the reservation of the seeds promotes food and rural resource security (Daniel Ugih et al., 2015). In the harvesting stage, LK is embedded in their socio-cultural belief of prohibiting the disturbance of birds' and insects' nesting area. Farmers are prohibited from cutting and pulling tree and grass or any object from the ground. This is to preserve bird nesting and prevent the birds and insects from attacking the paddy field, especially when yield are almost harvested. The rationale is if the nesting area is destroyed they will go to the paddy farm to collect materials and rebuild their nest and at the same time will also destroy the paddy (Daniel Ugih, 2014; Daniel Ugih et al., 2015).

It is clear that LK shows how the community work in tandem with nature through a deep understanding of their ecosystem and applied it in pest management and it can reduce the use of pesticide that can promote environmental sustainability. The environmental impact of the pesticide includes negative effects of pesticides on rivers, land and non-targeted species. This is also the same with the avoidance to use netting to catch birds at the paddy field, because this practice will affect non-targeted species. In general, it indicates the resilience of LK in the maintenance of environmental resources that benefit human being directly or indirectly. Direct benefits include resources to generate income and sustain livelihood, whereas indirect benefits are climatic and environmental, such as providing watershed, preventing soil erosion, and etc. These resources need to be maintained and conserved, through sustainable utilization, whereby consumption is less than the existing supply of resources (Daniel Ugih, 2014; Daniel Ugih et al, 2015). Nowadays, the industrial development in Bintulu has effected the practice of LK due to better wages in the industrial sector and better life quality in urban area. It has attracted the youths and old farmers away from the paddy fields by offering higher wages and the promise of better lives especially after the implementation of SCORE6 (Daniel Ugih et al., 2015). Rural community who have been working in the paddy cultivation activities have also joined the emigration drive; with some switching from tilling the paddy fields on a full time to a part time basis. This situation clearly illustrates how rapid industrialisation has affected not only the lives of those involved in paddy cultivation but also paddy cultivation as an economic activity itself (Daniel Ugih, 2014).

Agricultural land has also been converted into big scale oil palm plantation and some rural people sell their land due to monetary lure and the increase demand for development. Nowroozi and Alagha (2000) emphasize that the colonist countries attention is to expand industrial productions with the impacts towards agriculture policies, for example by promoting industrial and monocropping large scale agriculture, which will influence the native farmer's LK. This phenomenon clearly shows how capitalism lead to the damaging of sustainable rural resource management through the case study of LK in paddy cultivation.

⁶SCORE is referred to as Sarawak Corridor of Renewable Energy now firmly established as one of Malaysia's five economic corridors. It is a part of the government regional development project that was launched in 2009. There are five are five growth poles selected for high impacts development project.

CONCLUSION

LK in paddy cultivation among Iban farmers in Kuala Tatau clearly show its contribution in sustainable rural resource management. The farmers' effort in reducing the use of land, deforestation and pest management using pesticide through LK is the most important part to ensure the sustainability of rural resources. On the other hand, the unity among the farmers are also important to make sure the practice of berdandang system in paddy cultivation can ensure the sustainability of rural resource. However, LK cannot be practiced due to rapid industrial and urbanization around Bintulu, such as SCORE development, which affect the socio-cultural lifestyles of the Iban. For the policy implication, policy makers should be concerned with the contribution of LK towards achieving sustainable rural resource in rural development programmes. Therefore, any development programmes should consider and respect their knowledge in any development programme. Moreover previous study by Byerlee (1974); Sabot (1979); Stiglitz (1969) and Todaro (1980) stressed that agriculture is the source of employment for majority of the rural population as means to reduce rural to urban migration and raising the income of the rural people.

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SOCIAL QUALITY IN THE CONSERVATION OF THE MARGINALIZED LIVING HERITAGE OF GEORGE TOWN, MALAYSIA

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ABSTRACT

This paper reviews recent research on the aspects of social quality in the conservation of the marginalized living heritage of George Town who are often seldom heard in mainstream research. The paper draws out messages by the residents' of the heritage settlements known as the Clan Jetty Village that spreads along the waterfront of the core zone of the heritage city in Penang. By using the urbanization impacts as a subject of exploration, this paper demonstrates the perception of the residents towards the effectiveness of the current incentives policy and the conservation programme held in the village. This research has employed a mixed method approach which involves various data generation instruments, namely survey, interview as well as observation. From this research the reality is that a number of 'unheard group' experienced inaccessible or disempowering of public voices into heritage management strategy. Within the cultural heritage policy context, community engagement needs to be more responsive to the increasing degrees of tourism impacts and social-economic change to the local residents. In terms of achieving the necessary flexibility and responsiveness, community-based approach could be a particularly appropriate option for configuring the conservation policy implementation in the living heritage site.

Key words: social quality, living heritage site, traditional settlements, marginalized community

INTRODUCTION

The majority of research identified looked at issues and experiences of the communities, with a large number of studies dedicated to understanding the role of the heritage sites, particularly in the physical aspect from various backgrounds. However, the reality is that a number of seldom heard groups experiencing the livelihood marginalization due to the rapid urbanization and globalization process. This paper reviews recent research on the aspects of social quality in the conservation of the marginalized living heritage of George Town who are often seldom heard in mainstream research. Most cities and countries are struggling with the challenges of conservation of traditional settlements due to the rapid urbanization process. Thus, this rapid economic development for instance in Malaysia has caused the demolitions of some historic districts to make way for new development and this has resulted in an alteration of the socio-economic landscape and unsettling communities imbalances. The paper draws out messages by the residents' of the heritage settlements known as the Clan Jetty Village that spreads along the waterfront of the core zone of the heritage city in Penang.

In this regard, heritage village have been found to reflect the unique combinations of the natural, cultural and social characteristics of the urban and sub-urban fabrics. However, in spite of its potential as the typical settlement type in the pre-modern era, the heritage vilage has barely been spared by the modernisation phenomena. Numerous studies have attempted to explain the importance in preserving

these traditional villages in the challenging urban landscape, for example the studies by Saleh (1998) and Sharifah Mariam Alhabshi (2010). Other researchers such as Alberts and Hazen (2010), as well as Pendlebury, Short, and While (2009), have attempted to emphasize the importance between the use of authenticity and integrity principles in guiding the preservation efforts and balancing the needs and goals of the multiple stakeholders in these historic areas.

In this context, heritage villages including the historic towns, city quarters, or rural settlements are very different from managed heritage attractions. They are living environments that have evolved over time and continue to do so, an attribute that is one of their most important characteristics of heritage (Orbasli & Woodward, 2009). Given the complexity of the concept of heritage village, this paper indeed tells the unheard stories about the social quality and the livelihood of the marginalized living communities of the Clan Jetty Village in George Town, Malaysia.

TRADITIONAL SETTLEMENT AND A LIVING HERITAGE

The term ‘traditional settlements’ which is the subject of this study is defined as a traditional neighbourhood community or a specific district in the context of historic settlements, where both the physical characteristics and its inhabitants, carry on with the living traditions, skills and other cultural practices (Kong, 2008). Traditional settlements are different from single monuments, ensembles of historic buildings or pure natural heritage sites, where fewer social activities are involved. ‘Traditional settlements’ or the ‘heritage village’ as defined by Khoo (2014) “is a cluster of traditional dwellings, including their setting, open spaces, trees and any related communal, service or ancillary buildings therein, which represent the social history and cultural heritage of a particular ethnic, indigenous or hybrid community or communities. The construction and spatial character of a heritage village depicts its rural or peri-urban beginnings, even though it may have since been subsumed by urban expansion”. This research takes its stand by defining or categorizing traditional settlements as dynamic and historical places containing rich tangible and intangible ‘values’ while sustaining various types of social interactions and traditional lifestyle. While such settlements retain a physical character of past times, they have also had to adapt to remain relevant to contemporary society.

According to Orbasli (2002), only in the second half of the twentieth century was there a growing appreciation and understanding of traditional settlements, their recognition as ‘heritage’, and a desire for area-based conservation with the birth of the so-called Venice Charter which came into effect in 1964 were there principles governing architectural conservation and restoration. Even though the human dimension of the value of heritage was clearly recognised in the Charter, however, it made no direct reference to the living heritage. Thus, UNESCO’s Convention Concerning the Protection of the World Cultural and Natural Heritage, which came into effect in 1972, made a direct reference to the life of the community. Article 5 suggests that each state that has signed up to this Convention should ‘adopt a general policy which aims to give the cultural and natural heritage a function in the life of the community and to integrate the protection of that heritage into comprehensive planning programmes’ (Miura, 2005).

Nonetheless, since 1992, the World Heritage programme has increasingly focused on traditional knowledge and the role of local communities in the protection and management mechanisms, and the programme has been fostering synergies between modern science and local knowledge that are relevant to both cultural and natural heritage (Netherlands National Commission for UNESCO, 2014). As Rogers (1982) has pointed out, “We must realise that maintaining structures means maintaining the desirability or continuity of a culture – we are in fact conserving cultures not buildings” (p. 15). Further emphasis has been placed on the intrinsic relationship between culture and nature, people and place, and cultural diversity since then. However, Takaki and Shimotsuma (2003) have argued that ‘living heritage’ is a measure to evaluate the depth of communication or interaction between cultural properties and the population, and that “living elements” are what bring opportunities to create or strengthen the relationship between cultural properties and the population, or what motivates the population to co-operate in

achieving their common future visions. In short, for them, “living heritage” is a technical term to highlight the present focuses in the conservation activities in order to create and develop favourable communication between cultural heritage and the current society. In a further exploration of this topic, it is crucial to understand the full potential of traditional settlements as valuable resources and contribute to sustainable development in a dynamic way.

THE CLAN JETTIES AND ITS SOCIAL QUALITY

The Clan Jetty Village that spreads along the waterfront of Weld Quay in George Town city, represents a unique settlement by Chinese immigrants who share common historical, geographical and lineage origin (Hockston & Tan, 2011). These clusters of wooden houses were built by the Chinese poor immigrants who worked near the port during the nineteenth century (Figure 1). These immigrants migrated from the south-eastern coast of China, known as the Fujian Province. Their ancestors came from small coastal communities in Fujian and were mostly fishermen and gatherers of oysters.

Due to the hardship in their homeland during the mid-19th century, they later brought their families over and made this waterfront their home (Chan, 2002). A clan jetty is a village built on stilts and the name of the jetty is named after the last name of the clan. Today, there are still five clan jetties along the waterfront, from south to north: Lim Jetty, Chew Jetty, Tan Jetty, Lee Jetty and Mixed Clan Jetty. Collectively these jetties are what remain of George Town’s waterfront communities. Each jetty comprises of a row of houses linked by planked walkways over the water (Figure 2).



Figure 1: Clusters of wooden houses of the Clan Jetty Village and George Town city as a background

Figure 2: Row of houses in the Clan Jetty Village linked by planked walkways over the water

The timber jetty housing, numbering 249 premises, built on stilts on the seashore, spread over an area of approximately 16.8 acres. The houses were arranged in a ‘fishbone’ layout with the jetty built of timber planks serving as a major spine for access and communication (Figure 3). According to the State Government of Penang (2008), since 1969, the residents have been given special permission to occupy the site in the form of ‘Temporary Occupation Licence’ (TOL) for each of the premises they occupy. Because of their long history, the jetties are now located within the core zone of the heritage area of George Town. UNESCO declared George Town (together with Melaka) city as one of the UNESCO World Heritage Sites in 2008 has helped the marginalised community to survive, but development are still taking place at high speed rate. In addition as Ng (2013) noted, Clan Jetties is a significant place both as a tourist magnet as well as a place with rich natural and cultural heritages. The rich heritage of the community is also portrayed by its large mural paintings by the Lithuanian artist (who are based in Penang) Ernest Zacharevic titled “Children in a boat” (Figure 4).

Today the jetty is delineated with commercially-driven activities, operated from their domestic spaces, such as hair salon, souvenir shop, coffee shop, convenience store and homestay. Despite continuous change in their social and economic lifestyle, the fate of this tiny waterfront community is fragile. With the village becoming more public, the private spaces (and life) of the inhabitants has changed due to greater degree of accessibility (Ng, 2013).



Figure 3: Satellite view of the Clan Jetty Village with the ‘fishbone’ layout
 Figure 4: The faded outdoor mural drawn by Ernest Zacharevic in the village

Having been a home on stilts on the shores for the Clan Jetty communities for more than a century up till now, the village has withstood the test of time and a strong testament of the living heritage for George Town. Chan (2011) has found that the challenges faced by the unique community are among others flimsy structures that need repairs, the migration of younger clan members elsewhere, lack of government funding, dwindling income of fishermen, pollution and poor environmental conditions, poor sanitation as well as social problems.

METHODOLOGY

Case Study

A case study approach was chosen in order to allow for a general understanding of the research problem. Following the case study approach by Yin (2003) and Stake (1995), this research study represents an appropriate method for inquiry into the emergent and diverse components of the community development in George Town. In this regard, this research has employed a mixed method approach which involves various data generation instruments, namely survey, interview as well as observation. These methods consisted of two distinct phases: quantitative and qualitative (Creswell, Clark, Clark, Gutmann, & Hanson, 2003). In their design, the researcher would collect both quantitative and qualitative data concurrently and would then compare the two databases to determine if there could be a convergence, differences, or some combination (Creswell, 2009). Thus, with this quantitative data and their qualitative analysis, a study could refine and explain those statistical results by exploring the participants’ views in more depth (Creswell, 2003; Rossman & Wilson, 1985; and Tashakkori & Teddlie, 1998).

Participants

A two-stage cluster sampling was selected to filter the optimal respondents, who had found to be benefited from the incentives provided by the authorities. The survey data were collected in April 2014 and the questionnaires were held with 40 respondents. Table 2 shows the demographic profile of the study area.

Demographic Profile	Number
Population	950
Number of households	150
Total area	16.8 acre
Number of samples	40

Measures

In order to measure the effectiveness of the incentives programme, this research has employed the Bennett’s programme evaluation method (Bennett, 1975). It evaluates the findings in relation to the present policy framework for understanding and managing the cultural heritage incentives programme in order to establish the sustainable community in the heritage village. The following analysis has attempted to gauge the residents’ perception of the effectiveness of the current incentives policy by using the Bennett’s programme evaluation method (Figure 5).

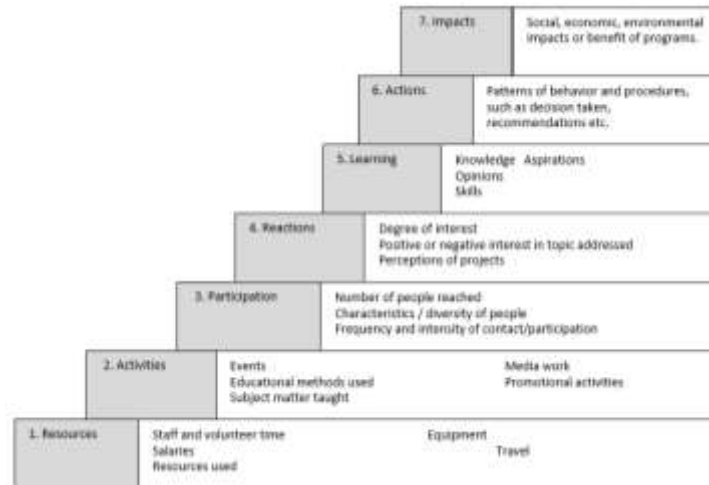


Figure 5: Hierarchy of programme evaluations
Source: Bennett & Rockwell (2004)

By using the five-point Likert scale, respondents were asked whether they agreed or disagreed with the statements pertaining to their satisfaction or dissatisfaction towards the incentives programme’s inputs (how participants perceive the resources of the programme), programme’s activities (how participants react to the events or activities conducted), programme’s participation (the extent to which participants were involved), programme’s reactions (how participants react to the programme’s interest), programme’s learning (the extent to which participants acquired knowledge), programme’s actions (how participants react to the decision taken) and programme’s impact (the overall benefits) (Bennett & Rockwell, 2004). Data were analysed using the Statistical Package for the Social Sciences (SPSS) and descriptive statistics. This study also employed the popular and creditable Bennett’s programme evaluation method in order to measure the effectiveness of the incentives programmes.

THE INCENTIVES PROGRAMME

Clan Jetties are built with wood on wooden stilts. Consequently, many structures are now weak and require regular repairs and maintenance. In 2013, it was reported that RM300,000 had been spent by the state authority on repairing the walkways in the Chew Jetty and RM150,00 for the Lee Jetty (Table 1).

Table 1: Total allocations for the repairs of planked walkways by the Penang State Government

Type of repairs	Total (RM)*
1. Replacement of half of the total walkways in Chew Jetty	RM300,000
2. Repairs on the damaged walkways in Lee Jetty	RM150,000

Note: *Average allocations quoted due to insufficient statistical records by Ms. Tan, YB Lay Keng Ee Service Centre, Democratic Action Party (DAP), Penang.

As observed by the researcher, the basic utilities such as water supply and electricity were supplied to them with fire hose reels and street lamps installed in the common areas. Another RM15,000 went into road resurfacing along the inland areas of the village (Chan, 2011).

RESULTS

Based on the survey, the gender breakdown of the respondents was 65% male and 35% female (Table 3). The most representative group in the village was 51-60 years, with approximately 10% of the respondents were between 61-70 years old respectively. Overall, a majority of the respondents from the study areas had formal education with approximately 5% had no formal education respectively. About more than half had attended secondary school; 40% had completed primary school; but very few attended higher education (2.5%). Surprisingly, majority of the respondents (32.5%) received a monthly income below RM499. With this monthly income bracket, they are considered as hardcore poor in Malaysia. Those who earned between RM1,000 to RM1,499 and RM2,000 to RM2,499 (both are 12.5%) followed by RM1,500 to RM1,999 with approximately 10%. For those who earned monthly about RM500 to RM999, RM2,500 to RM2,999 and RM3,000 to RM3,499 and RM3,500 to RM3,999 (all are 5%).

Table 3: Respondents' social and economic profile

Profile	Frequency (%)
Gender	
Male	26 (65.0)
Female	14 (35.0)
Age	
Below 20 years	2 (5.0)
20-30 years	2 (5.0)
31-40 years	9 (22.5)
41-50 years	7 (17.5)
51-60 years	16 (40.0)
61-70 years	4 (10.0)
Above 70 years	0
Education Level	
University	0 (0)
College	1 (2.5)
Secondary School	21 (52.5)
Primary School	16 (40.0)
No Formal Education	2 (5.0)
Monthly Income* (RM)	
Below RM499	13 (32.5)
RM500 to RM999	2 (5.0)
RM1,000 to RM1,499	5 (12.5)
RM1,500 to RM1,999	4 (10.0)
RM2,000 to RM2,499	5 (12.5)
RM2,500 to RM2,999	2 (5.0)
RM3,000 to RM3,499	2 (5.0)
RM3,500 to RM3,999	0
Private and confidential	7 (17.5)

*Equivalent to US\$1.00 per RM4.09 (Currency exchange based on May 2016 rate).

The employment structure could give a good indication of the socio-economic profile of its residents. It can be seen from Table 4 out of the 40 respondents, about 28% were involved in own-business, fishermen (18%), housewife (13%), pensioner (10%), private (8%) and others (5%).

Table 4: Respondents' types of occupation

Types of occupation	Total (%) (40 respondents)
Private	3 (8%)
Own-business	11 (28%)
Fishermen	7 (18%)
Pensioner	4 (10%)
Housewife	5 (13%)
Others	2 (5%)
NA	8 (18%)
Total	100.0

By using the urbanization impacts as a subject of exploration, this paper demonstrates the perception of the residents towards the effectiveness of the current incentives policy and the conservation programme held in the village. This present study was conducted in order to address an overarching question, which was whether incentives programmes that have been formulated for the local community villages were found to be suitable and effective for their aspirations and real needs.

Table 5 shows a summary of the mean scores of the incentives programme evaluation by the residents. The mean scores ranged from 2.86 to 3.03, with an overall mean of 2.91. Among the seven factors of the incentives programme's evaluations, programme's participation had the highest mean score with a value of 3.03, followed by the others with an average mean score below 3.00 point for example the programme's learning (2.95), the programme's actions (2.93), the programme's inputs (2.91), the programme's impacts (2.90), the programme's activities (2.86), and the programme's reactions (2.80).

Table 5: Mean scores for the incentives programme evaluation of Clan Jetty Village

Incentives Programme Evaluation	Mean
Programme's Inputs	2.9083
Programme's Activities	2.8550
Programme's Participation	3.0333
Programme's Reactions	2.8000
Programme's Learning	2.9500
Programme's Actions	2.9250
Programme's Impacts	2.9000
Total Mean	2.9102

Note: Mean score value approximately close to 5 indicates a degree of commitment

The researcher also recorded the villagers' views on the incentive programme held in their village. As pointed out, this village has been given some allocations by the state government in order to improve the walkaways, installation of the fire extinguishers and the street lamps. Despite these improvements, one respondent in Clan Jetty Village has expressed his disappointment: "No improvement in our quality of life. Government only provides us with walkaways, no incentives were given to repair our houses. I think it's about time for the government to help us preserve this historic village" (Personal communication, April 6, 2014). Another respondent commented: "No financial incentives were given to us so far to conserve our property. It was not merely on the infrastructures development per se. However, the government should help us by all means to repair our houses" (Personal communication, April 7, 2014).

In addition, about the views of the Clan Jetty Village residents concerning the current conservation laws, an interviewee said: "The laws are too rigid. We even cannot renovate our own property. We tried to raise up our problems to the authorities. However, no action has been taken so far to resolve certain issues" (Personal communication, April 7, 2014). One participant commented: "The rules for house renovation are too strict for us. We have no say about our own future of this village" (Personal communication, April 8, 2014). Another respondent was found to complain: "The authorities should frequently take a look at the conditions of this village. Then after that they will realised that a lot more needs to be done for us to sustain our challenging neighbourhood" (Personal communication, April 8, 2014). This view was supported by a member of the village who commented that: "Our privacy has been

disrupted and life has become complicated. Our village has been interrupted with an influx of visitors. Tourists frequently make noise and trash problems have made this place dirty” (Personal communication, April 8, 2014).

Although the overall response to the tourism impacts for this village was quite negative, some of the participants perceived otherwise. One respondent has expressed his opinion: “After George Town was inscribed as the World Heritage Site, this village has become a tourist spot. It has generated many economic opportunities here and we are quite satisfied” (Personal communication, April 6, 2014). One souvenir shop owner responded: “It is good for my business” (Personal communication, April 6, 2014). Together, these feedback comments have provided good insights into the widespread concerns over the issues of tourism and sustainability.

CONCLUSION

Within the social policy context of conservation, the village ‘sense of place’ drives from its own particular structural pattern of major and minor circulation routes and arteries, their relationship to the human activities, and the way the place sets within the backdrop by the historical and urban contestant. The Clan Jetty Village essential qualities emanate from its visual and social image and its unique cultural heritage. From this research the reality is that a number of ‘unheard group’ experienced inaccessible or disempowering of public voices into heritage management strategy. Within the cultural heritage policy context, community engagement needs to be more responsive to the increasing degrees of tourism impacts and social-economic change to the local residents. The conservation incentives needs to be more responsive to the increasing degrees among individuals, their communities and social networks. In terms of achieving the necessary flexibility and responsiveness, community-based approach could be a particularly appropriate option for configuring the conservation policy implementation in the living heritage site.

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A GENERATIONAL COHORT COMPARISON OF THE TRAVEL PREFERENCES IN PENANG ISLAND

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ABSTRACT

Seniors market is well-known as an important segment of the tourism industry. With an aging population, the bulk of Generation Xs is beginning to join the senior travel market in near future. However, the question arises as to whether the travel industry (e.g. accommodation providers, tour agency) and destination organizations (e.g. Penang Global Tourism) fully understand the needs and wants of these 'new' aging segment, and whether they are adequately prepared for them. According to past age-based studies, the travel preferences applied to certain age groups yesterday may not be relevant for those of today's seniors. Using the Penang Tourist Survey (PTS), this study applied the binomial logit model to pursue a comparative assessment of Generation Baby Boomers and Generation X and their travel preferences in Penang, Malaysia. The comparison allows the industry to anticipate any changes in marketing strategies to better serve the up and coming Generation X as senior travel customers.

Key words: Baby boomers, Generation X, travel pattern, logit model, Penang Island

INTRODUCTION

The importance of seniors market in the tourism industry has been recognised by both the industry and researchers for decades. The seniors studies are including their motivation to travel (Hsu, Cai, and Wong 2007; Jang et al. 2009; Kim, Weaver, and Mcclary 1996; Muller and O'Cass 2001), the constraints (Fleischer & Pizam, 2002; Lee, 2005), market segmentation (Shoemaker 2000; Chen and Shoemaker 2014; Vincent and De Los Santos 1990; Littrell, Paige, and Song 2004), preferences for information sources (Kim, Weaver, and Mcclary 1996); travel expenditure (Jang and Ham 2009), and length of stay (Alén et al. 2014). Senior travellers studies also have been done in many different countries, such as China (Feng, Dijst, Wissink, & Prillwitz, 2013; Lu, Hung, Wang, Schuett, & Hu, 2016); America (Chen and Shoemaker 2014); Netherland (Van Den Berg, Arentze, and Timmermans 2011); Russia (Nikitina & Vorontsova, 2015); and others.

According to the statistical projection analysis of the United Nations, in the year 2050, the number of persons aged 60 and above will match that of persons aged between 0-15. More precisely, based on the international database (IDB) of the U.S. Census Bureau (2010), in 2005 the global population of seniors aged over 60 was approximately 671 million, and this figure grew to 900 million (about 34%) in 2015. The older population is expected to reach one billion in 2025 (U.S. Census Bureau, 2010). "The ageing index will triple over the next half century." (United Nations, 2000, p. 16). This increasing population of elders may lead to compelling demands for changes in the way the resources of a society are shared between the generations (United Nations, 2000). It will certainly change travel preferences in the global tourist market as well.

There are many models, either analytical (Alén et al. 2014; Jang et al. 2009; Jang and Ham 2009) or theoretical (Hsu, Cai, and Wong 2007), to explain the senior market. However, most of the researches have focused merely on whether or why the residents travel and have not surveyed the senior tourists'

travel preferences with regard to specific tourism destinations. In Asia, Huang and Tsai (2003), Jang et al. (2009), and Jang and Wu (2006), for example examined Taiwanese residents travel motivation, similar to the research among Korean residents (Lee 2005); Beijing and Shanghai seniors in China (Hsu, Cai, and Wong 2007). Other than that, Esichaikul (2012) examined the motives, behavior and requirements of European seniors who travel to Thailand. Chen and Shoemaker (2014) and Shoemaker (1989, 2000) examined how the mature travel market (i.e. the residents) has changed over three ten-year periods in the state of Pennsylvania. There were also studies residents in the United States conducted by Jang and Ham (2009); Israeli seniors (Fleischer & Pizam, 2002); and Spanish seniors (Alén, Domínguez, & Losada, 2002; Alén et al., 2014).

In contrast, relatively few studies have been carried out on senior tourists from different backgrounds in a particular tourist destination. Given that designated attributes work uniquely on the preferences of two generational cohorts, this insight should be of interest to tourism marketers. Although the previous studies mentioned above have delivered a tremendous amount of information about the travel preferences of seniors, this knowledge cannot directly assist destination marketers to capture the specific interests of senior travelers. This study posits that, other than concerning a group of seniors from a particular city or country, the travel preferences of seniors from different backgrounds to a particular place are more relevant and useful in marketing planning.

Numerous researches have been carried out to compare generational cohorts in different contexts, such as their buying habits (Cunningham & Kaufman-Scarborough, 2002; Moschis, Lee, Mathur, & Strautman, 2000), shopping habits (Worsley, Wang, & Hunter, 2010), and the tourism experience sought by them (Lehto, Jang, Achana, & O’Leary, 2008). Likewise, Lohmann and Danielsson (2001) criticized the assumption of similarity between the travel behavior of today’s seniors and those of future ones as being misleading. Tourist demands and travel preferences are not necessarily determined by age, but by generation (Lohmann & Danielsson, 2001). Hence, this research examined two different generational cohorts. The first cohort is the Baby Boomers were born between 1946 to 1965, in 2015, aged between 50-69 years old. The second cohort is the Generation X who were born between 1966 and 1976 (39-49 years old in year 2015).

LITERATURE REVIEW

Cohort comparative analysis studies

The term ‘senior’ is vaguely defined in previous literature, and there is no uniform group with the same chronological age that is known as seniors. A senior person has been defined differently according to age group in different studies. For instance, Reece (2004), Chen and Shoemaker (2014) and Shoemaker (1989, 2000) studied seniors aged 55 and above, while Prideaux, Wei, and Ruys (2001) named those aged 60 and above as seniors, and Jang et al. (2009) defined seniors in Taiwan as those aged 65 or above. Across numerous research records, researchers have found that in several comparative studies of senior and non-senior travelers, the age of 50 demarcated the two cohorts for comparisons (Bentley, Macky, & Edwards, 2006; Blazey, 1987; Leventhal, 1997). Due to this senior age ‘ambiguous’, it is better to compare the generational cohort rather than according to age context.

According to Lehto et al. (2008), the use of chronological age as the determinant of differences in travel behaviour could be misleading. When people get older, the chronological age of the individual could become less reliable as a predictor of their travel pattern choices, possibly because the aging process is a developmental process that many factors can influence (Moschis et al., 2000). For instance, historical, economic, and social events, as well as the technological advances, educational opportunities, and lifestyle changes all may affect travellers’ preferences. ‘Later generations are often unlikely to adopt the same approaches to the issues that confronted past generations’ (Lehto et al., 2008, p. 239).

Moreover, the preferences of seniors for leisure travel grow with the advancement of the society (Hsu et al., 2007), but the older travel market is still being treated as a uniform group from generation to generation (Lehto et al., 2008). The gerontological research clearly indicates that older consumers are different with significant cohort effects (Moschis, 1996). Lehto et al. (2008) stated that it would be unwise to presume that people of similar chronological age and lifestyles will always have similar travel preferences from generation to generation. Moreover, Hsu et al. (2007) explained that the cohort effect was observed uniquely due to the drastic societal transformation in China. This occurrence is not only applicable to China but all over the world. Each cohort has experienced different historical events. For example, the Silent Generation (born between 1925-1945) witnessed World War II and the Civil Rights Movement (Strauss & Howe, 1991).

The Baby Boomers generation was born just after World War II (born between 1946-1965), a time that saw a dramatic increase in birth rates worldwide over a period of 14 years (Strauss & Howe, 1991). This cohort, also known as Hippies, created their own communities and embraced the way of revolution (e.g. listened to psychedelic rock) to explore alternative states of consciousness. Generation X is the generation born between 1966-1976, and connected to the pop culture of the 1980s and 1990s they grew up in. There are two sub-generations namely Baby Buster and MTV Generation or Boomerang Generation. The first sub-generation has experienced Vietnam War or Cold War and latter is mass media world.

The continuity theory

Several past longitudinal studies have established that changing travel patterns among different generation appear to be driven more than the intergenerational differences in group chronological age (Lehto et al., 2008; Pennington-Gray & Kerstetter, 2001). As the findings from Lehto et al's study, that there exist some cohort differences between Baby Boomer and Silent Generation in tourism experience sought and actual vacation activities in which they engage. However, their results also verified that there are common tourism experience sought by both cohorts. In addition, Pennington-Gray & Kerstetter's found that the generation of 'the Roaring Twenties' and 'the Depression Babies' in the intra-cohort differences in travel preference over a twelve year period from 1983 to 1995 were more obvious than the inter-cohort differences between the generations of seniors.

These studies lends some support to the Atchley's (1989, p. 183) continuity theory. This theory holds that, 'in making adaptive choices, middle-aged and older adults attempt to preserve and maintain existing internal and external structures; and they prefer to accomplish this objective by using strategies tied to their past experiences of themselves and their social world'. This implies that early history, induced by the common experiences of mega events and environment of the lifetime of each generation, helps mold common generational attitudes and that these persist as cohort grow older (Lehto et al., 2008; Shoemaker, 2000).

Therefore, a cohort comparative assessment of the travel preferences and tourists' activities engagement of the Generation X and Baby Boomer should be conducted. The tourism industry would get an early glimpse of these products and activities, and can start examining the adaptations needed to cater the future senior – Generation Xs. Identifying the similarities and differences among the travel preferences of the current senior Baby Boomers and the future senior travel market could reveal the areas that required retooling (Lehto et al., 2008). As if failure to retool could result in a situation where the tourism industry continue to promote the old stale marketing strategies to a up-coming senior market segment.

Senior Market Travel Pattern

The senior group is an important segment of travel and tourism markets, and it has been recognized by both researchers (Chen and Shoemaker 2014; Jang, Bai, Hu, and Wu 2009; Jang and Ham 2009; Lehto,

Jang, Achana, and O'Leary 2008) and practitioners (e.g. elder hostels and the American Association of Retired Persons [AARP] Travel Service). Dramatic improvements in healthcare, life expectancy (Esichaikul, 2012), higher disposable income (Jang et al. 2009), and more discretionary time in the retirement years (Jang and Ham 2009; Lehto et al. 2008; Shoemaker 2000) have caused seniors to be engaged actively in leisure activities and have contributed to the emergence of a new generation of mature travelers.

In planning for marketing strategy purposes, it is crucial for marketers to understand the preferences of senior travelers (Boksberg and Laesser 2008; Chen and Shoemaker 2014; Lee 2005; Vincent and De Los Santos 1990). According to Alén et al. (2002) and Kelly, Haider, Williams, and Englund (2007), variables such as the sources of information used, types of accommodation, number of people travelling, trip preparation time, travel duration, means of transport used and types of trips, help to determine the travel preferences of the elderly market. These variables are useful for understanding their needs, preferences and desires, which are key criteria for marketers in discerning how to respond to their needs and thereby, to satisfy the seniors. This study employed three variables: information sources used and types of accommodation (Alén et al. 2002), and activities engagement (Lehto et al., 2008).

(1) Sources of Information

The information sources used is a recurrent variable of choice in studies dealing with senior travel preferences at the destination. Information by word-of-mouth through friends, neighbors and families is an important source of information for younger people to make travel arrangements (Alén et al., 2002; Gheno, 2015; Tongren, 1988). However, Shim et al. (2005) found that chronological age is negative with respect to the recommendations of friends, but seniors are more likely to use tourism offices or travel agencies (Gheno, 2015). It has been noted that seniors mostly obtain their travel information from the mass media (Shim et al., 2005) and the print media (Horneman, Carter, Wei, & Ruys, 2002; Kim et al., 1996; Ryan, 1995), while younger people use the internet or social media (Beldona 2005; Chen 2009). Therefore, two hypotheses were proposed:

H1 (a): There are cohort differences between Baby Boomers and Generation X in their sources of information.

H1 (b): There is intra-cohort tourism information that is preferred by both Baby Boomers and Generation X travelers.

(2) Types of Accommodation

The majority of seniors stay at hotels (Batra, 2009; Grimm, Lohmann, Heinsohn, Richter, & Metzler, 2009; Kozak & Rimmington, 2000; Lawson, 1991), followed by holiday apartments, homes of friends and family members, and, at a lesser rate, country house lodges (Bai, Smith, Cai, & O'Leary, 1999). The type of accommodation is often related to the length of stay, and numerous researchers have hypothesized that this variable determines the length of stay (Alén et al., 2014; Lawson, 1991; Martínez-García & Raya, 2008). However, little attention has been given to the intra-cohort preferences between golden seniors and future seniors in making choices concerning accommodation. Hence, the following hypotheses were formulated:

H2 (a): There are cohort differences between Baby Boomers and Generation X in their choice of the type of accommodation.

H2 (b): There are intra-cohort travel preferences with regard to the type of accommodation within each cohort.

(3) Activities Engagement

Tourism activities like shopping, organized day trips, visits to historical site, sports activities, visits to casinos, sightseeing in the city, and visiting museums are normally carried out by seniors (Bai, Jang, Cai,

& O'leary, 2001; Batra, 2009; Lawson, 1991; Littrell et al., 2004). It has been discovered that older seniors are more likely to attend classical concerts, theatres, casinos, engage in bird watching, and wander around small towns and villages, whereas younger seniors prefer hiking, horseback riding, rock and roll concerts, and bowling (Lehto et al., 2008). In other words, the younger seniors exhibit a preference for fun-loving, physically challenging activities compared to older seniors who tend to choose activities that are relaxing, calming, and more contemplative (Lehto et al., 2008). Consequently, the following hypotheses have been proposed:

H3 (a): There are cohort differences between Baby Boomers and Generation X in activities engagement.

H3 (b): There are intra-cohort travel preferences with regard to the activities that each cohort engages in.

METHODOLOGY

This study examined the travel preferences of the two different age generations with regard to traveling in Penang Island, Malaysia, a UNESCO World Heritage City. A binomial logit model was used to analyze their choices of information sources, types of accommodation, and finally, activities engagement. The logit model, created by Cox (1958), was developed to analyze the choice behavior of populations from distributions of individual decision rules (McFadden, 1974a). At the same time, McFadden suggested that this model could be used to advance the behavioral theory of travel demand, and presented practical statistical procedures for calibration and forecasting (McFadden, 1974b). Reece (2004) applied the binomial logit analysis to explain the choices between making trip to South Carolina and otherwise. Lehto et al. (2008) used a two-logistic regression test to determine how well the Baby Boomers and the Silent Generation could be separated by the experiences they sought, and the actual experiences that they were engaged in. This paper specifically used the binomial logit model to elaborate on the choices of Generation Baby Boomers and Generation X with regard to travel preferences (the choice of information sources, accommodation, and tourists' activities engagement) in Penang Island.

Sampling and Data Collection

The data source for this study was the 2015 Penang Tourist Survey (PTS) conducted by the Sustainable Tourism Research Cluster based in University Science Malaysia and jointly Penang Global Tourism on tourists who have spent a minimum of one night in Penang. The stratified random sampling technique was employed and the survey was conducted among 4624 tourists (2237 international and 2387 domestic tourists) between March and December 2015. Based on the data we collected through PTG 2015, for Baby Boomers, 234 respondents: 55 are Malaysian seniors and 179 from other different countries. For Generation X cohort, 465 respondents: 203 are Malaysian seniors and 262 from other different countries. The shortage of this paper is this study is merely focusing on the aging cohort comparison without differentiate respondents' nationality (either international or local). Though worldwide cultural differences play a significant role in choosing the source of information, type of accommodation and tourists' activities.

The survey was conducted by self-completion at selected tourist hotspots in Penang (e.g. Batu Ferringhi, Penang Hill, etc.) and the gateways to Penang (e.g. the airport, ferry jetty, etc.). Information concerning a total of 699 tourists aged 39 to 69 was retrieved from samples in the PTS 2015 and was used in the analysis for this study. A generational cohort variable was created based on the age of the respondents. The Baby Boomers cohort was composed of 234 respondents aged 50 to 71, and the Generation X cohort was composed of 465 future seniors within the ages of 39 to 49. The three

independent variables chosen for this study were types of information sources, types of accommodation and participation in tourism activities on Penang Island.

DATA ANALYSIS

The data were first analyzed by using Chi-square tests to explore the single-dimensional relationship between the two generational cohorts with respect to nine information sources used by them, six types of accommodation stayed in by them and nine tourism activities participated in by them. In the next stage, the binomial logit model was used to examine the intra-cohort travel preferences of golden seniors and future seniors. The model proposed by McFadden (1974a, 1974b) was adapted, whereby the choice of yes (coded 1) and no (coded 2) were altered to the choice of Baby Boomers (coded 1) and Generation X (coded 2). McFadden's model relies on the assumption that the travel preferences of golden seniors are a non-random function, V_1 of the travel characteristics plus a random error term:

$$T(\text{senior} = 1) = V_1 + e_1$$

On the other hand, the travel preferences of the Generation X depend on the travel characteristics and a random error term:

$$T(\text{tourist} = 0) = V_0 + e_0$$

As a result, the travel preferences relate more to the Baby Boomers compared to future seniors if, and only if:

$$\begin{aligned} T(\text{tourist} = 1) &> T(\text{senior} = 0) \\ \text{Or} \\ V_1 - V_0 &> e_0 - e_1 \end{aligned}$$

In the case of the distributions of e_0 and e_1 , the probability that tourist = 1 is

$$P(\text{tourist} = 1) = \frac{\exp(V_1)}{\exp(V_1) + \exp(V_0)}$$

However, in case 1 is unable to estimate the absolute levels of the parameters of V_1 , it will be able to estimate the travel preference parameters of the Baby Boomers relative to those of the Generation X tourists. This is known as the Log Odds of occurrence on Baby Boomers over Generation X, as expressed by the function:

$$V_1 - V_0 = b_0 + \sum b_j x_j$$

Then,

$$P(\text{senior} = 1) = \frac{\exp(b_0 + \sum b_j x_j + V_0)}{\exp(b_0 + \sum b_j x_j + V_0) + \exp(V_0)} \text{ ---- with parameters } V_1$$

Or

$$P(\text{senior} = 1) = \frac{\exp(b_0 + \sum b_j x_j)}{\exp(b_0 + \sum b_j x_j) + 1} \text{ ----- without parameters } V_1$$

Then, dividing the numerator and denominator by $\exp(b_0 + \sum b_j x_j)$ yields the logit model as:

$$P(\text{senior} = 1) = \frac{1}{1 + \exp(-(b_0 + \sum b_j x_j))} \text{ (1)}$$

Therefore, the logit model in equation (1) shows the probability of the intra-cohort travel preference choices, where the travel preference variable, x_j includes the information sources, types of accommodation used, and activities engagement. This logit equation was used to run the logistic regression analysis in SPSS software. The Hosmer-Lemeshow test was used as the goodness of fit test. Additionally, the vector of the coefficient b_j was estimated by the maximum likelihood. For measuring the goodness of fit of the equation, McFadden (1974, p. 121) suggested the use of the likelihood ratio index:

$$1 - \text{LUR}/\text{LR},$$

where LUR is the unrestricted vector of the log-likelihood function at the maximum likelihood estimate of the parameters b_j , and LR is the value of the likelihood function when all the parameters are restricted to zero (Reece, 2004).

FINDINGS

The Chi-square test results of the travel preferences of both cohorts – Baby Boomers and Generation X - are presented in Table 1. The results showed that both cohorts used merely one significantly different sources of information, namely ‘Print media/Magazines’. The results rejected hypothesis 1 (a), which states: There are cohort differences between Baby Boomers and Generation X travelers in their sources of information. Other than that, it was found that Baby Boomers and Generation X preferred only one significantly different types of accommodation, namely ‘Homestay programs in villages’. The findings indicated that there were also not much cohort differences between Baby Boomers and Generation X travelers in their choice of accommodation. Therefore, hypothesis 2 (a) was partially rejected.

Among the 11 activities that were examined, the Chi-square analysis revealed that three of the travel activities that were significantly different were preferred by these two cohorts. They included ‘Visiting museums/art galleries’, ‘Visiting national parks/hiking/trekking’, and ‘Enjoying theme parks’. Again, the analysis partial accepted hypothesis 3 (a) as there were some cohort differences between the Baby Boomers and Generation X travelers with regards to their participation in activities.

Because of the relative weakness in the statistical power of the Chi-square test as a non-parametric statistic, thus the robust logistic regression analysis was selected as being a more understandable technique for this study. The logistic regression analysis results are presented in Table 2. The first column of Table 2 shows the coefficient b_j of equation (1), the standard errors associated with the coefficients, the Wald statistic or Wald Chi-square value together with the 2-tailed p-value, and the odd ratio or exponential of the coefficients.

The fourth column shows the p-value for these parameters (Table 2). One source of information, ‘Print media/magazines’, and one type of accommodation, ‘Homestay programs in villages’, were found to be significant to the predictive ability of the model. The p-value of ‘Print media or magazines’ was 0.03. The odd ratio obtained for this variable (1.948) was more than 1. This indicated that the respondents who used printed media being Generation X was 9.12 times higher than for Baby Boomers who did not use printed media, all other factors being equal. It was observed that homestay programs in villages was significant, with a p-value of 0.00, and the odds ratio is 0.098, value less than one. This implied that the more respondents stay in Homestay in villages, the less likely were they to be Generation X. (see also Pallant (2010), p. 175-178, for further explanation on the p-value of the binomial logit model analysis).

In assessing the model fit, two statistical tests for the significance of the binomial logit model were conducted, and the results are presented in Table 2. The Hosman-Lemeshow statistic of overall fit indicated that there was no significant difference between the actual and predicted classifications, where the p-value > 0.05 [0.242]. The likelihood ratio index measure of the goodness of fit of the estimated equation was 0.043 [near to zero]. These two statistics provided good support for the logit model.

Hypotheses H1 (b), H2 (b) and H3 (b) are referred to as the binomial logit model analyses in Table 2. Both Baby Boomers and Generation X travelers preferred tourism information, travel patterns, and tourism activities. The logit model accept only one variable ‘printed media/Magazine’ for H1 (b) and merely one variable ‘Homestay program in villages’ for H2 (b) and rejected H3 (b). The β coefficient and the odd ratio were used to illustrate these hypotheses. For information sources, Baby Boomers had much higher odds of obtaining the information from ‘Print media/magazines’ compared to Generation X. For the types of accommodation used, ‘Homestay programs in the villages’ was preferred by the Generation X than the Baby Boomers. The last hypothesis was concerning activities engaged in, however, the result showed all of the activities were not significantly different between Generation X and Baby Boomers.

DISCUSSIONS AND CONCLUSIONS

The travel preferences are not necessarily determined by age, but by generation (Lohmann & Danielsson, 2001) or cohorts between the Generation Xs (aged 40-49) and Baby Boomers (aged 50 and above). The

Penang Tourist Survey (PTS) data was used to understand the travel preferences of these two cohorts in Penang Island, Malaysia. Two analyses, namely the Chi-square test and the logistic regression analysis, were used to respond to the hypotheses that were proposed and presented in the early part of this article. Out of the six hypotheses that were proposed, H1 (a) was accepted for variable 'printed media/magazine', H2 (a) was accepted for variable 'Homestay program in villages' and H3 (a) was accepted for variables 'Visiting museums/art galleries', 'Visiting national parks/hiking/trekking', and 'Enjoying theme parks'.

Three hypotheses were tested by binomial logit model, H1 (b) was accepted only for variable 'printed media/magazine', H2 (b) was accepted for the variable 'Homestay program in villages' and H3 (b) was rejected. To answer the first hypothesis, both the golden seniors and future seniors were asked to tick their source(s) of information concerning Penang Island. According to the Chi-square analysis, only one out of the nine information sources were found to be significantly different between the two cohorts. The findings confirmed the results of the study by Chen (2009). Although in a number of previous studies it was discovered that there were differences in preferences with regard to the use of travel information sources between the younger seniors and older seniors (Alén et al., 2002; Beldona, 2005; Kim et al., 1996; Kuo & Chen, 2009), the researches were different from the present study, which focused on Generation X and Baby Boomers.

The binomial logit analysis showed a cohort comparison between the Generation X and the Baby Boomers. The print media is the source of information normally used by Baby Boomers. Since the print media was found to be significantly different between Generation X and Baby Boomers, and this variable tended to fall into the Baby Boomers preferred use of information sources, therefore, this study suggests that tourism marketers should place more adverts in printed media in order to more effectively promote the attractions in Penang to Baby Boomers. This result is similar to the study of Huang and Petrick (2010), that printed media like adverts in newspaper is more effectively targets Baby Boomers.

The second hypothesis was tested to understand the travel preferences of Generation X and Baby Boomers with regard to the types of accommodation. It was discovered that only homestay programs is significantly different between Generation Xs and Baby Boomers, with the variable being favored by Generation Xs with regard to type of accommodation. Certainly, this result can be predictive because most of the Generation Xs are more interested to learn new culture of the local destination rather than Baby Boomers (Pennington-Gray, Fridgen, & Stynes, 2003).

Hypothesis 3 (a) was supported with only three tourists' activities engagement – 'visiting museum/ art gallery', 'visiting national park/hikim/ trekking', and enjoying water sport/swimming/sunbathing. Generation Xs are more likely to engage in visiting museum/art gallery and visiting national park/hikim/ trekking, while Baby Boomers are more likely to enjoy beach and water activities. This finding coincides with the results of Lehto et al. (2008) and concurs with a study by Raymond (2000) which emphasized that the generation of Boomers/younger seniors want to travel and have fun, Baby Boomers more likely to travel sun, sand and sea destination. Nevertheless, H3 (b) was rejected by logistic regression analysis. According to results of Pennington-Gray et al. (2003), Generation X and Baby Boomers have similar travel preferences in activities participation if compared to other generations (i.e. Silent Generation and GI generation).

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Table 1: Chi-square Test for Travel Preference of Baby Boomer and Generation X

Travel Preferences	N(df)	Choosing rate (%)		Chi-square X ²	p-value
		Baby Boomer	Generation X		
Information Source					
Internet/ Social media	699(1)	56.4	62.6	2.480	0.12
Friends/Relatives/ Words of mouth	699(1)	53.8	46.6	3.214	0.73
Past experience	699(1)	57.6	60.3	0.441	0.51
Printed media/ Magazine	699(1)	18.9	11.5	6.179	0.01**
TV/ Radio	699(1)	8.8	6.4	1.224	0.27
Expo/ Exhibition/ Tourism fair	699(1)	9.7	6.0	2.749	0.10
Travel agency/ Tour company	699(1)	9.5	9.0	0.044	0.83
National government tourist office	699(1)	3.9	2.1	1.471	0.23
In-flight information	699(1)	2.4	1.7	0.319	0.57
Accommodation Type					
Hotel/Resort	694(1)	50.6	49.1	0.141	0.71
Budget hotel/ Inn/ Chalet/ Guest house	694(1)	34.6	32.3	0.366	0.55
Bungalow/ Villa	694(1)	5.8	3.0	2.649	0.10
Serviced apartment	694(1)	11.9	9.9	0.614	0.43
Friend or relative's house	694(1)	14.5	13.4	0.166	0.68
Homestay Program in Villages	694(1)	0.01	3.4	7.756	0.01**
Activities Engagement					
Experiencing local food	685(4)	NA	NA	3.486	0.48
Sightseeing in the city	692(4)	NA	NA	1.158	0.89
Visiting historical sites	683(4)	NA	NA	5.119	0.28
Visiting museum/ Art gallery	685(4)	NA	NA	10.762	0.03*
Attending traditional cultural performance/ Concert/ Theatre	687(4)	NA	NA	8.146	0.09
Visiting national park/ Hiking/ Trekking	685(4)	NA	NA	22.974	0.00**
Enjoying water sport/ Swimming/ Sunbathing	691(4)	NA	NA	7.663	0.11
Enjoying theme park (Escape)	691(4)	NA	NA	10.970	0.03*
Shopping	691(4)	NA	NA	8.667	0.07
Enjoying night life	692(4)	NA	NA	8.661	0.07
Health treatments	690(4)	NA	NA	4.895	0.30
Playing sport	689(4)	NA	NA	3.530	0.47

*p < 0.05, **p < 0.01

Table 2: Logistic Regression Test for Travel Preference of Baby Boomer and Generation X

Travel Pattern	Coefficient bj	Standard error	Wald statistic	P-value	Odd ratio
Information Source					
Internet/social media	-.049	.197	.063	.803	.952
Friends/relatives/words of mouth	.130	.183	.508	.476	1.139
Past experience	-.014	.188	.006	.940	.986
Printed media/magazine	.667	.306	4.756	.029	1.948
TV/ Radio	-.340	.420	.654	.419	.712
Expo/exhibition/tourism fair	.539	.388	1.934	.164	1.714
Travel agency/tour company	-.147	.321	.208	.648	.864
National government tourist office	.292	.562	.269	.604	1.339
In-flight information	-.369	.662	.311	.577	.691
Accommodation Type					
Hotel/resort	.088	.306	.083	.774	1.092
Budget hotel/inn/chalet/guest house	-.002	.312	.000	.995	.998
Bungalow/villa	.254	.502	.256	.613	1.289
Serviced apartment	.338	.374	.816	.366	1.402
Friend or relative's house	.282	.351	.644	.422	1.325
Homestay program in villages	-2.324	.759	9.367	.002	.098
Activities Engagement					
Experiencing local food	.112	.134	.695	.405	1.118
Sightseeing in the city	.032	.146	.049	.824	1.033
Visiting historical sites	-.081	.127	.406	.524	.922
Visiting museum/art gallery	-.011	.126	.008	.928	.989
Attending traditional cultural performance/concert/theatre	.195	.116	2.813	.093	1.216
Visiting national park/hiking/trekking	-.071	.113	.394	.530	.931
Enjoying water sport/swimming/sunbathing	-.028	.101	.076	.782	1.028
Enjoying theme park (Escape)	-.129	.105	1.505	.220	.879
Shopping	-.050	.087	.335	.563	.951
Enjoying night life	-.127	.080	2.497	.114	.881
Health treatments	.063	.108	.341	.559	.939
Playing sport	.075	.109	.481	.488	1.078
Constant	.993	2.798	.126	.723	2.698
Hosmer & Lemeshow					
Chi-square (df)	10.341 (8)				
p-value	0.242				
LUR	797.394				
LR	832.955				
1- LUR/LR	0.043				

SOCIAL ENTERPRISES AND RURAL DEVELOPMENT IN THAILAND

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ABSTRACT

Social Enterprise (SE) can be considered as one of the strategies to contribute the sustainability in Thai rural areas by promoting the employment in community, reducing the poverty and the migration. At the present, there are many forms of social enterprises in Thailand such as; a form of small enterprise; a non-profit organization (NGOs); a private sector; and a community enterprise. Many of these SEs have started and grown up in rural communities as well as communities on highland areas, hill-tribe communities, which serve as good examples to present why and how SE can be an attractive development strategy in rural communities. This article aims to review and discuss about current trends and issues; how 'social enterprise' is used as a tool for rural development, increasing well-being in community; some good examples of Thai SE will be presented to serve for more understanding. Then, the challenges that those entrepreneurs face in rural communities will also be examined to guideline for future recommendations.

Key words: social enterprise, rural development

INTRODUCTION

Over the last four decades, Thailand has made remarkable progress in social and economic development with sustained strong growth and impressive poverty reduction, particularly in the 1980s. However, poverty and inequality continue to pose significant challenges in Thailand (World Bank, 2016), which is primarily a rural phenomenon, over 80 percent of the country's 5.4 million poor living in rural areas. Also, income inequality and lack of equal opportunities have persisted (UNDP, 2012), especially when considering across regions and comparing with Bangkok, Thailand's largest urban area. Poverty was largely concentrated in the North, Northeast, and Deep South of Thailand (Piyanch Wuttisorn, 2014). Moreover, some ethnic groups lag greatly behind others, and the benefits of economic success have not been shared equally (UNDP, 2012).

Sustainable entrepreneurship in rural areas can be considered as one of the solutions to reduce poverty, migration and develop employment in rural environments (Ansari et al.). Likewise, social enterprise (SE), a sustainable business model that conform to the sustainable development concept (Jatuporn and Pornchai, 2014) can indeed speed up growth and strengthen social cohesion at local level (Borzaga and Galera, 2012). Nowadays, the model of social enterprise is considered as one of strategies to contribute the sustainability in Thai rural areas by promoting employment in community, reducing the poverty and migration as well. However, there are still some challenges and issues faced by Thai rural entrepreneurs. This article, therefore, aims to review and discuss about current trend and issues of social enterprise in Thai rural areas, how these social enterprises were used as a tool for rural development – increasing well-being in community. The case studies of social enterprises in Thai rural communities are presented to illustrate clear examples. Then, the challenges of these social entrepreneurs will be examined to guide for future recommendations.

MATERIALS AND METHODS

This article conducted by documentary study method. Initially, the general concepts and trend of social enterprises within Thailand and abroad are briefly presented. Then, social enterprises in Thai rural areas are collected by review three outstanding studies include: 1) Thailand Social Enterprise 50 (The Research Project of SE 50 and Sarinee, 2010); 2) SE Catalog, Gathering the SEs in Thailand (Be Magazine, 2012); and 3) Social Enterprise (Nise Corporation, 2014), which all of these studies has been supported and accepted by Thai Social Entrepreneurship Office (TSEO) and social enterprise networks, respectively.

Background and General Concept of Social Enterprise

The emergence of social enterprises (SEs) in Western societies over last two decades as a response to the problems of welfare states and markets; facing low fertility rate and aging society with decreasing abilities of welfare states, SEs were developed to provide services and work opportunities for the socially or economically disadvantaged (Park, 2008). In several EU countries, SEs have proved to be an innovative organizational form, they have demonstrated to be better able than public agencies, conventional enterprises and traditional non-profit organizations to match the evolution of demand for general-interest services especially on the part of less wealthy users (Borzaga and Galera, 2012, p. 99).

Charles King (Broad and Saunders, n.d.) defined social enterprises are organizations that “use...earned income strategies for mission fulfillment and have, in part, emerged from the need for specialized employment services for vulnerable and marginalized groups”. Social Enterprise UK (UK Department for Trade and Industry, 2002), in addition, defined social enterprise as “a business with primarily social objectives whose surpluses are principally reinvested for that purpose” while the definition of social enterprise according to ‘the National Plan to Promote Social Enterprise of Thailand 2010-2014’ is similar (Nise Corporation, 2014). To conclude, therefore, the key concept of social enterprise focuses on ‘use business methods and strategies to achieve its primary social or environmental goal and/or mission’. EMES International Research Network (Kaewalin, 2014) has developed the social enterprise indicators covering various disciplines such as, economics, sociology, and political management as shown in Table 1;

Table 1: Social Enterprise Indicators (Kaewalin, 2014)

Economic	Social	Political Management (Participatory Management)
1. Continuation of production (goods and services) 2. Significant level of economic risk 3. Minimum wage payment	1. Aims to social benefit clearly 2. Started to establish by civil society organizations 3. Limited the profits distribution	1. High Independence 2. The decisions authority is not depends on the capital ownership 3. Participation of stakeholders

Furthermore, figure 1 has shown three categories of social enterprises according to the concept of Alter, American scholars (Nise Corporation, 2014, p. 4) include: 1) Nonprofit with income generating activities; 2) Hybrid; and 3) Social Responsible Business, as follows;

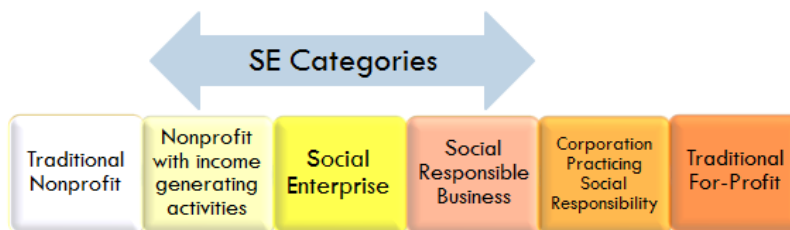


Figure 1: Categories of Social Enterprises according to the concept of ‘Alter’ (NiseCorp., 2014, p. 4)

To more consider, social enterprises (SEs) are often seen as distinct from charities although charities are also increasingly looking at ways of maximizing income from trading (The Startups Team, 2015), and from private sector companies with policies on corporate social responsibility (CSR). In Thai context, the Research Project of SE 50 (2010) proposed four main types of SEs in Thailand include: SEs that created by: 1) private: 2) non-governmental organization: 3) community-based: and 4) triple-bottom line business. Similarly, SEs were divided as six types according to ‘the National Plan to Promote Social Enterprise of Thailand 2010-2014’ (Kaewalin, 2014) include: SEs that founded by 1) community enterprises and networks: 2) the foundations, charities, and non-profit organizations (NGOs): 3) government organizations: 4) the new startups/entrepreneurs (new small enterprises): 5) business or private sectors: and 6) other sectors such as, religious organizations, educational institutions, etc. These types of SEs seem to be similar the classification in the British context. To conclude, the types of SEs in Thailand are often categorized by following the types of organizations that established.

Trend of Social Enterprises in Thailand

In Thailand, trend of social enterprise has seriously started since 2009 (after Hamburger Crisis) and grown continually; various sectors in society paid attention and realized the significance of social enterprises, the concept that began from aboard, as the way to restore and develop sustainability for Thai society. In 2010, the National Plan to Promote Social Enterprise of Thailand 2010-2014 was launched by Thai government. Then, the Thai Social Entrepreneurship Office (TSEO) was also established to supports the creation of new social enterprises in later years, 2011 (Nise Corporation, 2014).

Not only driven by government, the movement of social enterprises in Thailand is also driven by private sectors, which as key mechanism to develop social enterprises, they can be developed from enhancing CSR activities of these private sectors. Based on the results of Executive Survey 2013, 53 percent of Thai leaders in private sectors believe that there are high growth trends of SEs in Thailand for the next 5 years (Nise Corporation, 2014, p.8).

Trend of social enterprise in Thailand, although, has just grown up in the last few years. Indeed, there are many organizations that operated by ‘SE process’ at previous time, for examples, the Doi Tung Development Project (DTDP) – the project which aims for enhancing the quality of life of Thailand's ethnic minorities who faced with poverty and lack of opportunities as a result of living in remote areas as well as for recovery ‘Doi Tung areas’ where were used to cultivate opium and shifting cultivation by these ethnic minorities – that created the ‘DoiTung’ brand as the main channel of income to finance social activities of the DTDP since 2001, which comprises four business units: food, handicrafts, horticulture, and tourism to fulfillment its primarily social and environmental missions. Also, the Population and Community Development Association (PDA) that operates a wide variety of programs designed to serve and assist the rural poor of Thailand, was founded in 1974 – the business model and process that were applied for operation such as, resorts and restaurants; the Cabbages & Condoms Resort and Restaurant (C&C); the Business for Rural Education and Development (BREAD) with the objective of utilizing profits for improving the quality of life for people in rural Thailand such as, supporting products sales that made by people in rural areas, and then promoting educational development in remote communities, etc. (PDA, n.d.)

Social Enterprises and Rural Development in Thailand

As mentioned above, there are many kinds of social enterprises in Thailand nowadays. Many of these social enterprises have started and grown up to fulfill the purpose of sustainable development in rural areas across regions, particularly the communities on highland area such as, hill-tribe communities of Northern Thailand, etc. Based on three outstanding studies⁷, the case studies of social enterprise in Thai

⁷ 1) Thailand Social Enterprise 50, 2) SE Catalog, Gathering the SEs in Thailand, and 3) Social Enterprise.

rural areas were raised and collected in this part to illustrate clear examples and answer how these social enterprises were used as a tool for rural development. Firstly, the definition of ‘social enterprises (SEs) in Thai rural areas’ was specified in this article as “the SEs that were registered by TSEO, and founded in Thai rural contexts and/or were created to fulfill the rural development objectives, the SEs in urban contexts – that not involve to fulfill the rural development goals – especially in Bangkok or other provinces were not included.” Table 2 has shown the results from review studies;

Table 2: Social Enterprises in Thai Rural Areas

Brand Name	Product-Service Type	Province/ Zone	Social Innovation/ Social Impact Assessment [SIA]
Established by Private 1. KhaoKho Talaypu Co., Ltd.	Resort & Spa, Natural Farming, Processed Agricultural Products for Health	Phetchabun/ Lower Northern Thailand	-Using raw materials in community for products processing -Manufacturing, distribution, and research to provide the natural farming training for agriculturists/ Increasing revenue and self-reliance of people in area, improving quality of life.
2. Lemon Farm	Cooperative of Organic Products, Organic Shops Health Products, Fair Trade	9 branches in Bangkok	-Enhancing well-being for more 28,000 cooperative members in rural areas, promoting employment and cooperative networks/ Sustainable income and strong communities.
3. Rural Capital Partners Co., Ltd.	Consultation, Joint Investment and Loan Services for SMEs	Bangkok	-Supporting more than 33 SMEs by joint investment or loan service/ To diversify in rural communities, helping to revolve money in community and reduce the disparity in society.
4. Payai Creation Co., Ltd.	TV Productions, Short Documentary	Bangkok	-Promoting peace building and acceptance the diversity in society, particularly the cultural diversity and living of ethnic minorities, and assist for disadvantaged/vulnerable via TV productions.
5. Suan Ngern Mee Ma Co., Ltd.	Publishing House, Book Store –alternative books, Green Shop Café – Organic Products from Communities, Green Market Networks for Health	Bangkok	-Community Supported Agriculture : CSA -Producing alternative books and providing seminars for network building/ Health & Spiritual development, Sustainable lifestyle.
6. Patravadi Theatre	Theater, Gallery for Visual Artist, School of Performing Arts, Art Centers, Rent Services of Place for Activities, Apartment, Homestay, Restaurant, Souvenir Shop	Bangkok, Prachuap Khiri Khan, Arts centers in Rachaburi and Chiangrai	-Building art centers in local communities, influence the artists return to birthplace, develop creative space of arts in communities/ Activities that create extra income for surrounding communities: local market or walking street -Art training for teachers & students -Promoting and supporting local culture in each community
7. Udomchai Farm	Natural & Premium Food: Organic Eggs	Saraburi province/ Central Thailand	-Income distribution to organic agriculturalists in area -Promoting know-how of organic farming, chicken farming
8. The ThaiCraft Fair Trade Co., Ltd.	Handicraft Products by locals, Marketing and Packaging Consultations, Fair Trade for Thai craft manufacturers	Bangkok	- Central market for Thai craft manufacturers under the Fair Trade principle/ Helping manufacturers and labors can self-reliance and break vulnerable-being out to more stability.
9. SiamBaanDin Co., Ltd.	Design, Sculpture , Raw Material Sales, & Consultation for Building	Nakhon Nayok/ Central Thailand	-Increasing revenue and self-reliance for people in community and related local business.

	the Earthen House		
10. Supreme Renewable Energy Co.,Ltd.	Thai-Green Energy	Bangkok	-ASEAN Energy Award 2010 : Community-Based Biomass Power Plant in Thailand, 2nd Runner-up: Renewable EnergyProject (On-Grid Category) -Community Power Plant/ Agriculturalists earned extra money from selling agricultural waste, which as the raw materials for generating electricity.
11. Anantarak-Hua Hin	Training Courses of Health Care, Producing Health Care Staff	Prachuap Khiri Khan/ Upper Southern TH	Producing health care staffs for caring child and elderly through training courses, Providing jobs for health care staffs that passed these training courses. / Health Community.
12. Akha Ama [Brand Ama]	-Roasted Coffee [wrapped packing]: Full Citi Roast, Italian Roast, Strong Roast -Akha Ama Café, Chiang Mai	Chiang Rai, Chiang Mai/ Northern TH	-100% Arabica organic coffee, Price Guarantee for solving unfair price of coffee in community, providing organic coffee planting which impact good health of farmers and community/ Increasing Quality of Life
13. Doi Chaang Coffee Original Co.,Ltd.	The Premium Arabica Coffee Beans [GI coffee bean]	Chiang Rai/ Northern Thailand	-Beyond Fair Trade, and Best Quality Product. -Training Bootcamp, to produce an expert of coffee in community. -30% of turnover, sharing to Doi Chaang Foundation/ Reducing illegal occupations, The self-sufficient community.
14. Rainbow Farm	Organic Rice Products, Organic Rice Shop 3 branches, and 23 green markets in CMI	Maerim, Chiang Mai/ Northern Thailand	-Research, training, & market center of organic rice/ Increasing good quality of life for 310 farmers who are members of agriculturalist networks in CMI province.
15. Bike & Travel Co., Ltd.	Bike Touring/Bike Trip, Bicycle and Accessories	Pathum Thani/ Central Thailand	-Promoting touring by bike, and using bicycle in daily live/ Stimulation economic, environmental awareness in community
16. Sirada Products Co.,Ltd.	4 Groups of Arts & Crafts Products: package, decoration	Lampang, Northern Thailand	-Products Export to EU, U.S, Japan, Market Providing. -Generating job opportunity, income to local villagers.
Established by NGOs 17. Cabbages and Condoms by PDA, Birds & Bees Resort by PDA C&C Khoa Yai Resorts by PDA,	C&C Restaurant 5 branches in BKK and provinces, C&C Khoa Yai Resorts, Birds & Bees Resort	Pattaya, Eastern TH, Nakhon Ratchasima/ Northeast TH, etc.	-Reinvestment in PDA - Sustainable Organization. /Contribution to Thailand's rural development, education and scholarships, HIV/AIDS education, environmental protection.
18. Mae Fah Luang Foundation: Doi Tung Brand	Food, Handicrafts, Horticulture, and Tourism.	Ching Rai/ Northern Thailand	-Promoting accessibility to public health, education, employment, job-skills training, improving quality of life/ Self-sufficiency, Sustainable Community & Environment.
19. MakhamPom Chiangdoa Art Space	The Puppet Theatre [150 seats], Guest Houses, Organic Agricultural Plots	Chiang Mai/ Northern Thailand	-Continue community theater, musical folk drama, providing training and seminar/ Using drama to reflect social issues, and raise awareness about public mind and social responsibility.
20. Green Net Cooperative	Organic Products: Tea, Herbs, Vegetables, Cotton Towels [Certified by IFOAM]	Bangkok	-Providing distribution center, fair price for farmers, sharing center of sustainable organic agriculture in local community -Setting the cooperative, and organic coffee project in 7 villages
21. Abhaibhubejhr	Herbs Products:	Prachinburi/	-Promoting Thai traditional medicine and local

Hospital	Pharmaceuticals, Beverage, Cosmetics, Treatment services, Health Training, etc.	Eastern Thailand	knowledge on treatment with Thai herbs, offering alternative treatment for people/ Strengthening of community, by promoting organic herbs planting to local people, integration of community.
22. Farmer School and Khaokwan Foundation	-Training Courses for farmers -Organic Agricultural Products	Suphan Buri/ Central Thailand	-There are more 3,000 farmers were trained about the integrated organic farming/ Increasing self-sufficiency & networks
23. Appropriate Technology Association	Training Courses, Books, Home & Energy Technology Products	Nakhon Ratchasima/ Northeast Thailand	-Providing the energy planning in local community level, all over the country/ Sustainable energy in community
24. Grassroot Innovation Network Co., Ltd.: GIN	Agricultural Products, Plants/Animals Bank, Innovation Products, Micro Credit Services	Buriram/ Lower Northeast Thailand	-Farmer Networks in Buriram province, members system/ Increasing income & benefits to farmers, improving quality of life.
25. Thai Fund Foundation [Fund for Thai Grassroots]	Training Courses, International Conferences Service for NGOs.	Bangkok	Supporting funding and providing human development for small NGOs or small organization in grassroots level.
26. Friends' Café beneath the project of Pra-ma-ha-tai Foundation	Friend Café: Homemade Bakery, and Craft by Disabled People	Cholburi/ Eastern Thailand	Supporting job creation for people with disability, Job skills-training for disabled/ Self-sufficiency of disabled in rural area.
27. Ebannok by The Mirror Foundation	Handicrafts: Dresses, Accessories, Home Decors	Chiang Rai/ Northern Thailand	Empowering the hill tribe to practice their handicraft skills, generating income/ Self-reliance of organization & hill tribe
28. Green System by The Rural Development Foundation [Wat Padarapirom]	Productivity of Livestock, Organic & Natural Products: rice, veggie, fruits of farmers' network	Chiang Mai/ Northern Thailand	-Sustainable Agriculture Networks, promoting organic farming over 20 years with 210 farmers in CMI, Improving health, life, funding accessibility of farmers, & environment in community.
29. Green Food Good Farm by The Vocation and Agricultural Training Center Foundation, Phayao	Seasonal Agricultural Products, Health Learning Center - Thai Style	Phayao/ Northern Thailand	-The 21st Century Farm: the organic way for the future -Research center of organic agriculture, organic sciences from Japan/ Providing market accessibility, quality of life of farmers.
Established by Community Based 30. Saving Group - Kru Chob YodKaew	Saving Deposit, Low-interest Loans, Annual Dividend depends on Saving, welfare for members	Songkhla/ Southern Thailand	Helping members, informal workers & farmers, can access to basic welfare/ Role model on saving/welfare fund in community
31. Saving Group Wat Pailom - Phra Subin Paneeto	Saving Deposit, Loan service for members, Welfare Fund	Trat/ Eastern Thailand	Role model on saving, welfare fund, and loan to other communities.
32. Saving Group 'Klong Pia'	Saving Deposit, Low-interest Loans, Community Welfare Fund	Songkhla/ Southern Thailand	Community welfare system/fund, improving quality of life of people in community since birth till die.
33. Tha Khan Tong Homestay Chiangsan	Homestay, Foot Massage, Agro-Sufficiency Learning Center, etc.	Chiang Rai/ Northern Thailand	Role model of the cultural village, maintaining the diversity of 9 ethnic groups/ Generating income for villagers
34. Lanta Community Museum	Local Museum and Ecotourism	Krabi/ Southern TH	Community Museum was created & managed by local villagers.
35. Mae-Kampong: High Quality Homestays	Homestay, Flight of the Gibbon, Tea, Coffee, Local Activities, etc.	Chiang Mai/ Northern Thailand	Increasing villagers' income, developing basic infrastructure/ Ecotourism maintain environment and culture in community.

36. Baan Sam Kha: Small Village Big Idea	Homestay, Learning Center & Activity, Community Products	Lampang/ Northern Thailand	Learning Center & Activities about community management. Ecotourism Development/ Income distribution in community.
37. Plakaow: The Northeastern Style Singer Village	Homestay with Northeastern style singer, Local Products	Amnat Charoen/ Northeastern TH	Generating income to the villagers, reducing migration of local workers.
38. Boathouse Laemsing Homestay	Rooms, Seminar Room, Water Activities, Historical Tourism, Local Products	Chanthaburi/ Eastern Thailand	Income distribution to local people through tourism business, increasing well-being and participation of people in community.
39. Had Song Quare Homestay: Happiness Village	Homestay, Meeting Room for Seminar, Folk Museum, etc.	Uttaradit/ Lower Northern Thailand	The Standard Quality of Homestay [by Ministry of Tourism & Sports]/ Community participation, extra income from tourism.
40. MaiKed Homestay	Homestay, Orchard, Bike	Prachinburi/ Eastern	Increasing income & extra job for the gardeners/ Sustainability.
41. Ban Dong Homestay	Homestay, Touring, local product	Prachinburi/ Eastern	Local culture conservation, job & income creation/ Sufficiency.
42. Ban Klang Thung Homestay: The Organic Home	Organic Home, Homestays, Art centers, Local Lifestyle Touring	Kanchanaburi/ Western Thailand	Promoting organic agriculture, local culture learning center/ Environmental impact, income distribution in community.
Established by Triple Bottom Line Business 43. Baannavit [Rice Farm & Organic Shop]	Organic Rice, Nontoxic Products, Green Markets	Farm in Phetchaburi, Shop in Bangkok	Promoting organic farming, farmer networks [Green Market Networks]. Reducing production costs/ Increase quality of life
44. Chumphon Cabana Resort and Diving Center	Room/Bungalow, Diving, Sufficient Economy Center	Chumphon/ Southern Thailand	Surrounding communities participate in environmental conservation/ Sufficient Community
45. Ecotourism Training Center: ETC	Diving Tour [Live Aboard], Computer & Eng. Skills-Training	Phuket/ Southern Thailand	Creating diving expert in local area. Jobs creation & income/ Extra income for whom earned low wages.
46. Roong-Aroon School [Alternative School]	Alternative Education [Holistic Approach], Educator Training	Bangkok, Local activities/camps	Promoting education system that conforms to student learning, creating the link between students and local communities.
47. Tongsaibay Hotel	Room Services, Souvenirs	Surat Thani/ Southern Thailand	-Promoting Conservation of Nature: waste recycle -Job creation for local workers, engagement with local
48. Wongpanit Co.,Ltd.	Buy, Screen/Transform Waste Recycle in each community, Waste Management Training	Phitsanulok/ Lower Northern Thailand	Franchise Business Network: over 500 branches & 800 partners networks in 70 provinces, branches in Laos/Malaysia/ Jobs and income in community, Role model of waste management.
49. Singha Park Chaingrai by Singha Corp.	Bhu Bhirom Restaurant, Agricultural Products	Chiang Rai/ Northern Thailand	Generating job with higher wages for local workers/ Sustains support for local communities
50. The Organic Milk by Dairy Home	Organic Milk, Yogurt, and Ice-Cream Lemon farm, Dairy home Farm Shop, Dairy home Restaurant	Nakhon Ratchasima/ Northeast Thailand	Research, innovation learning and sharing knowledge of organic and dairy farming, career distribution for local farmers, collecting agricultural products of farmer's network/ Safety of manufacture, consumer, and environment in community.

Based on the lists in Table 2, four outstanding case studies of social enterprises in Thai rural areas were selected to provide more details as the role model. Four indicators include: social and environmental benefit: impact: sustainability: and pioneer, were used to consider on selection. Four case studies include: Doi Tung Brand by Mae Fah Luang Foundation, Singha Park Chiangrai by Singha Corporation, Akha Ama Brand, and Doi Chang Coffee, more details were presented as follows;

● *Doi Tung: The Mae Fah Luang Foundation* (<http://www.maefahluang.org>, 2010)

The Mae Fah Luang Foundation under the patronage of the late Princess Mother – Princess Srinagarindra – was founded to carry out development activities so that the quality of life of Thailand's ethnic minorities in the Doi Tung area, a high mountain in Chiang Rai province. Before 1988, the problems of Doi Tung were complex such as; this area was a leading region of illicit world opium production – the watershed/forest area was destroyed by slash and burn cultivation, and replaced by opium growing; also most of residents (six ethnic groups) without Thai citizenship, basic infrastructure or government support, and faced with poverty. Moreover, armed groups also occupied parts of the area, which made more difficult to provide any assistances for the local residents. Thus, the Doi Tung Development Project (DTDP) was founded in 1988, and can be divided as three phases include: 1988-1993 (providing basic life necessities, health education and prevention, job and skills-training), 1994-2002 (focusing on income generation, introducing the concept in rural development of moving up the value-chain, the cultivation of agricultural commodities and the processing steps that add value locally to the base product.), and 2003-2017 (strengthening the business units so that the brand and the community are sustainable, the ultimate goal when the project phases out in 2017 is to leave the administration and management of the development of the area and the businesses in the hands of a new generation of local leaders).

The DTDP has been financially self-sustaining since 2001 when the Mae Fah Luang Foundation has created the DoiTung brand as the main channel of income to finance social activities of the DTDP. Four business units of DoiTung brand (food, handicrafts, horticulture, and tourism) have generated social and economic opportunities for more 10,000 residents in area; average income per capita up to nearly tenfold during 1988-2007 (Sarinee, 2011). At the same time, people in area have accessed public health, education and employment (by offering scholarships for local students to further their education and prepare for job opportunities while, local people employed by the Project are also encouraged and coached to understand the value of self-improvement). Interestingly, internationally-accepted approaches to education – Montessori, project-based learning, and hands-on vocational training – are adapted to the local context and integrated into the Project's social enterprises are practiced. Finally, the forest is recovered completely.

The DTDP has been recognized by the UN Office on Drugs and Crime as one of the world's best examples of Alternative Development since 2003. Then, it received the Schwab Foundation's "Social Entrepreneur of the Year for the Region of East Asia" award on behalf of the organization's effort to eliminate social illnesses, and provide people with legitimate livelihoods as well as better quality of life, while restoring the natural environment. There are found that this model has expanded to other countries that faced with same problems (poverty and drugs) such as, Myanmar, Afghanistan, and Aceh.

Anyway, the foundation will phase out in 2017, transferring the administration and management of the Project's social enterprises and the overall development of Doi Tung to a new generation of local leaders, making it truly an example of a sustainable development project as well as to be the good practices of SEs on rural development.

● *Doi Chaang Coffee: Mae-Suai, Chiang Rai*

Doi Chaang is a village on the high mountain in Wawee district, Chiangrai province where faced the same problems with Doi Tung; opium planting and deforestation issues by ethnic minorities in area that became both causes and impacts of poverty and lack of good quality in their life. Doi Chaang Coffee as consequents on operation of the Royal project development to resist opium planting and the deforestation for improving the quality of life of residents in area. The premium Arabica coffee was selected to be the industrial drop that suitable for this area, and became the new occupation's option for Akha, a hill tribe who live in this area. The outstanding characteristic of Doi Chaang Coffee is 'Thai Geographical Indication' (GI).

Wicha Promyong – founder at that time, Ponnachai Pisailert (Ardell) – co-founder, and John Darch – Canadian investor created the unique business model, "Beyond Fair Trade", which famers allowed 50 percent of ownership and 100 percent of selling the coffee beans to the company (i.e. original

coffee beans before processed). Nowadays, cultivated area has expanded from 80 hectares to 4,000 hectares, while the price of coffee beans increases from US\$ 0.50 to US\$16-20 per kilogram, which absolutely impact to improve the villagers' quality of life, reducing illegal occupations, and became the self-sufficient community. However, the 30 percent of any proceeds they get will return to Doi Chaang Foundation; building school, furnishing the healthcare center in community, academic scholarship for children and youth, etc. Figure 2 has clearly shown the social and environmental impact assessment of Doi Chaang Coffee;



Figure 2: The Social and Environmental Impact Assessment of Doi Chaang Coffee

● *Singha Park Chiang Rai*

Singha Park Chiangrai, a social enterprise to help farmers in Northern Thailand, with eco-agricultural tourism concept as main idea to attract one million visitors a year to the 3,000-acre Park, 1200 unemployed people became employee, generating income for local people and their families. This not only helps prevent drugs problem because of constant salary that people earns every month, but the park attracts tourist from around the country to visit and spend money in Chiangrai province as well.

This Park has known as ‘Boon Rawd Farm’, which developed in the past five years as part of Singha's support for local communities, by investing 500 million baht (US\$ 14 million) annually to boost its tourism and agriculture projects to benefit Chiang Rai. Singha is responsible for development, investment, marketing and logistics of the fruit, revenues flow back to the projects' employees and the communities. The products and services comprises; The Bhu Bhirom Restaurant; Agricultural products with top grade – blueberries, strawberries, raspberries, passion fruits; a plantation of tea trees arching across the landscape; etc. The ultimate goal of Singha Park is ‘giving’, giving to the local community – let the community have the chance to benefit from Singha group's business success. Many employees are Akha, Lahu, Burmese, and Thai who as agriculture worker that receive higher wages than at the village. To conclude, the Park's social enterprise work sustains support for local communities and awareness among Singha's staff of responsibility to a wider community. (PR Newswire, 2016)

● *Akha Ama Brand: Maejantai Village, Chiang Rai*

Akha Ama Coffee, 100 percent Arabica, is good quality World Champion coffee⁹ and organically grown that was founded by Mr. Lee Ayu, co-founder of Akha Ama Coffee and proprietor of the Akha Ama Café. He had experienced to work with Child’s Dream, an NGO based in Chiangmai province and learned about ‘community development’ from there. Lee presented that Akha Ama help local farmers and villagers who work in harmony with the environment; the farmers have more courage to produce consistent quality coffee, there is a market for coffee and for a better price. For example, there has also been opportunity to develop an improved quality process through education; they are learning

⁸ Singha Corporation is Thailand's leading beverage maker

⁹ Akha Ama Coffee has been selected to be one of the 21 coffees at the World Cup Tasters Championship in London.

what the customer wants. This has produced more knowledge about demand and value, and then has helped improve the quality of life in the village. The concept of Akha Ama have demonstrated the linkage between drinking coffee and community development; ‘everytime that you drink coffee, you will be as part of community development’. However, Lee also comments that the most challenging aspects are acquiring knowledge and skills, which could be the most difficult part of the process so far. He has just a non-profit background, so marketing, meeting people, budgeting and finances have all been necessary for him to quickly learn.

RESULTS AND DISCUSSION

Social Enterprise: A Tool for Rural Development

The results of study according to the table 2 have shown that there are fifty social enterprises (SEs) in Thai rural areas around the country; 16 SEs established by private, 13 SEs established by NGO, 13 SEs established by community-based, and 8 SEs established by the triple-bottom line business. When considering the regions, 16 SEs located in Northern Thailand, 9 SEs based in Bangkok (but operated by rural development objectives), 7 SEs located in Southern Thailand, 6 SEs located in Eastern Thailand, 4 SEs located in Northeast as well as 4 SEs in Central, 1 SE in Western Thailand, and 3 SEs that based in Bangkok while have provincial branches in different regions of the country. Table 3 has shown the numbers of SEs in Thai rural areas, categorized by regions and types of established organization.

Table 3: The numbers of SEs in Thai Rural Areas, categorized by regions and types of established organization

Region Established by	North	Northeast	Central	East	West	South	Bangkok [BKK]	BKK+ Province br.	TOTAL
Private	5	-	3	-	-	1	6	1	16
NGOs	5	2	1	2	-	-	2	1	13
Community-Based	4	1	-	4	1	3	-	-	13
Triple bottom line business	2	1	-	-	-	3	1	1	8
TOTAL	16	4	4	6	1	7	9	3	50

To consider how these social enterprises were used as a tool for rural development, it’s necessary to specify the characteristics of rural development. The rural development strategy (Surapol, n.d.) has demonstrated the key elements of rural development include – focusing on improving the quality of life, self-help/self-reliance development, sustainability (environmental, economic, cultural, social, and political aspects), and participation of people – which relate to the direction of Thai rural development nowadays that focusing on human (quality) development, sufficient economy, strong community networking, environmental management, and equity. Figure 3 provided the conceptual framework of rural development in Thailand.

Based on rural development concept in figure 3, four outstanding case studies of social enterprises in Thai rural areas, including to 50 SEs in Table 2 have proved that social enterprise can be considered as a tool for rural development such as; improving the people’s quality of life, generating jobs and income, increasing accessibility opportunities to basic needs services and welfare (public health, education, etc.), promoting self-reliance, community development, and people’s participation as well as environmental and cultural conservation in local, which leading to the sustainability of rural community eventually. Moreover, not only that we can directly improve the people’s quality of life through the social enterprise processes, but also it was used to create self-reliance of organizations such as; non-profit organizations, non-governmental organizations, which operate to fulfill the primary social and environmental goals as well.

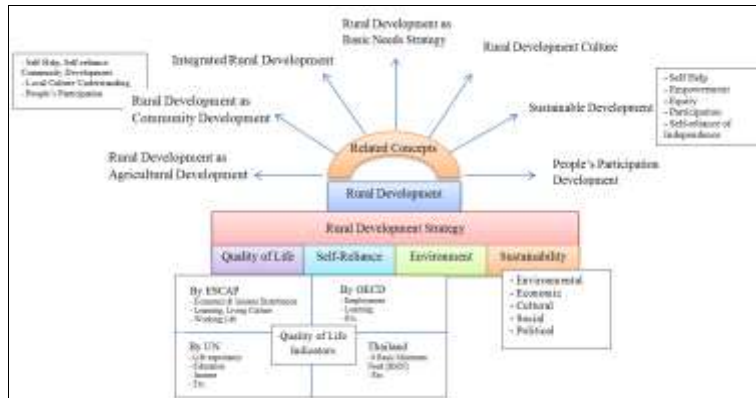


Figure 3: The Conceptual Framework of Rural Development in Thailand

Challenges and Future Recommendations

The study of Social Enterprise (Nise Corporation, 2014) has proposed the model of ‘Social Enterprise Development Eco-System’ which provided six factors that are important to support sustainable growth of SE include: the government policy and participation of private sectors, finance accessibility, human capital development, markets, culture (raising awareness in society/social recognition), supports (supporting mediator, networks). In addition, some study has indicated that the 8 key success factors to operate social enterprises comprise: social entrepreneurship, social mission, social innovation, competitive advantage, stakeholder engagement, social ownership, scalability, and social impact. (SWU & Nise Corp., 2013)

These factors can also be considered as the challenges of social entrepreneurs in Thai rural areas. Although, social enterprises in Thailand have more paid attention by the government and other sectors in society nowadays, the government policy and the legislation limitation (e.g. business tax law of social enterprise) have persisted as barrier of rural entrepreneurs. Latest, the Thai Social Enterprise Office (TSEO) that is an organization supported by Thai government to create new social enterprises, still temporarily closed as a result of ending of fiscal year, and has not been scheduled to open. At the same time, the Social Enterprise Promotion Law still is a draft. These became the key problems and challenges to social enterprises’ movement for the next step. Therefore, networks building within Thailand and abroad are recognized as an important strategy to promote and support SE movement in the future, which the rural social entrepreneurs should consider as well.

CONCLUSION

In Thailand, trend of social enterprises for rural development have grown up continually, by observing the 50 SEs in Thai rural areas that serve as good examples. Based on these, SEs operations are popular in rural areas of Northern Thailand, following by Bangkok (which operated by rural development objectives), Southern, and Eastern Thailand, respectively. Four outstanding case studies of SEs were specific selected by the author for more explanations how they promote rural development, these of SEs also located in Northern Thailand where most of people faced with poverty and lack of opportunities. The results from documentary study has indicated that SE as a tool for rural development exactly covering individual and family level, community level, and national and international level; in aspects of the quality of life improvement, employment, education, public health, environmental and cultural conservation, promoting self-reliance and sustainability in rural community. However, social entrepreneurs in Thai rural areas still faced with various challenges such as; technological challenges, financial accessibility challenges, and the key challenge is the policy challenges including to, the future of

TSEO who is a key supporter for SE development. Thus, the strong networks creation within Thailand and abroad to driven and develop SEs in rural areas was considered as the key recommendation for the future.

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GREAT MERIT FARMING: CREATIVITY AND DEVELOPMENT OF ORGANIC FARMERS GROUP – A CASE STUDY OF NA BOON NA KHUM GROUP

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ABSTRACT

This study is under the project of communication and community network building for self-reliance near the area of sustainable power grid line. The project is aimed to: (1) consider ways to work with community groups of residents who live or work along high voltage transmission lines which could increase life quality development of the target groups; (2) create bonds and understandings between EGAT (Electricity Generating Authority of Thailand) and communities to develop groups and networks in order to foster sustainability. Northern pilot area for the study is Ban Na Khum Community in Tha Chang, Prompriram, Phitsanulok, where rice farming is the main occupation. The study found that most farmers in the community have changed the way of working on the paddy fields. Farmers harvest 2-3 times a year with the primary use of chemicals and heavy machinery. As a result, production costs are high while farmers are often forced to sell their produce at low prices. The impact on health and the environmental problems from chemicals as well as household debts have been identified. This study is considered as a participatory action research that focuses on the development of a group of model farmers who want to change their paddy field work process to organic rice farming. It has also taken a Buddhist doctrine to the farming approach: no animal killing, no harm on others, and care for the environment. This has led to the shift of their production and network expansion to other farmers as well as the development of "making merit" for children and young people in Ban Na Chum School. As a result, farmers are encouraged to create self-reliant and self-determined lifestyles.

Key words: Organic farming, CSR Development.

INTRODUCTION

The article "Great Merit Farming: Creativity and Development of Organic Farmers Group A Case Study of Na Boon Na Khum Group" presented the findings from the action research under the project of communication and community network building for self-reliance near the area of sustainable power grid line sponsored by Electricity Generating Authority of Thailand (EGAT). The project is aimed to 1) consider ways to work with community groups of residents who live or work along high voltage transmission lines which could increase life quality development of the target groups and 2) create bonds and understandings between EGAT (Electricity Generating Authority of Thailand) and communities to develop groups and networks in order to foster sustainability. The author participated in this project from November 2013 to December 2015. In addition, the group has continued to develop up to the present. Northern pilot area for the study is Ban Na Khum Community in Phitsanulok, one of the major rice production areas in Thailand.

It is EGAT's responsibility to constantly and sustainably produce electricity to support the economic and social development of Thailand. According to this responsibility, it is implied that, apart from producing, EGAT has to also acquire and supply electricity to every area nationwide. As a result, it needs to have many different agencies to administer dams, power plants, and high voltage transmission

lines in every region. As a resident coming to live in local communities, the agencies under EGAT need to create healthy relationship with the communities, not cause problems for them (either in economic, social, and environmental aspects), and, as good neighbors, provide supports to the suffering communities as much as they can.

The high voltage transmission lines scattering nationwide do not function only to convey power from the source to the target area, but also to interconnect electric supply systems from many power generating sources. With this connection, in the situation of power shortage or damage in certain areas, the high voltage transmission lines will substitute the power from other lines to the areas in need. That explains why the high voltage transmission lines cover both residential areas and nonresidential areas. For that matter, EGAT has implemented legal eviction by compensating the owners of properties under the high voltage transmission lines to perform any act that might harm themselves, their assets, as well as the power transmission systems of EGAT. However, the eviction might bring economic impact or disputes arisen by misunderstanding or mistakes from performing duties or other events. In addition, there is a possibility of transfer of property ownership or lease of lands nearby the transmission lines to other people who might not know of or receive the benefits from the eviction in the first place. The new property owners or renter may carry on an occupation or have a way of life that is threatening the high voltage transmission system. Some of the dangerous things to do are, for example, growing tall trees, constructing buildings close to the electricity posts, excavating soil near the electricity posts to sell, ignoring burglary, or, worst of all, stealing the nuts or metal parts of the high voltage posts themselves. All these actions cause damages on EGAT's service to industry, service, public health sectors, as well as other necessities of the public using the electricity.

Therefore, this study serves as a tool to create understanding and express sincerity to be part of the development and taking care of the community which is the corporate social responsibility (CSR) policy of EGAT.

MATERIALS AND METHODS

This study is based on an action research methodology. The key principle is the working process that leads to sustainability, self-reliance of the community, having groups and networks as the mechanisms for strengthening the community, allowing them to solve the problem on their own. To achieve the goals, participatory and empowerment approaches are applied. The targets of the groups and networks are to solve the problems that the locals are facing, as well as those with the potential to occur, natural disasters, insecurity of lives and assets, economic disparity, lack of access to proper education, and in appropriate self-development, degradations of the society, natural resources, environment, and energy. All these missions are to be executed by local resources and relevant agencies.

RESULTS AND DISCUSSIONS

It is commonly known that the main occupation in Thailand is agriculture and rice is the main crop of the country with a record of the world's number one rice exporter in the past. However, not many Thais understand the importance of "farmer" as a profession because they are deluded by the social value that regards farming as a difficult and tiresome work and being usually done by the poor as production is beyond full control of farmers. According to the study under the project of Communication and community network building for self-reliance near the area of sustainable power grid line at Ban Na Khum, it was found that most of the villagers were rice farmers. In the past, they would grow rice only one season because they the farmers relied on rain as the natural source of water. However, the modern developments today have brought irrigation systems into the area. To be specific, Naresuan Dam was built in 1979, allowing the villagers to grow rice 2-3 times a year.

The farmers in the study area preferred to do off-season rice farming due to shorter lifespan of the crop than in-season farming. They decided to sow the rice seed instead of the traditional way of transplantation because the latter allows them to determine the harvesting time more accurately. In addition, chemical fertilizers, pesticides, and insecticides are used. Even though the farmers can harvest the rice 2-3 seasons a year and their income and quality of life have improved, in the meantime, they are suffering from debts. The causes of debts can be summarized as follows:

1. Chemical fertilizers are expensive.
2. Pesticides and insecticides are expensive.
3. Oil prices are high.
4. Labor costs are increased.

It is clear that these problems affect the cost of rice farming. Today, to do rice farming, the costs arise from plowing until harvesting with machines instead of manual work. In addition, rice farming technique of villagers today largely relies on chemicals in the form of pesticides, insecticides, fertilizers, and growth hormones. The villagers are exposed to these chemical gradually and repeatedly. The exposure might affect their health in a long run. Furthermore, these chemicals also bring negative impacts upon natural resources such as aquatic animals which seem to disappear from farmlands. Their production style has also changed from the past in many aspects described below:

1. Machinery and labor-saving devices: Traditionally, the villagers would share labor when they did farming. However, with technology advancements, machinery and labor-saving devices have become an important part of farming, and the way farming is done has changed completely. This is because machines work faster and are more comfortable for farmers. On the other hand, if the villagers rely on human's labor, they have to wait for other people to be available.
2. Irrigation: With the irrigation system, water is released from the dam at a regular time and the farmers are notified of the water supply time by the Royal Irrigation Department. That explains why farming today depends on irrigation. Farmers have to plan their farming activities to be done before they run out of water. If they have to wait to borrow labors within the community, they water may run out before due time. The condition forces them to hire more workers to meet the water supply schedule.
3. More emphasis on yield: In the past, the villagers grew rice mainly for household consumption and some of the rice remaining would be sold as additional income for the family. Currently, many farmers are producing most of their rice to sell and only little amount of rice is kept for household consumption. They usually sell their rice produce to rice mills and government's projects. Farmers today tend to sell their rice and use the earned money to buy milled rice to eat. This is because most of the farmers are growing Phitsanulok 2 rice strain, which is quite hard. So they buy the softer Jasmine Rice to eat instead.
4. Pest, insects, and insecticides: In the past, farmers would grow rice only one season a year and there were not so many bugs. During in-season rice farming, the many insect species are in hibernation, unlike during the off-season time. When rice farming is done for 2-3 seasons per year, there have been many bug problems during the off-season farming, forcing the farmers to use insecticides which cause extensive negative impacts on the environment. These dangerous chemicals also leaves residue on the rice and farmlands. Again, this situation is another factor that changes the lifestyle of farmers as they used to hunt some animals such as fish and frogs in farmlands without toxic residues. Now the farms are filled with many fatal residues. The change of lifestyle is triggered by their heavier focus on production quantity without much consideration on weather, soil condition, and natural resources.

Based on these problems, a group of 12 villagers started to consider the situations in their way of life. The learning lesson motivated them to change their production style by reducing cost and rely on natural

production technique as much as possible. In addition, they begin to taken a Buddhist doctrine to the farming approach: no animal killing, no harm on others, and honesty (no lies or frauds).

The results of implementing 3 main activities: (1) Development of organic rice farming of “Na Boon Na Khum Group”, (2) Na Boon Na Khum product development, and (3) development of Na Boon Program, are as follows:

1) Development of organic rice farming of “Na Boon Na Khum Group”

This activity has started since 2014. Organic rice production in the first season satisfied the issue of cost reduction for Organic Rice Farming of Na Boon Na Khum Group. The success brought confidence in organic rice production among the group members. They began to prepare production factors on their own e.g. rice strain selection, soil preparation, making compost, making enzyme ionic plasma, and preparing labor. In addition, connecting organic farming with traditional and religious belief also inspired the group members and made them believe that it is a way of making merit for themselves and for the farming land, the surrounding environment, and the consumers. It made them committed to do the good deeds as a great merit farming and promise to themselves to do the good for the country.

The activity at this stage is conducted to develop the potential of holistic organic rice production, development of knowledge on production factors, improvement of farming technique that suits a certain plot condition, effective farm management, harvesting, post-harvesting management, product development and processing, as well as creating the selling channel for self-reliance and sustainability.

Production factor preparation and production preparation

Na Boon Na Khum Group has developed the production factor preparation method to suit certain areas and so that they can rely on themselves. They apply mutual learning process to develop the suitable process. The activities in this category are as summarized below.

1. Rice seed selection: The group selected the rice strains that are suitable for the environment and they like to eat.
2. Soil preparation: The group members learned together about fallow by plowing rice straws under the soil instead of burning them. This is a way of fertilizing the soil in a natural way and this technique does not kill organisms in the soil, fostering biodiversity using group-made compost and enzyme ionic plasma. In addition, they also swore to take care of the power transmission lines.
3. Making compost and enzyme ionic plasma: The group established the “Bio Fertilizer Fund by Na Boon Na Khum Organic Farming Group”. They collected initial fund of 10,000 baht in total as the capital from members in order to buy materials for making compost and enzyme ionic plasma. They acquired materials in the community such as bird’s manure and herbal plants to make enzyme ionic plasma. For some materials that they could not find in the community such as cattle and pig manure, they would buy from nearby villages to minimize transportation cost. The group members worked as the laborers to make compost and enzyme ionic plasma to be sufficient and efficient. As a result of working together every week, the members became united and able to participate in working together as a group, develop teamwork skill, and enhance group empowerment.
4. Labor preparation: After being neglected for quite some time, the culture of “mutual labor” (helping each other to do farming) was revived. The success in this attempt is a proof of the group’s potential to manage labor issue and assures that they can manage labor on their own. More importantly, the group members even invited their family members to join and play more roles in the group’s activities.
5. Increasing knowledge and production technologies: This activity is conducted by coordinating with the university near the community as well as relevant scholars to share knowledge and opinions on the topics that are of their interest, for example farming with a small amount of water, rice farming with “throwing” technique, and earthworm farming. Together, the group

members learned from online media and created a Facebook page to communicate and share information with outside networks.

2(Na Boon Na Khum Product Development

Standardization of Na Boon Rice: The great merit farming method of Na Boon Group is unique. The members bring back the old traditions and ceremonies about rice. From the beginning, harvest, to post-harvest activities, the rice product of Na Boon Na Khum is completely merit rice. The group defined “Na Boon” (meaning merit farming) as the farm filled with goodness. It is the farm that produces the rice with truth and trust. The farming technique is based on the consideration of health of consumers and the farmers themselves because the members understand the negative impacts of chemical farming. That is why they gathered as a group to use organic technique. Instead of using chemicals in rice production, they apply enzyme ionic plasma and compost that they made. The plasma and compost are not harmful to people and the organisms in the paddy field. That is why they call it merit farming. The group members together established the standard for Na Boon farming. The standard will function as a rule to assure consumers that every grain of rice produced by the group is truly the merit rice.

After group discussion, the members decided that they should establish the “standard of Na Boon rice” based on the trust among group members using mores. Having established standard of Na Boon Rice is the fundamental action before applying other measures to make the group members confident in production. In addition, with a written standard and self-check inside the group based on trust allow for better ethic development than using other measures. This effort also creates trusts among consumers. The standard of Na Boon rice by Na Boon Na Khum Farmers Group is as listed below.

Standard of Na Boon Na Khum rice:

-)5.1(Farmers shall produce merit rice with an intention to do good deeds.
-)5.2(Farmers shall produce merit rice based on truth and honesty for the consumers.
-)5.3(Farmers shall produce merit rice without chemicals.
-)5.4(Farmers shall produce merit rice without killing lives and harming the environment.
-)5.5(Every rice grain has passed the merit ceremony.

The standard will be the principle for farming of members to produce merit rice which is safe to market. It is a way of creating the identity and making the product of the group different from other organic rice in the market.

3(Development of Na Boon Program and Community Learning Center

As a result of the pilot plot of the group, the members began to see the benefits of having the learning center within the community. It does not only bring the benefits to the group members, but also allows everyone in the community to learn together and thus beneficial for the community as a whole. In addition, the cooperation with Ban Na Khum School to operate the Merit Bank in 2014 in order to educate children about organic farming received good feedbacks from the school and the community. It is a good start to instill the awareness for the children and create another attribute of “Na Boon Rice, the rice of Merit”. So the group decided to expand the activity by organizing the outside classroom learning program by working together with Ban Na Khum School and developing the organic farming learning center of the community.

Outside Classroom Program

Na Boon Na Khum Farmers Group understands the importance of occupation of the local people and is concerned that farming, a traditional occupation, would disappear from their community. Their concern was based on the changed society of Thailand, with easier access to technology and Thai youths are less focused on school. Therefore, they organized a meeting for the locals to discuss between the northern operation team and teachers at Wat Na Khum to plan the outside classroom program. The aim of this program is to its function as a chance for children of the farmers to learn safe farming as that of the group.

This program is an extension program from the Merit Group that led the students to learn about the pilot plot of the group in 2014 and 2015. As a consequence, the group worked in collaboration with the teachers at Wat Na Khum School in designing the outside classroom program. In this collaboration, the program founding partners also discussed the possibility to apply the program to the lesson in each grade of the school. The essence of the learning consists of 4 themes as follows:

-)1.1) Farmers' world
-)1.2) The importance of farmers and farming
-)1.3) Learning about and participating in rice farming-related traditions
-)1.4) Ban Na Khum community farming style
-)1.5) Transfer of proud farming (Merit rice farming style)

However, the application of outside classroom program should be flexible and appropriate for each grade. The inside and outside classroom activities should be combined appropriately using the community learning center and local guest speakers to participate in the activities. These efforts are aimed for the students to develop the potentials based on their interest. They also allow students to think, analyze, and try to learn and solve professional areas and living a daily life. As a result of the above working process, the following impacts occurred to the community development process as follows:

1. Expansion of beneficial activities and supporting the strength of the area

After the project implementation, one of the obvious results is the talk, discussion, and sharing knowledge, format, technique, and method of organic farming and merit farming for group members and the local residents, and such activities occur naturally. The researchers made an attempt to encourage the pride in what they are doing and trigger the pushing force inside the organization to become the agricultural group that do good things for the country, using the culture and traditions that the ancestors had carried out in the past, and to add up the value to their product, create trust and confidence among consumers.

The activities held in Na Khum community originated from the basic needs of the community members. When the group was provided with proper knowledge, technique, method, and technologies, they were able to apply these to address their problems. That was the group members responded positively to the activities. They accepted the paradigm shift and were willing to be open to new technologies appropriate to the group's activities, which is important to the development. For this matter, the group is now focused on the development of product and running marketing campaign themselves, despite the fact that they are not expert. (The product from the previous season, the group chose to sell Na Boon Rice, the organic rice to rice mills just like chemical farm rice). Based on that direction, it pointed toward a positive tendency, indicating that the group wanted to develop their management as individual into as a group and a community, and ultimately create the value to their activities they are trying to achieve.

2. Knowledge management process

Since Ban Na Khum community had been using chemicals in rice farm for a long time, to change the production method, it is important for the community members to learn the techniques and methods which are completely new to the members. To do that, they had to learn from the communities successful in organic farming and experiment in their area. Along this process, they always shared experience among each other. If some of the members discovered a technique suitable for their area, they would transfer the technique to the other members to apply in their land. This phenomenon occurred naturally and has become a way of life of the members.

3. The process of creating a group and community

Since the establishment of Na Boon Na Khum Group is natural based on their relationship as relatives before developing the semi-official organization, the group members are closely related. The group tried

to create its identity by referring to the procedure for merit farming stipulated by the discussion among the members to cross-check within the group. This system of checking is meant for highlighting the identity and developing the members' potentials. It is a good sign that they will become an official group and the network of merit farms in the future.

4. Other implementations and multi-dimensional network

Even though the project operation in the area of Ban Na Khum aimed to promote the change from chemical farming to organic one, the operation process did not only focus on cost reduction, but also on the paradigm shift. This is an important foundation that will change their way of thinking and prepare them to become part of the development team. The project was carried on in parallel with the improvement of the community society such as uniting the people and encouraging them to be kind to each other. More importantly, merit farming also improved the environment inside the farmland of the member as a result of not using chemicals harmful to lives and contaminable to air, water, and soil. This is the starting point to restore the environment of the community to be as good as in the past.

When the members reduced the use of chemicals in their farm, the risk of health caused by chemical exposure became lowered. As a result, the group members are healthier than before. In addition, they also grew household vegetables using compost and enzyme ionic plasma that they made together with the family members. This activity enhanced a close relationship among them. With sufficient production of safe rice for consumption, they are less risky to consume dangerous food unlike in the past, and the sufficient rice guarantees food security for them as well. Furthermore, the revival of traditions about rice farming reminded the members of the importance of environment, reliance on each other, generosity, and unity. All these processed aforementioned originated from participatory learning process, participatory working process, and group empowerment that can be developed to the sustainable holistic self-management in the future.

CONCLUSIONS

“Merit Farm” is based on organic farming with an intention to do good deeds, not use farming chemicals to harm humans. The foundation of this thought was related to the feelings of members to do good deeds. It is considered the important beginning to motivate the positive attitude among the members toward learning, practice, and transfer to the new generation. In this study, the result of the development can be summarized as follows:

1) Community is upgraded as a learning center and the model for CSR development

The operation started by analyzing the situation in life and social capital and social force. It was found that Ban Na Khum had strength in the idea of relationship among “community, temple, and school”. Any process led by faith, merit, and good deeds would be easily accepted by the community, with little objection. Therefore, to adjust their attitude, it is important to find the changing point and the inspiration. The strategy of “Merit farm, the farm of good deeds” is suitable for adjusting the attitude of the members. “Ones can do good deeds by not using chemicals”. The belief “performing rice ceremonies to pay respect to Phra Mae Phosop, the goddess of rice” revived the tradition once gain. It can be said that merit farming is the central spiritual shelter for the group members. Therefore, the key lesson from this operation is to find the changing point, the spiritual shelter, and the inspiration, together with the review and value reproduction of the discoveries among members, allies, and leader, which can be used to change the behaviors for community development.

2) Redefinition and modification of self-value related to community value at lifestyle level

Consideration to social capital and lifestyle of the community members is not about analysis of life situation, more importantly it “examines into the essence of culture, social standards, and social capital”. Social standard identifies the scope of practice for the community members while social capital determines its potential under the culture which is the mechanism for the practice and social capital to maintain, disappear, or have disappeared. This is because culture is the tool that takes advantage of faith and belief by defining activities and behaviors of community members. Culture brings out the belief and faith, human-human relationship, human-nature relationship, and human-faith relationship to become the tool for adjusting their attitude, leading to changed way of life. For instance, in Ban Na Khum, they valued merit farming and redefined farming as “Merit Farming Culture”, and established the learning culture of merit farming. The cultural program was established with participation among Na Boon Na Khum Group and Ban Na Khum School. This is a way to create the value and meaning for farming style based on merit farming culture, leading to “value-adding of merit rice”.

RURAL AGE-FRIENDLY COMMUNITY AND STRATEGIES FOR RURAL DEVELOPMENT: LESSONS LEARNED FROM HUA-NGUM, CHIANG RAI, THAILAND

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ABSTRACT

The study makes a research assumption that the age-friendly community concept has the potential to be a model for sustainable rural development. Moreover, the study aims to study age-friendliness in Hua-Ngum sub-district, considered to be an age-friendly community in a rural area, and to study the process and strategy for developing an age-friendly community in the sub-district. Qualitative research based on participation of key stakeholders in the sub-district is employed. The results indicate that there are key social opportunities established in the sub-district as results of developing the Hua-Ngum age-friendly community. Opportunities for learning, participating, connecting isolated elderly people to the rest of the community, integrating with younger generations, contributing, and being valued and respected are the important features of age-friendliness. Therefore, the results of developing an age-friendly community are not only the improvement in well-being among older people, but also a strategy of community development as a whole. Hua-Ngum's experience, moreover, implies key strategies that contain four important phases to develop age-friendliness within communities: the 1st phase and strategy for raising awareness to build consensus; the 2nd phase and strategy for establishing partnerships to develop an age-friendly community; the 3rd phase and strategy for implementation emphasizes developing initiatives to meet the elder's needs; and finally the 4th phase and strategy for creating social space and public acceptance. Those community strategies are not linear steps; in contrast, they are dynamic processes that need to be steadily developed.

Key words: Age-friendly community, Sustainable rural development, Thai aging society

INTRODUCTION

The increasing of the aging population is considered seriously as a "global issue." Decreasing mortality and declining fertility are important factors mentioned (UN, 2013). The United Nation (UN) report reveals that the number of older persons - 60 years old and over - is projected to more than double, from 841 million people in 2013 to more than 2 billion in 2050. Moreover, there will be a greater number of older persons than children (aged 0-14 years) for the first time in human history by 2047 (UN, 2013). There are several approaches and projects established for tackling this crucial aging situation. The Global Age-friendly Cities project is one interesting global project introduced by the World Health Organization (WHO) in 2005. Due to the idea that the world population is increasingly living in cities, the WHO has endeavored to implement the project in 33 cities across the world. In 2007, the "Global Age-friendly Cities: A Guide," was published based on the experience of 33 cities (WHO, 2007).

Eight domains of an age-friendly city indicated in the guide reveal key features that are fundamental to age-friendliness in the city. These domains are: 1) outdoor spaces and buildings; 2) transportation; 3) housing; 4) respect and social inclusion; 5) social participation; 6) civic participation

and employment opportunities; 7) communication and information; 8) community support and health services (WHO, 2007; Plouffe & Kalanche, 2010). This concept is seen as a new discourse on gerontology, which views elders as significant contributors to society (Alley et al., 2007; Eales et al., 2008:109; Lui et al., 2009; Austin et al., 2009). At the global level, the older population is growing faster in urban areas than in rural areas (UN, 2015). However, there are still a considerable number of elderly people living in rural areas, particularly in developing countries where two thirds of the world's older persons live in the developing regions (UN, 2015). In Thailand, for example, over half of the older population lives in rural areas (NSO, 2010). Furthermore, there currently exists a major gap in the literature, namely that the discourse around age-friendliness has tended to focus on cities (Menec & Nowicki, 2014). Therefore, an age-friendly community concept based on rural communities' experience is needed in order to extend the knowledge boundaries of such a concept.

In the case of Thailand, it has already become an aging society and is faced with many difficult situations related to an aging society. Although the percentage of elderly people within the entire Thai population is not high when compared with other developed countries, Thailand has been faced with rapid aging. The rapidity of population aging in Thailand means that the country has a shorter time to deal with the new challenges related to an aging society (Jitapunkun, et al., 2008:17). In the future, the aging society in Thailand will be a critical situation when the aging rate increases to 29.8 percent of the total population by 2050. At the same time, Thailand is experiencing a myriad of limitations, such as a lack of finance, a lack of manpower working in the health care system for the elderly, and limitations on health care facilities for older people (TGRI, 2009; Jitapunkun, et al., 2008; TGRI, 2013), while changes in the socio-culture, economic, and political context are also taking place.

With awareness of the Thai aging situation, therefore, the present study is focusing on the development of an age-friendly community in rural Thailand with the important assumption that the age-friendly community concept has the potential to be one model for community-based welfare. Such a concept can lead to a rural development process, which does not benefit only the elders themselves, but members of the community of all ages as well. The study aims to 1) study age-friendliness in Hua-Ngum and; 2) study the process and strategy for developing an age-friendly community in the sub-district. There are important definition of terms, as follows:

- 1) Thai older people refer to the Thai population who are 60 years old and over.
- 2) Age-friendly community refers to the community that establishes social processes that promote and support the connectivity between the elderly and the community, namely opportunities for social participation of the elderly. Those social processes are based on participation of local people and regarded as social capital for the community. Such opportunities will foster social connectedness both among active and isolated older people. Opportunities for social participation will encourage the older people to achieve meaning in their later life.
- 3) Rural community: The study defines rural community by using the type of local government as criteria¹⁰. In the Thai local government system, the Sub-district Administrative Organization (SAO) refers to local government in rural areas, while other local governments such as city municipalities, town municipalities, and sub-district municipalities refer to the local governments in urban areas.

MATERIALS AND METHODS

Qualitative research is employed in the study. Several qualitative methods are being conducted, such as documentary study (documents include hardcopy/printed versions, visual media, e.g. youtube, websites, news), the interviewing of key informants involved in aged-related activities in Hua-Ngum Sub-district,

¹⁰ In each Sub-district, Sub-district Administrative Organization (SAO) is a local government office that has important duties regarding community development and the improvement of quality of life of the residents.

(e.g. administrators and related staff of Hua-Ngum SAO, Buddhist monks, elderly people who participate in the activities, etc.), and participatory and non-participatory observation. The interview guide is the important research instrument. It is approved by the Research Ethics Committees of Japan College of Social Work (No.15-0304, Date 6-8-2015). As analysis method, content analysis is adopted.

RESULTS AND DISCUSSIONS

Results

Introduction of Hua-Ngum Sub-district

Hua-Ngum sub-district is an old, rural sub-district of Chiang Rai Province. It is an agricultural community that was established in 1915 (B.E. 2458). The sub-district is located 739 kilometers north of Bangkok. It covers mainly a lowland area of 62.1 km² and contains thirteen villages. Hua-Ngum sub-District has already become an aged society, in accordance with the information from 2016's census of Basic Minimal Needs (BMN). The census reveals that there are 1,823 households with a total population of 5,165, of which 50 percent are of working age (26-60 years). Older persons (over 60 years) account for 24.84 percent, which is considerably higher than the national average of 16.47 percent. To cope with the high rate of elderly people and the problems faced by the Hua-Ngum elderly, Hua-Ngum SAO and its partners instituted several activities based on social participation and social capital, in order to establish an age-friendly community for the people of Hua-Ngum. Although they are faced with a myriad of limitations and challenges, such as a limitation on finance, staff, and a high percentage of elderly residents, the community is trying to establish effective practices for elderly care and development in their community for dealing with their aged society. Thus, the experience of Hua-Ngum sub-district has the potential to be studied and implemented in other communities, particularly in northern Thailand.

Results are based on analysis of five aged-related activities in Hua-Ngum sub-district – a Goodness Bank, a School for the Elderly, Tan Tod social assistance for elderly with difficulties, a One-day One-baht community welfare fund, and a Little Doctors program for the bedridden elderly. The study shows that for nearly a decade, Hua-Ngum SAO and its partners introduced significant aged-related activities. In 2006, “Tan Tod” social assistance for older people with difficulties, e.g. the elderly in poverty, living alone, or bedridden, was introduced to assist the elderly with those problems. Such activity provides social assistance for three chosen elderly people every month to receive both cash and in-kind support. The SAO and its partners visit the houses of those people chosen to deliver service and spiritual support. In the same year, the “One day, One-baht” community welfare fund for disadvantaged persons was launched to encourage local people to participate in, and be aware of, assistance and support for people in difficult living situations in the sub-district. This fund is one source of the budget for the “Tan Tod” activity.

In 2007, a significant community development process - the “Goodness Bank” - was introduced with two main functions; 1) to encourage local people to participate in community affairs; and 2) to establish and strengthen the community's social capital. The Hua-Ngum Goodness Bank provides points savings and withdrawals by using a “goodness menu” as a tool. For instance, the “goodness menu on community participation” allows community members to accumulate 15 points each time they participate in a community meeting or community activities (e.g. community meeting and events or trainings and seminars given by the local government). The “goodness menu on health” allows a participant to receive 50 points when they reduce their waistline by 1 inch, 300 points for quitting drinking alcohol, and 500 points for quitting smoking. Other incentives include 300 points for controlling their diabetes and blood pressure for six months continuously, and receiving one point per CC of blood donated. Moreover, they can get 1 point when they donate 5 Baht to the “One day, One-baht” community welfare fund for disadvantage persons.”

In 2009, the “Little Doctors” program was started by Phadang Wittaya School (a primary - junior high school). Firstly, the activity aimed to raise awareness on public consciousness and volunteerism among junior high school students. The students wanting to be “little doctors” must pass a basic training course on health care by health professionals, learning such skills as blood pressure measurement, dressing wounds, Thai massage, and other health care concerns. The “little doctors” visit elderly people’s homes on weekends, providing basic care for the elderly as well as assisting with house cleaning. In 2010, the School for the Elderly was established with the aim to respond to age-related problems, including physical and mental health problems, abandonment, loneliness among the elderly, and especially suicide by the elderly, along with providing a means of social contact and promoting the learning process and capability for development among older people. Nowadays, they use the Sri-Meaungmul Buddhist Temple as the school. The school provides weekly classes every Thursday, from 8.30 a.m. – 2.30 p.m., taught by 10 volunteer teachers. These teachers include retired government officers, schoolteachers, Buddhist monks, and the Director of Tambon Health Promoting Hospital (THPT).

In an effort to continually improve the program, the community takes comments and suggestions into account, especially from scholars who proposed to expand the coverage of the service (originally, only 20 percent of the aged attended the school). In 2014, Hua-Ngum SAO with partners set up a “School for the Elderly” in each village, 13 in total, and covering 70-80 percent of the elderly in the sub-district. The activity has performed once a month. This reflects positively on the commitment of the community, which takes the well-being of the elderly into account.

Features of Age-friendliness in Hua-Ngum Sub-district

Based on analysis of five aged-related activities mentioned above, the finding reveals that there are several social opportunities established in the sub-district. Those opportunities indicate the features of age-friendliness in Hua-Ngum, as follows:

Opportunities for learning for the elderly: Elderly people obtain useful knowledge that leads them to be peaceful and healthy, such as knowledge on healthy living, ways to exercise, healthy foods to eat and nutrients for the elderly, and learning about behaviors for a good death according to Buddhist principles. Moreover, the elderly are given opportunities to develop public speaking skills, enhance their self-confidence, and express their opinions in a public forum. Some of the elderly who had never been to school at all and could not read or write were taught at the School for the Elderly simply to write their names, something they had up to that point never been able to do.

“I never enroll to the school because my family is very poor. When I was young I had to help my father and mother to look after my brothers and sisters and work in the rice field. During the past life, I always make a fingerprint for signature. After I joined the School for the Elderly I had opportunity to learn and practice to write my name. First time that I held the pen I was so excited. At present, I can write my name and I can sign without making a fingerprint. I am so proud of myself.” (Elderly student at the School for the Elderly, interview, October 10th, 2015)

Opportunities for participating in community activities for the elderly: As “Goodness Bank” members, elderly people are supported and encouraged to become involved in community activities. Individuals can accumulate goodness points in their goodness passbook. Such participation directly encourages older people to become part of their community by maintaining social connectivity with others in the sub-district. For instance, elderly who participate in a “Temple Cleaning Day” gain 15 points. Community meetings in which they actively participate earn them points as well. In the beginning, the points gained were a tool to motivate the elderly to participate in community affairs. Nowadays, getting the points is not the end of their participation in the Goodness Bank, because they participate in the activities voluntarily and realize that participating in the community's affairs stems from their own commitment and

responsibility as a member of the sub-district. Some of them do not record the points into their Goodness account even though they still participate frequently in the activities.

“I, sometimes, don’t record goodness points into my account because when I help the community affairs, e.g. to attend community meeting, donate into the One-day One-baht fund, or help others in community, I feel very happy that I have opportunity to contribute to others and my community. I don’t need any rewards, I just want to do good things for my community” (An elderly member of the Goodness Bank, interview, September 11th, 2015)

Opportunities for connecting the isolated elderly to the rest of the community: According to the “Tan Tod” activity, the isolated elderly people need to feel connected to the community. Home visits by core community leaders provide not only social support but also spiritual support. These visits produce meaningful interaction between the community and the otherwise isolated elderly. Buddhist monks act as important spiritual leaders, community leaders are representatives of the community, and schoolteachers represent people of high social status in the community. Therefore, home visits by those people demonstrate caring for the isolated elderly. Moreover, it emphasizes the community’s realization of the elderly as valued community members. The ties of social connectedness between the community and the isolated elderly is further developed and woven.

Opportunities for integrating the younger generations: For example, the “Little Doctors” activity illustrates the social connectedness between the isolated elderly and the youth. “Little Doctors” are not only acting as representatives of the community at present, but will be growing into those roles as they become adults of working age who have the power to determine and influence the ways in which the community develops in the future. When positive attitudes towards the elderly are learned and constructed through the “Little Doctors” activity, those health care workers will grow with warm feelings towards the elderly. In other words, the “Little Doctors” activity is a socialization process of elderly care and respect for younger generations that will lead to elder friendliness preparation for the future.

“In the past, I don’t like my grandma because she was grumbling. So I wanted to stay far away from her. But when I have participated in Little Doctors activity and experienced as Little Doctor, my mind has already changed. When I did home visit and took after the target elderly, it seems to be a good lesson to learn and understand the elderly. Some of them were living alone, some were being with illness. I really sympathized and understood their feeling. They need love and caring. So when I went back to my house I provided Thai massage to my grandma. Firstly, she was surprised but finally we love to spend time together. And now I love my grandmom so much.” (Junior high school student “Little Doctor,” interview, September 20th, 2015)

Opportunity for contribution: The opportunity to contribute to the community and society is vital for the dignity of the elderly, because it empowers the elderly to be “givers” and not only “receivers.” For example, one of the elderly ladies in the community, named Grandma Suk, is very poor. However, she is actively involved in contributing to the “One day, One-baht” community welfare fund, which has important aims of helping disadvantaged people and supporting scholarships for children in Hua-Ngum sub-district. Moreover, elderly people have opportunities to contribute to the community as cultural experts and volunteers in community affairs, e.g. teaching students about traditional arts and crafts, folk songs and music, and other local wisdom. Furthermore, it is elderly students who participate and drive the School for the Elderly. Their participation and cooperation are necessary for the achievements of the School. In the beginning of 2015, the school was rewarded for the excellence of the project on the development of quality of life for older people. Consequently, the SAO received a four million baht award (approximately 18 percent of the yearly budget the SAO receives from the government). Not surprisingly, the elderly students were extremely proud of their participation.

“I’m very glad that our School won the prize and got 4 million baht. This shows obviously the importance of the elderly’s role in the community. I’m so happy to be part of the School”
(An elder student, interview, October 5th, 2015)

Opportunities for being valued and respected: The establishment of opportunities to be valued and respected seems to be the ultimate result that affects the previous opportunities. For example, goodness points recorded in each elderly person’s passbook give them a feeling of happiness and pride. The points imply the worthiness of the older people. Furthermore, in 2015, at the learning center of the School for the Elderly, where several communities and organizations across the nation came to visit and learn, there were 59 groups with 2,734 visitors who visited and learned at the School. Thus, the elderly students are very proud of their school and themselves because they are part of a famously beneficial school for the elderly in Thailand. Their reputation and the acknowledgement of the school for the elderly in Hua-Ngum sub-district encourages local people to realize the power and value of the elderly as people who can play a significant role in community development.

Key Principles and Strategies for Creating the Hua-Ngum Age-friendly Community

Lessons learned from Hua-Ngum’s experience reveal key principles and strategies to develop a community of friendliness and inclusion towards elderly people. The overview of the process of building an age-friendly community is based on three principles, as follows.

1. The SAO and its partners view the elderly as an important actor in community development. This positive perspective towards the elderly promotes their pride and human dignity, and moreover, implies respect on the elderly as contributors rather than as a burden.
2. Emphasis is placed on the social capital provided by the elderly. The community does not put an emphasis on wealth or a large budget to design and carry out projects, but instead mainly asks for voluntary actions from villagers, which is considered a mechanism to prompt participation.
3. The elderly value the sense of belonging. The activities for the elderly are not solely the responsibility of the SAO, who inevitably face budget and staff constraints, but also each stakeholder of the sub-district who can play a constructive role. Working closely with one another leads to a sense of belonging for the villagers, as well as awareness of the importance of the elderly in the society.

These principles are the basis for the process to establish every activity and project. Hua-Ngum’s experience, moreover, reveals key strategies that contain four important phases to develop age-friendliness within communities. Those community strategies are not linear steps; in contrast, they are dynamic processes that need to be steadily developed.

1) The 1st Phase and Strategy for Raising Awareness to Build Consensus

This phase is considered to be the ‘starting point’ of the whole process. The strategy for raising awareness to build consensus is mainly aimed at raising awareness among villagers to comprehend the elderly’s issues. This is the central part for building a sense of belonging and commitment to deal with problems. In this regard, Hua-Ngom SAO and its partners have implemented the following important activities:

- To conduct the learning process through sharing relevant data, such as that which the SAO presents on the aging society situation (e.g. percentage of the elderly in the population, services for the elderly, problems and needs of the elderly, etc.). The Tambon Health Promoting Hospital (THPH) mainly exchanges the data related to the health status of the elderly.
- To set up a platform where the core community leaders from related units can gather and exchange information among themselves. Such core leaders, namely “the first-row community leaders,” include Buddhist monks, the administrator of the SAO, schoolteachers, and the Director of the THPH.

- To extend and relay the ideas and results of the meeting to “the second-row community leaders,” such as the village leaders, the members of the SAO council, community health volunteers, etc. In the sub-district, the monthly meetings at the sub-district level are conducted on the 7th of every month, with approximately 90-100 members attending. The SAO acts as the meeting moderator and chair. Such meetings benefit the local community as a public forum in order to promote the learning process and exchange relevant information.

2) The 2nd Phase and Strategy for Strengthening Partnerships and Networks

This strategy emphasizes the significance of “partnership” to develop an age-friendly community. The Hua-Ngum SAO, as facilitator, realizes heavily that an age-friendly community cannot be developed and maintained by a single actor. According to this strategy, several activities are conducted, as follows:

- To establish a “Sub-district Board Committee” as a main instrument to drive the process of an age-friendly community. The committee is composed of Phrakhoo Sujin Kunlayanatham (a Buddhist monk and spiritual leader), the Chief Executive of the SAO and two of its Chief Executive Deputies, three SAO consultants, three Schools’ headmasters, a schoolteacher from Phadang Wittaya School, Sub-district village leaders, and the Director of the THPH.
- To extend the ideas and communicate with villagers through each community meeting of the 13 villages.
- To utilize the monthly meeting at the sub-district level as a platform to listen to resident’s voices, discuss the working process and any problems, and give feedback to the residents.

3) The 3rd Phase and Strategy for Implementation

As strategic implementation, it is the process that turns strategies and plans into actions through activities and projects.

- To plan and launch activities by developing “social innovation,” or initiatives to meet the needs of the elderly. The innovation must be compatible with existing social capital. In this regard, Hua-Ngom sub-district has created social innovations for the aged, as follows: “Tan Tod” social assistance for the elderly with difficulties, One-day One-baht community welfare fund, “Little Doctors,” and the School for the Elderly.
- To integrate those aged-related activities (social innovations) with the Goodness Bank. In the sub-district, the Goodness Bank is established as a key community development mechanism, which is carried out under merit system, according to Buddhist ideology. In other words, each activity conducted can gain points from the Goodness Bank system. For instance, 15 points are granted when an elderly person attends activities of the School for the Elderly, 1 point is granted when 5 Baht is donated to the community welfare fund, and 15 points are granted when the “Little Doctors” take care of elderly, bed-ridden patients.

4) The 4th Phase and Strategy for Creating Social Space and Public Acceptance

This phase is mainly focused on extending the life experience of the elderly towards the society. Strategies for creating social space and public acceptance include showcasing lessons learned and sharing experiences with others from the community level to the national level. This process is significant in that it empowers the elderly with pride and dignity from their efforts and commitment, which renders the process sustainable and self-maintaining.

- To build good relationships with the media by providing the utmost assistance to the media. The media publicizes the work of Hua-Ngum – the Goodness Bank, the School for the Elderly, and the Little Doctors program via their outlets, (e.g. TV channels, printed-version newspapers, online newspapers, YouTube channels, and radio stations).
- To provide study visits for other organizations across the country. For instance, in 2015, there were 59 groups (2,734 visitors) that made study visits to the School for the Elderly.

- To be support other communities, Hua-Ngum sub-district has provided assistance and suggestions to those interested in applying the concepts to their communities, such as being a monitor for establishing a School for the Elderly in Weang Sub-district, Phang, Chiang Mai province and in Chiang Khong, Chiang Rai province.
- To attend national contests to officially attain the recognition from other organizations. In 2009, for example, the Hua-Ngum SAO won a two million baht award for the “Local Government with Good Governance Prize,” distributed by the Office of Decentralization to the Local Government Organization Committee. In receiving such a prize, the Goodness Bank is presented to the Committee as a way to encourage and achieve participation by local residents. In 2015, the School for the Elderly won a four million baht award for the same prize, this time focusing on “the development of quality of life of older people.” Winning the prize not only contributes additional money for community development, but also leads to greater acceptance from local residents in particular and society in general. Prizes won from legitimate organizations are significant social symbols that lead to other needed resources, such as budgets, cooperation, and participation.

DISCUSSIONS

When considering the difference between the urban and rural communities, the study reveals the features of the age-friendly rural community, which differs from the age-friendly city community. According to the World Health Organization's age-friendly city concept (WHO, 2007), there are 8 domains that imply the features of such a city, especially the physical aspects, such as outdoor space, transportation, and buildings indicated to the urban context. In a rural context, the age-friendly community focuses on an “age-friendly social environment” due to limitations of the budget. However, it seems to be the key fundamental feature of age-friendly communities, both in rural and urban areas. Without a friendly social environment, meaning a lack of respect towards the elderly or few opportunities for social participation among older people, suitable buildings have little meaning towards the human dignity of elderly people.

The results of the study reveal that the development of an age-friendly community leads us to shift the paradigm view towards the elderly. The concept views the elders as significant contributors to society and their communities, rather than as passive, dependent recipients of benefits and services (Austin, et al., 2009). This marks a shift in the discourse about population aging from viewing aging as a problem towards the viewpoint that considers older people as those who can flourish (Eales, et al., 2008:109). Moreover, the age-friendly community regards older people as productive and contributing members of society, as opposed to the negative perspective, which sees elders as passive and powerless older people (Alley, et al., 2007; Lui, et al., 2009). The case of Grandma Suk and the elderly, who are members of the Goodness Bank, implies the action as contributors or givers, even though they are elderly faced with certain difficulties, such as poverty, while the case of the elderly student at the School for the Elderly who learned to write her name first time later in her life shows the flourishing of the elderly.

The development of the age-friendly community is one model of the community development process, especially in rural areas, because the process is based on the social capital of the local community and on the social participation of local residents who endeavor to achieve a sense of belonging among all members of the community. The result of the features of age-friendliness based on Hua-Ngum’s experience reveals that not only the elderly benefit from the process to establish an age-friendly community in the sub-district, but that other ages also benefit from such a process. For instance, the elderly can assist the community in receiving additional funding for community development projects, encourage younger residents to participate in community affairs, and establish a volunteering spirit among residents. Building a good relationship between the younger generation and the elderly is important in establishing a friendly community for both; they can learn from each other. Therefore, the friendly community is a good place for all, not only the elderly.

CONCLUSION

The age-friendly community based on Hua-Ngum's experiences implies 6 opportunities considered as the feature of age-friendly communities in a rural area, including; opportunities for learning; participating; connecting the isolated elderly to the rest of the community; integrating the younger generations; contributing; and being valued and respected. Furthermore, there are 4 key phases and strategies that have established the age-friendly community in Hua-Ngum: the 1st phase is considered to be the 'starting point' of the whole process. The strategy for raising awareness to build consensus is mainly aimed at raising awareness among villagers to comprehend the elderly's issues; the 2nd phase is mainly focused on the significance of "partnership" to develop an age-friendly community; the 3rd phase and strategy for implementation emphasizes developing "social innovation" or initiatives to meet the elderly's needs; and finally, the 4th phase is focused on bringing the knowledge of the elderly to the community, using strategies for creating social space and public acceptance, in sharing experiences with the community. The age-friendly community established in Hua-Ngum sub-district indicates that the age-friendly community concept has the potential to be a model for sustainable rural development.

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AN APPLIED APPROACH TO THE NOTIONS OF BRANDING THROUGH HERBAL PRODUCTS AND HERBAL MEDICINE PRODUCTION IN ACHIEVING RURAL DEVELOPMENT

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ABSTRACT

The term “phytotherapy” means treatment through medical herbs and was first used in literature by a French doctor called Henri Leclerc (1870-1955) and it has become a subject of a growing sector in science and economy since then. It is estimated that the transaction volume of the medical herbs market is about \$ 60 billion annually (Kumar, 2009). The demand for herbal products is increasing day by day and these products are nowadays associated with the terms such as “Green Wave”, “Green Revolution”, and “Return to Nature”. World Health Organisation (WHO) has stated that they are working on treating health problems of 4 billion people through herbal medicine at first step and this ratio corresponds to about 80 % of the world population. Mukerji (1997), has stated that between 35.000 to 70.000 out of 250.000 herbs which are known for their healing features are used for medical purposes. 25 % of the prescribed medicine in developed countries consists of herbal-based active ingredients (vimbilastine, reserpine, quinine, aspirin etc.), (Farnsworth et al., 1985). Many herbal medicine and products (including the ones used in cosmetics, soap, perfume, etc., tea and derivatives) are being used in several fields and contributing economically to the region (mostly collected from rural areas) they are raised in. However, have all these rural areas been able to develop with regard to branding through these herbal products they sell? Can becoming a brand in herbal products market create any difference among regions? Keeping in mind that we all know that a well-known brand can sell its products for the highest price when copared to its equivalents within the market, have these rural areas been able to generate a market for herbal products? In this study, in order to enlighten these questions and to develop strategies for branding in herbal medicine sector; we worked with 500 people in Aydın province, who have completely answered the survey which is designed for determining the knowledge level of the people about the regions which these herbs are collected from and the level of using these products.

Key words: Rural Development, Herbal Product, Branding.

HERBAL PRODUCTS – MEDICATION AND ITS STATUS IN THE WORLD

For centuries mankind has looked for recovery in nature and did not stop using medical plants due to many experiments, despite big developments in medicine. Especially the side effects that some synthetic and chemical ingredients in medicine can cause has resulted in a higher usage of medical plants. (Dagmar, 2002), (Bayramoğlu, Toksoy, Şen, 2009). The ability of plants to kill microorganisms and the important effects to the health are being researched since 1926 in laboratories. It is proven, that about 30% of the active components in todays medicine is based on medical herbs. Plants, that contain components that help treat illness and diseases or prevent those are called medical plants. Popularly referred to as curative plants, not all of them are proven to have a medical value (Faydaoğlu, Sürücüoğlu, 2011). From the 250.000 known species of plants roughly 35.000 - 70.000 are being used in medicine. About 80% of the

population in developing countries are still using medical plants traditionally (Mukerji, 1997). In China, traditional medicine represents roughly 40% of all health services, 71% of the population of Chile and 40% of the population in Colombia. In the rural areas of India 65% of the population are using traditional treatment to cover their need for basic health services (Faydaoğlu, Sürücüoğlu, 2011). The overall usage of medical plants has opened a big market in the world. Some countries have not be underestimated revenues through the trade of medical plants. The market for herbal medicines in the USA in 1980 was 8 billion dollar. It rocketed to 18 billion in 1985. In Japan, the sales of prescription herbal medicine in 1983 were 2.6 billion dollar. This amounts to 15 - 20% of all prescription herbal medicine sales. The same rate also represents 25% on the prescriptive drugs market in the US whereas in Germany its 35-40% (Başer, 1990).

According to the data from the United Nations Conference on Trade and Development, the annual worth of medical herb drug commerce is 800.000.000 dollar. Chart one shows the 12 countries with the highest export of medical plants. In this List with 110 countries which export medical plants Turkey is listed 18th. In East and Southeast Europe Turkey is 5th in export and 8th in import (Dagmar, 2002), (Bayramoğlu, Toksoy, Şen, 2009). In 2011, Turkey exported 68 thousand tonnes and imported 148 thousand tonnes or imported \$186.000.000 and exported \$277.000.000 worth of drugs. Although Turkey is one of the most important countries in terms of medical and aromatic plants, the export rate and value could not be raised to desired levels. (Yücer, 2012)

Table 1. 12 Countries with the Highest Export Rates

Countries	Amount (Tonne)	Dollar (1000\$)
China	139750	298650
India	36750	57400
Germany	15050	72400
ABD	11950	114450
Chile	11850	29100
Egypt	11350	13700
Singapore	11250	59850
Mexico	10600	10050
Bulgaria	10150	14850
Pakistan	8100	5300
Albenia	7350	14050
Morocco	7250	13200
Total	281550	643200

Herbal Products - Medication and its Status in Turkey

Thousands of years ago mankind got to know the curing powers of plants and made use of it to live healthy. In Anatolia, an area where folk medicine practices are widespread, folk medicines are the results of long experience and practice. Many drugs in modern medicine are obtained through plants (Faydaoğlu, Sürücüoğlu, 2011). Thanks to its geological position, its climate and diversity, as well as its agricultural potential and wide area Turkey is one of the big countries in the trade of medical and aromatic plants (Bayram and Ark, 2010). The importance of Turkey: Plants in the Turkish flora supply most of the products needed for herbal medicine, plant chemicals, food additives and in the cosmetic and perfume industry (Bayram and Yd., 2010). According to domestic institutions the average amount of exported medical plants in Turkey during 1999-2003 is 44.390 tons while the incoming currency is 60.434.000 dollars (Chart 2). The average exported amount of medical and aromatic plants during these 5 years is 33.000 and 52.000 tons. (Özgüven and Ark., 2005).

Table 2. Values of Medical and Aromatic Plant Exports in Turkey

Name	1999		2000		2001		2002		2003		Average	
	Amount (Tonne)	Price 1000\$	Amount (Tonne)	Price 1000\$	Amount (Tonne)	Price 1000\$	Amount (Tonne)	Price 1000\$	Amount (Tonne)	Price 1000\$	Amount (Tonne)	Price 1000\$
Cumin	7.28	9.22	6.66	12.67	5.67	12.56	23.83	24.84	14.31	13.36	11.55	14.54
Thyme	7.64	16.56	7.39	15.37	8.46	15.48	8.33	13.44	8.79	14.07	8.12	14.99
Carob	-	-	4.16	2.69	4.94	2.87	7.23	1.97	4.44	2.73	5.19	2.56
Capers	4.87	8.50	5.81	10.46	4.79	12.02	-	-	-	-	5.16	6.20
Laurel	3.78	7.25	4.42	7.96	4.61	7.83	4.90	7.74	5.10	8.23	4.56	7.80
Anis	3.07	7.10	3.81	6.38	4.11	6.28	2.967	4.99	3.32	5.12	3.46	5.98
Fennel-Juniper	2.06	1.81	1.77	1.54	1.97	1.51	1.74	1.23	1.83	1.67	1.87	1.55
Sage	1.12	2.36	1.25	2.77	1.20	2.59	-	-	-	-	1.19	2.57
Fenugreek	425	210	489	228	465	228	984	338	935	410	660	282
Liquorice	1.130	760	266	308	357	312	654	372	514	425	584	436
Other Spices	1.048	1.274	744	1.122	-	-	164	275	203	511	540	795
Rosemary	356	481	333	553	265	383	345	552	340	647	328	523
Sumac	212	158	159	166	367	236	818	589	958	751	503	380
Mixed Spices	175	338	154	326	116	244	244	563	369	1.015	212	497
Mahaleb	123	562	127	504	210	690	73	507	107	1.141	128	681
Linden	126	588	80	296	126	349	167	458	-	-	125	423
Black Cumin	-	-	-	-	160	244	102	142	112	149	125	178
Coriander	39	30	74	41	65	34	41	18	68	42	57	33
Mint	-	-	11	10	29	28	-	-	-	-	20	19
Pelin	1	1	3	11	10	13	-	-	-	-	4	8
Safran	0.100	0.200	0.025	0.027	1.603	1.602	0.256	1.482	0.658	6.464	0.528	1.955
Hops	0.000	0.000	0.100	0.377	0.070	0.085	-	-	-	-	0.085	0.231
Total	33.45	57.19	37.71	63.40	37.92	63.90	52.59	58.03	41.39	50.31	44.39	60.43

BRAND

To be a brand means to be different from competitors, to be preferred over competitors by the target audience, to gain a higher perception value (Ailawadi and Keller, 2004: 334) and to be chosen overall. The consumer hopes to gain prestige by using brands (Vigneron and Johnson, 1999; Rio vd. 2001: 412), and for that, a place that is positive and incentive in the mind of people has to be chosen for positioning

(İlginer, 2006: 117-118). But a brand is a treasure and may lose its value over time. That is why it needs to be renewed. The target audience has to be reached in different and unusual ways. The message to the target audience has to emphasize on their value. This will provide a better branding. It is important to be a brand, since that will help overcome crisis or give an advantage in pondering moments in the sector (Aksungur and Kastel 2007: 10). As an important part of becoming a brand, the brand image should be seen as a lifecycle and result of a brand. (Bivainiene, 2010; 413). The image of a brand consists of all feelings and thoughts that arise in consumers (Yükselen and Güler, 2009: 22). When looked at the underlying factors that make people prefer a product, it makes sense to reduce the risk to make choices easier; in that case it can be said that a destination with an open and impressive brand image will raise the demand. (Özdemir, 2008: 125).

The role of the image of the destination that tourist choose has been the topic of many studies (Lubbe, 1998 21). The information that tourists get before visiting a destination usually is being supported with the mental image of the destination. In many cases, a tourist chooses the destination after the image (feelings and thoughts) rather than facts (Tapachai and Waryszak, 2000: 37) and the choosing procedure depends on the image of the destination (Chen and Kerstetter, 1999: 256). Having an attractive image plays an important role in terms of having more touristic customers in a city. During the choosing process, the level of objective knowledge, impressions and prejudices, hopes, feelings and thoughts are determinants of the image. Although tourism is an important income for the economy of a country, it is more important for people of rural areas that these areas are branded and won for tourism, since brand destinations are a guaranty of quality. To be a branded city means to get chosen over similar cities and have a stronger economy.

Benefits of Branding a City

Along with the rapid development in the tourism sector, differentiation occurs among tourism products and destinations. As a result, the need for different and new types of attention -grabbing tourism is increasing with each passing day (Lordkipanidze, Brezet and Backman, 2005:788). Every city: come to invest in me, come to me visitors, come to me settlers, but why should they come to your town asks İlginer. The answer is in the hands of the city, as they have four opportunities, which are cultural heritage, nature, the unique output and their built-in abilities. Cities with those features have the potential to be branded. A simple brand-story may have a major impact on a persons decision on which city to visit, on their likeliness of buying products and services and doing business or even settlement. Paris represents love, Milan fashion, New York energy, Washington power, Tokyo modernity, Barcelona culture and Rio entertainment. These concepts have become the trademarks of those cities (Anholt, 2006: 18) It may not be easy in a developing country for a rural area to become a branded destination, since they may not have a brand-story, but if a feature not found in others can be branded, for example a differentiation by having herbal products, it will have a permanent positive impact on the economy with repeated sales and it will be branded.

The idea of branding a country as a whole is not realistic. However, brining the features of destinations to the forefront and branding it as a single product and making it a center of attraction for the region will be an achievable target. Improvements occurring in the worlds tourism has reduced reduced the branding phenomenon from a country dimension to a destination dimension and has offered many possibilities for destinations to be branded. Examples in Turkey are Şirince and Beypazarı. Chart 3 shows the Tourism Income, the Expenditure and the average number of nights from 2001 to 2016. Chart 4 shows the number of trips, overnight stays and expenditures of domestic visitors from 2009 to 2015.

Chart 3. Tourism Income, Expenditure and Average Number of Nights, 2001-2016

		Total				Foreigners				Citizens			
Yıl Year	Annual- Quarter	Tourism income (000 \$)	Number departing visitors	Average expenses of per capita (\$)	Average number of overnights	Turizm geliri Tourism income (000 \$)	Number of foreign visitors foreigners resident abroad	Average expenses per capita (\$)	Average number of overnights	Tourism income (000 \$)	Number of citizen visitors resident abroad	Average expenses per capita (\$)	Average number of overnights
2001	Annual	10 450 728	13 450 127	777	-	7 386 246	11276 531	655	-	2680 909	2173596	1 233	-
2002	Annual	12 420 519	15 214 514	816	-	9 235 506	12 921 982	715	-	2891 248	2292532	1 261	-
2003	Annual	13 854 868	16 302 053	850	11,1	10 141 116	13701 419	740	8,5	3600 411	2600634	1 384	23,8
2004	Annual	17 076 609	20 262 640	843	10,7	13 061 118	17202 996	759	8,2	3862 552	3059644	1 262	24,1
2005	Annual	20 322 111	24 124 501	842	10,4	15 725 813	20522 621	766	7,9	4374 383	3601880	1 214	23,9
2006	Annual	18 593 950	23 148 669	803	12,0	13 918 757	19275 948	722	9,4	4463 614	3872721	1 153	24,4
2007	Annual	20 942 501	27 214 988	770	11,3	15936 347	23017 081	692	8,8	4703 850	4197907	1 121	24,1
2008	Annual	25 415 067	30 979 979	820	11,0	19612 296	26431 124	742	8,8	5418 439	4548855	1 191	22,7
2009	Annual	25 064 481	32 006 149	783	11,2	19063 702	27347 977	697	8,9	5690 629	4658172	1 222	23,9
2010	Annual	24 930 996	33 027 943	755	10,8	19110 003	28510 852	670	8,7	5558 366	4517091	1 231	22,9
2011	Annual	28 115 694	36 151 328	778	11,0	22222 454	31324 528	709	9,1	5638 484	4826800	1 168	22,4
2012	Annual	29 007 003	36 463 921	795	10,8	22410 365	31342 464	715	9,0	6354 379	5121457	1 241	21,4
2013	Annual	32 308 991	39 226 226	824	10,2	25322 291	33827 474	749	8,6	6760 180	5398752	1 252	19,7
2014	Annual	34 305 904	41 415 070	828	10,0	27778026	35850 286	775	8,6	6289 260	5564784	1 130	18,5

2015	I	4 807 836	5 065 759	949	11,3	3632 382	4140 524	877	9,9	1137 621	925235	1 230	17,7
	II	8 975 976	10 967 100	818	8,8	7534 385	9926 316	759	8,0	1379 104	1040784	1 325	15,5
	III	12 854 373	17 084 013	752	9,2	10438 971	14664 611	712	8,0	2328 819	2419402	963	15,8
	IV	7 667 719	8 298 198	924	12,4	6172 289	7 118 835	867	9,8	1443 716	1179363	1 224	27,1
	Annual	31 464 777	41 617 530	756	10,1	25438 923	35592 160	715	8,7	5843 074	6025370	970	17,5
2016	I	4 868 890	5 344 575	911	10,9	3814 817	4314 332	884	9,8	1024 308	1030243	994	15,5
	II	7 733 677	10 751 351	719	8,4	6662 826	9637 458	691	7,8	1025 871	1113893	921	13,1
	III	12 294 189	17 408 994	706	9,7	9893 997	14761 540	670	8,5	2333 483	2647454	881	16,4
	IV	6 568 022	8 112 611	810	12,4	5067 284	6878 830	737	9,9	1459 412	1233781	1 183	25,8
	Annual												
	I	4 066 384	5 107 553	796	11,9	2880 256	4014 546	717	10,7	1157 915	1093 07	1 059	16,0

Source: TurkStat Departing Visitors and Arriving Citizens Surveys

Chart 4. Number Of Trips, Overnights And Expenditures Of Domestic Visitors, 2009-2015

Years	Number of trips (Thousand)	Number of overnight stays (Thousand)	Average number of overnight stays	Expenditures of trip (Thousand TL)	Average expenditures of trips (TL)
2009	60 888	510 961	8,4	12 216 339	201
2010	68 373	555 145	8,1	13 843 504	202
2011	65 854	558 270	8,5	15 641 262	238
2012	64 922	556 803	8,6	16 725 035	258
2013	68 452	557 459	8,1	18 416 817	269
2014	70 894	575 871	8,1	22 601 201	319
2015	71 251	588 786	8,3	24 409 560	343

Source: TurkStat Household Domestic Tourism Survey

The Purpose and Coverage of This Study

In this study, the usage levels of herbal products of individuals and the areas in which those products are gathered in the province of Aydin have been tried to determine. Around 1000 surveys were held, of which 500 were returned completely and without problems.

METHODOLOGY

We first created a conceptual framework for our research by a literature survey. After that, by collecting the data an application section was established. As the data collection method a face-to-face survey was chosen. The questionnaire consists of three sections. In the first part, the demographic characteristics of the participants were gathered. In the second part, information on their herbal drug use was collected and in the last part their knowledge on and their attitude towards the area where the herbs grew were measured. The surveys used the likert-scale (1 = absolutely agree, 5 = absolutely disagree), which is commonly used in research based on quantitative data. The data gained by the survey were analyzed using SPSS statistical software.

Report and Evaluation of Study Results

In the first part of the survey, the questions were prepared to determine demographic characteristics. The information of the gender, age, level of education, income, occupation and residence of the participants was collected, and in the second part, if they ever used herbal medicine to this day, whom they got help from on this topic, their preferred brands, what comes to their mind when asked about herbal medicine and how they use herbal drugs. In the last part of the survey the participants were asked about the price of the medicine, the overall area of usage of the herb, their preference of local or foreign medicine, if they would like it or not if an area would be branded with medical plants, their level of trust and what they think about whether there is enough control or not and similar questions. The answers given to the questionnaire were analyzed using descriptive statistics (frequency, percentage, pairwise comparisons, etc.) and summarized in the chart below.

As one can see in Chart 5, 0.51 of the participants were female and 0.48,8 male, the percentage of high school and university students is 92.2, the age majority is between 26-31 and 41-50, 0.62 of the participants reside in the county, the income is around 2001 to 4000 TL for 0.836 of the participants and most of the participants were teachers/academicians or officials with a rate of 0.382. Herbal medicine was provided by herbalists for 44.6% of the participants, by the bazaars for 37.2% and by pharmacies for 16.4%. Herbal medicine is used for asthma and bronchitis for 41%, cosmetics for 19% and internal organs for 16.8%. When asked what comes to their mind when they hear herbal medicine, 70.8% answered Dried/Fresh/Powder, 29.2% answered the processed form Tablets/Syrup/Capsules. All of the participants

have used herbal medicine at least once in their life. 27.6% were advised by their friends and family, 18.2% by herbalists and 15,6% by pharmacists. When asked about whether herbal medicine is artificial or natural, 83.4% answered with natural. 71.6% of the participants have no preferred brand for herbal medicine.

Table 5. Demographic and Behavioral Results

Gender	Frequency	%	Age	Frequency	%
Male	256	51.2	14 and under	9	1,8
Female	244	48.8	15-18	62	12,4
Monthly Income of the Family			19-25	8	1,6
Educational Level			26-31	129	25,8
ElementaryMiddle School	13	2,6	32-40	96	19,2
High School	192	38,4	41-50	115	23,0
University	269	53,8	51-60	67	13,4
Graduate	26	5,2	61 and over	14	2,8
Residence			Income		
Province Center	115	23,0	Minimum+1-2000	14	2,8
County Center	310	62,0	2001-3000	223	44,6
Town	61	12,2	3001-4000	195	39,0
Village	14	2,8	4001-5000	40	8,0
Occupation			5001 and more	28	5,6
Doctor-Engineer-Lawyer	70	14,0	Fields of Usage		
Merchant - Artisan	27	5,4	Cosmetics	95	19,0
Teacher-Academician	96	19,2	Skeletal System	71	14,2
Official-Officer	95	19,0	Weight	13	2,6
Worker	23	4,6	Oncological	32	6,4
Housewife	51	10,2	Internal Organs	84	16,8
Student	79	15,8	Asthma-Bronchitis	205	41,0
Pensioner	59	11,8	What comes to your mind when you think of herbal drugs		
Where do you buy herbal drugs			Dried-Fresh-Powder	354	70,8
Herbalist	223	44,6	Tablets-Syrup-Capsules	146	29,2
Pharmacy	82	16,4	Have you ever used herbal drugs		

Grocery Store	9	1,8	Yes	500	100
Bazaar	186	37,2	What comes to your mind when you think of herbal drugs		
Who promoted the usage of herbal drugs			Natural	417	83,4
Doctor	52	10,4	In the form of pills	83	16,6
Pharmacist	78	15,6	Do you have any preferred brands?		
Herbalist	91	18,2	Yes	59	11,8
Internet	33	6,6	No	358	71,6
Media	41	8,2	Partly-Sometimes	52	10,4
Friends-Family	138	27,6	Most products do not have brands	31	6,2
My choice	67	13,4			

Table 6. Knowledge about herbal medicine and attitudes

	Absolutely Yes	Yes	Neither	No	Absolutely No	Mean.	Median	Mode	Std. Dev
Is the price of the herbal medicine a factor for purchase?									
Frequency	26	150	0	308	16	3..2760	4.0	4.00	1.08544
%	5.2	30.0	0	61.6	3.2				
Do you know something about the area the medicine is produced?									
Frequency	103	272	0	125	0	2.2940	2.0	2.00	1.05915
%	20.6	54.4	0	25	0				
Would you like to buy the medicine seeing it in its place?									
Frequency	47	442	0	11	0	1,9500	2.0	2.00	.42410
%	9.4	88.4		2.2					
Would you like to continuously use herbal medicine?									
Frequency	34	457	0	9	0	1,9680	2.0	2.00	.37317
%	6.8	91.4	0	1.8	0				
Would you like to visit the area where herbal medicine is produced?									
Frequency	123	364	0	13	0	1.8060	2.0	2.00	.55946
%	24.6	72.8	0	2.6	0				
Would you trust the product more when the area was known for herbal medicine?									

Frequency	123	377	0	0	0	1.7540	2.0	2.00	.43111
%	24.6	75.4	0	0	0				
Are you more likely to buy the product if the area was known for herbal medicine?									
Frequency	105	380	0	15	0	1,8500	2.0	2.00	,55508
%	21.0	76.0	0	3.0	0				
Would you prefer the herbal medicine to be local?									
Frequency	227	229	0	40	4	1.7300	2.0	2.00	.88014
%	45.4	45.8	0	8.0	.8				
Would you use herbal medicine from a to you known area if the price was higher?									
Frequency	26	326	0	148	0	2,5400	2.0	2.00	.97278
%	5.2	65.2	0	29.6	0				
Do you think that herbal medicine is controlled adequately?									
Frequency	0	37	16	359	88	3.9960	4.0	4.00	.71063
%	0	7.4	3.2	71.8	17.6				
Would you like to know where the herbal medicine is produced?									
Frequency	45	446	0	9		1.9460	2.0	2.00	.39925
%	9.0	89.2	0	1.8					

The participants were asked 11 questions to determine their knowledge of and position towards herbal medicine. Briefly, the price of the herbal medicine is mostly no barrier for sales 64.8% (61.6+3.2, No + Absolutely No). In the same way most people don't think that there are not enough controls for herbal medicine (89.4%). 97.8% want to buy it in its natural form, 98.2% would continuously use herbal medicine and 97.4% want to visit the production area. The question, if the participants would trust the medicine more, if the area that the medicine is from, would be known for herbal products, was answered with, (YES or ABSOLUTELY YES) for a total of 100%. 97% of the participants claimed that they would be more likely to buy the product if the production area was known for said product and 91.2% claimed to prefer local products. 70.4% would continue to use the product if the price was higher. 89.4% think that there is not enough control in the herbal medicine sector, whereas 98.2% would like to know where the herbal medicine was produced.

Table 7. Income - Buying The Product Knowing Where It Is From- Pearson-Correlation Test

		Income	Buying the product after seeing the area of production
Income	Pearson (r)	1	0,833
	N	500	500
Importance given to the image	Pearson (r)	0,833	1
	N	500	500

There is a high relation of 83,3% between income and wanting to buy the product knowing its production area.

Table 8. Income - Buying the Product Knowing Where It Is From- Pearson-Correlation Test

		Income	Buying The Product After Seeing Area Of Production
Income	Pearson (R)	1	0.730
	N	500	500
Importance Given To The Image	Pearson (R)	0.730	1
	N	500	500

There is a high relation of 73% between income and the buying power of the area that brand-becoming medical plants facilliate.

Table 9. Natural-Pill / Profession- Crosstabulation

		Professions								
		Doctor-Engineer-Lawyer	Trades man	Teacher – Academician	Officer	Worker	House-Wife	Student	Pensioner	Total
Medical Plant Choice Of Use	Natural	70	8	88	80	23	51	42	55	417
	Pill / Drug	0	19	8	15	0	0	37	4	83
	Total	70	27	96	95	23	51	79	59	500

83,4% rate shows us no matter which profession, the natural form of product is preferred.

Table 10. Education / Wanting to Visit Area- Crosstabulation

		Visiting Area			Total
		Absolutely Yes	Yes	No	
Education	Primary - & Middle School	0	9	4	13
	Highschool	59	124	9	192
	University	64	205	0	269
	Graduate	0	26	0	26
	Total	123	364	13	500

No matter what the degree of education is, up to 97,4%, meaning almost every participant, would like to visit the area of production.

CONCLUSION AND RECOMMENDATIONS

Destinations will brand their cities, if they make use of the power of the tourism sector, by creating a city that people want to see, experience and be curious about. The important part for rural areas is to be able to show potential tourist the opportunities, differences and privileges of the city. Cities in Turkey, as well as all over the world, are in an effort to improve the economy by tourism revenues. Branding is a long-term procedure. In order for a city to become a brand, its history, culture, and differentiating features must be included in the branding strategy. If there is no clarity in the identity of the city, the branding will fail, so it is important to have a certainty in which feature or product should be used for branding. Can the branding of a countryside city, which would be a great development, be achieved, although it is a handicap for modern cities which have access to modern technology, equipment and qualified man?

The new generational guests on this everyday-aging world refuse to grow old, so they are try every way to hinder their aging. One of the most preferred solutions for this problem is nature, namely herbal medicinal products. Every single participant of the survey has claimed to have used herbal medicine at least once in their life, but have no knowledge about the harvesting and production area of it. But it is not the consumers fault, but the fault of the rural areas and suppliers who do not inform them. First of all, the residents of said rural areas have to develop their consciousness of being partners of living areas. The rural areas have to be structured without destroying the natural life and environment. Herbal products are not attractive to tourists between concrete buildings, but they are if they are part of a green, natural, organic atmospheric package which can be marketed.

The demand on medical plants is taking place despite high prices, degree of education, age, profession, residence and gender. But according to the survey, participants are not aware of the area of production of herbal products. The participants stated that the reason for this is that there is no given information about that topic but they want to be informed and if possible even visit the area concerned. This way, they stated, trust can be put in the products since its domestic and known where it comes from. What has to be done is that the herbal product/drug has to be marketed in a way proper to its own nature in an environment friendly concept. To take advantage of the already rich flora of Turkey, studies can be directed to branding rural areas with their local herbal products. Given the fact that Turkey is ready to support investors in their projects, the importance of this subject is shown.

To conclude, one can say, that the herbal drug market, which is a billion dollar profit source for countries, can be a great opportunity for the development of rural areas. Since herbal medicine is a natural product with a natural way of production and fits trends like the green wave movement and nature tourism as well as the desire to be the kind of person to have a long, healthy life without getting old and staying beautiful, its marketing is uncomplicated and easy. We think that with these features, it is not only possible, but also easy and the right thing to brand and develop the tourism of rural areas.

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SIGNIFICANCE OF TRADITIONAL HOUSES AS CULTURAL INHERITANCE SOURCES IN RURAL DEVELOPMENT: KARACASU DISTRICT CASE-ASSESSMENT STUDY

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ABSTRACT

Besides being a building that consists of places meeting human beings’ basic needs like shelter, protection, eating-drinking; a house is, concurrently, a reflection of the identity that is shaped in line with users’ socio-cultural values. Traditional Turkish Houses are the house types planned in accordance with lifestyles and morals of the Turkish family structure, and designed in a way catering for requirements of the Turkish people. Karacasu is a significant rural settlement that reflects the Turkish lifestyle and culture

Figure 1. Traditional Turkish Tent (Küçükerman, 1985)

In time, with additions of new elements from traces of history and in line with the needs, sedentary lifestyles began to emerge. The concept of Turkish Houses that have the rich diversity and are different in any geography emerged. In the emergence of this concept; religion, climate and geographical location, social life and traditions, materials, socio-economic elements were effective (Kuban, 1995). The house types that we call Historical Turkish Houses are the buildings that reflect Turkish culture and traditions. The houses which had generally two and sometimes 3-storeys, were constructed from wood frames and built in the regions where Turks lived densely on the Ottoman Empire soil and completed their lives as of 19th century. Traditional Turkish House is a house type that has its own original qualities and a 500-years of history, developed within the Ottoman soil (Eldem, 1995). Although various factors affected the creation of these house types, the main factor was Turkish art and culture. For the houses planned with this culture, floors were generally single-storey in the country, yards and in the free residential areas while they were double or three-storey in narrow and congested area in the city centre.

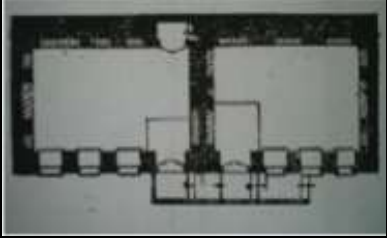
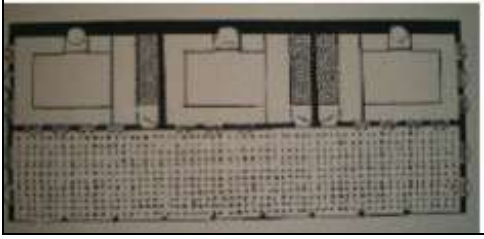
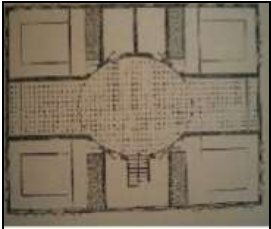
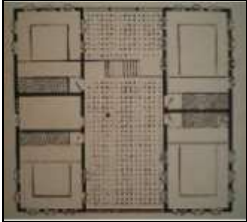
Living-floor was the top-storey in order to take benefit of the air, the sun and the view while the ground floor was rather used for forecourt (Hayat), job shop (Bağdamı), cellar (Mahzen), storehouse, hayloft and stable (Sözen, 2001). Rooms in the living-floor were organized based on the concept of living-all-together of family members in Turkish culture. In the rooms considered to be private for each family member, spaces gathering all functions together were sorted out. These rooms have all the equipment and accessories that can meet all needs of living like sitting, resting, cooking, dining, heating and sleeping. The rooms are generally square or rectangle close to a square (Eldem, 1987).



Figure 2. Interior Views of Traditional Turkish Houses

Plan type for the Traditional Turkish Houses is generally determined by the sofa. The sofa is a common area between the rooms. It is one of the most characteristic elements of the Turkish house. Sofas, as well as being a circulation area, are a sitting and gathering area. All doors of the rooms open to the sofa area (Eldem, 1987). Eldem was the first to determine the plan of the Turkish house and the organization of the sofa and rooms scientifically. According to Eldem's (1968) classification, sofa types are; plan type without the sofa, plan type with outer sofa, inner sofa types and central sofa types.

<p><i>Plan type without the sofa</i></p> <p>This type is accepted as the most primitive plan type of the Turkish House. Rooms have no relations to each other at all. It has a plan schema on which rooms are arranged side by side. The type is rather seen in the centre, the south and the east regions of the Anatolia.</p>	<p><i>Plan type with outer sofa</i></p> <p>This is the second plan type of the Turkish House. Common relation between rooms is provided by the sofa. Positioning of rooms is not symmetrical. This plan type was developed later in accordance with the needs and two narrow sides of the sofa were closed extending side walls. Space between the two rooms was opened and continued as an extension-like sofa, which was later called "iwan". This plan type continued until 19th century (Eldem, 1968).</p>
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 <p>Figure 3. Example of plan type without the sofa (Eldem, 1968)</p>	 <p>Figure 4. Example of plan type with outer sofa (Eldem, 1968)</p>
<p><i>Central sofa type</i></p> <p>This is the fourth phase of the planning type. Moving the sofa in the centre, house plans were transformed into a square or rectangles close to a square. Four rooms were placed in the four corners of the building, service places like stairs, iwan, hale, cellar and kitchen were placed in between the rooms.</p>  <p>Figure 6. Example of central sofa type (Eldem, 1968)</p>	<p><i>Inner sofa type</i></p> <p>Inner sofa type that emerged in the third phase of plan progress was acquired by surrounding both sides of the sofa with rooms.</p>  <p>Figure 5. Example of inner sofa type (Eldem, 1968)</p>

Houses that reflect a society's culture and lifestyle with their own original plan type and material features are of importance in terms of observing traces of history in the future.

Traditional Karacasu Houses

Although when permanent settlement lifestyle began in Karacasu, a very old settlement, can not exactly be known; from the historical remains around, it is estimated that its history dates back to 5-6 thousand years. The region that was in Caria borders before, first settlement is now known to date back late the Neolithic period, after a series of excavations. Karacasu was first under the sovereignty of Carians, Persians then Byzantium Empire. After the battle of Malazgirt in 1071, Karacasu was conquered by the Turks (Başaran, 2000). Karacasu, a small district for the time being, is known to have been the host of a glamorous city in the ancient time. It was home to numerous civilizations such as Romans, Byzantium, Seljuk and Ottomans. There exist quite a few historical artefacts belonging to those periods in the city that constituted its own culture, inspired from different civilizations. 111 immovable cultural properties are being protected. 2 of those are streets and 34 are historical houses. Karacasu containing this historical texture in itself, is also a live, high-potential cultural tourism destination of the region in terms of tourism with its tourism culture centre - Afrodiasias, traditional structures, agriculture and stockbreeding, highlands and cultural sources.

The city, one of the most important settlements of Ottoman city structure consists of two big residential areas called Karşıyaka and Çarşıyaka. The two sides are separated by the tanneries pit. First, Karşıyaka area was formed then, with the population increase, Çarşıyaka area was developed (Taşdoğan, 2006). Most of physical, social and religion units were located in Çarşıyaka side. Today, this area is the central location. Historical traditional houses on the each side are observed to have been created by

different construction techniques. Since the construction of the houses in Karşıyaka region was in former periods, both storeys of the traditional houses were stone material and outer façade was un-plastered. On the other hand, ground floors of the traditional houses in Çarşıyaka region were stone while the first floors were timber-framed, stone and soil embankment. Both house types have certain features. All the traditional houses that have been able to survive up to now since 19th century are in 1-2 acreage. There are yards around all the houses as the region is suitable for agriculture and stockbreeding. One façade of the house must face the yard. In two-storey houses, there is a sofa, the most typical feature of the Turkish house. Sofas in plan type with outer sofa were placed in I, L and U shapes (Bektaş, 2008).

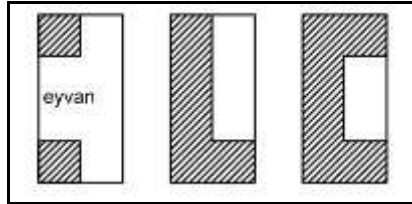


Figure 7. Plan types with I and L shape side sofa and U shape (Bektaş, 2008)

When indoor designs of the houses are observed, spaces like storage, stable etc. on the ground floor of two-storey houses were construed. Upper floors on the other hand were allocated for living areas. A timber stairway is attached to the upper level from the bottom. Via the stairway, passing to residential space is possible. All rooms open to this space. All the rooms are sorted out to enable all family members to live all together. One side of the wall is for closets. There are cups, woodshed and bathing cubicle specially designed in the cabinets on the other side.

Significance of Traditional Karacasu Houses in Rural Development

In the city, there are many traditional houses that have been able to survive so far since the Ottoman period. Some of those are under protection. All the traditional houses in the city are left idle and on the verge of destruction. Some of them were destroyed by incineration while some succumbed to time because of no reinforcement performed. It is a great occasion that the region, in term of the location, harbours an ancient city such as Afrodisyas. Afrodisyas is visited by average 180 thousand tourists every year (Özdemir et. al., 2015). In order to attract tourists to Afrodisya, re-functioning the houses or reinforcing the traditional houses would be a good idea in terms of reflecting architectural features of Karacasu houses to tourists. By re-functioning or using the buildings; social, cultural and economic gains could be ensured. In the study by Özdemir (2009) named “Tourism Entrepreneurship in Karacasu”, a survey including 748 local people was conducted.

According to the results of this survey; it was concluded that the most important reason why tourism can not be developed in the district is the lack of commercial places that can offer the goods and service quality sought by the tourists. For the question what can be done to develop tourism in the district, the answer of building small hotels took the place (Özdemir, 2009). As we can infer from the study carried out, local residents think that the most important deprivation in terms of tourism development in the district is the lack of accommodation for tourists and places commercializing traditional products. By re-functioning and re-construction of the traditional houses, which are many, the answer to the question what kind of functioning would be suitable for the buildings may be inferred in line with necessary analyses. Along with these analyses; a cultural house, outlets for traditional products, boutique hotels and living museums can be built in the city. An attractive city can be created for more tourist visits. There are many cities constructed that way in Turkey and the world. Taking example of these cities, Karacasu can be re-constructed and can reach its magnificence just like it had in the Ottoman period. Therefore, re-animalization of the traditional houses will provide more tourist visits. Economic and cultural gains can be ensured for the rural city.

CONCLUSION

As a result, it is an urgent requirement to carry out a project regarding re-animalization of the traditional Karacasu houses with the government's support. A history is being destroyed day by day. Instead of traditional buildings that are lost, poor settlements that deteriorate the texture of the unqualified city have surrounded the city. Re-animation and re-gaining of these houses that barely endure the life conditions are our social responsibility. Otherwise, a history that witnessed an era, will be demolished even before transferring itself to the future generations.

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RURAL SERVICE CENTER INFLUENCE IN FACILITIES INFRASTRUCTURE AT MALAYSIA SPECIAL TOURISM ZONE

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ABSTRACT

The role of rural service centers currently is very important in rural areas as the focal point for economic activities, agricultural output hub and facilities center. However, the effect of rural service center on activity surrounding areas including infrastructure and services are interesting to study. Rural service center nowadays should give positive impact to the surrounding economic activities. Therefore, the effect of the some rural service centers in the National Tourism Special Zone (through the National Physical Plan 2) are selected to studies. Among the rural service centers that influence the surrounding activities such as commercial, service, communication and tourism activities. Field observation techniques and estimations methods using index score were conducted to obtain detailed information about the rural service center influence. The effect of rural service centers should be exploited maximum in order to boost the local economy and surrounding then service center should be the core for the development of rural areas in Malaysia.

Key words: Influence of Service Centre, Commercial, communication and tourism activities influence, Rural economic development

INTRODUCTION

Rural service center is perceived to play a positive role in such network by offering more service supply points with a variety of services, agricultural inputs and consumer goods to the rural area (Tacoli, 1998). The basic facilities and infrastructure should be adequately provided to enhance rural economic growth and creating job opportunities, especially in backward area. Some rural and service centres with resource potential are experiencing rapid change in economic activities including those with tourism attractions. Development of tourism products and facilities could be a strategy to diversify economic activities (Halseth and Meiklejohn, 2009).

Sustainable development requires the de-concentration of development from large metropolitan areas to smaller centres for a more equitable development. Service Centre (small town) could play the role in generating economic growth in rural areas apart from providing services to the locals and marketing of agricultural produces (Lal, 1989; Katiman Rostam, 2001; Tacoli, 1998). Service centres should also provide education opportunities for the young population and a place where interaction between rural and urban economic networks occur, support social and culture activities, and administration. However, the concentration of facilities in an ordinary service center shows gaps between tourism product and facilities in the area. Most of the rural service center provides a minimum facility supply and limited function in their catchment area (Katiman & Khaw, 1985; Katiman, 2000). Therefore, some rural service centers are not able to support the tourism activities in the area.

RURAL SERVICE CENTER: FUNCTION AND ROLE

Settlements are normally categories based on its population and the very basic categories are urban and rural (Carter, 1990). In Malaysia, urban settlements are defined as settlements with population of more than 10,000 people and the rest are generally considered as rural settlements or rural areas¹¹. The two types of settlements could be differentiated by certain characteristics. For example, agriculture could be the main economic activities in many rural areas and, limited services are available in rural centres because of population in the rural areas are sparsely distributed. In urban centres, economic activities are more diversified as well as services and facilities.

This paper will focus on the rural service centre. According to Zabardast (2004), the main characteristics of rural service centre are as follows:

- (i) A considerable proportion of their labour force is in non-agricultural jobs.
- (ii) The administrative role of these towns is relatively minimal and they are generally centred for low-level facilities and service such as a health centre and school.
- (iii) Their contribution to regional and national production is relatively small, but they are deemed as an important centre for offering goods and services to the residents.
- (iv) Via rural service centre, the rural population can access to mass public services.

There is no precise method to determine the rural service centre. In principle, we basically emphasize the size of population to determine the hierarchy of town since we have limited information about characteristics and specification. According to the Department of Town and Country Planning (1998) the population size of the rural service centres in Malaysia ranges between 10,000 to 100,000 people if they are intermediate town and less than 10,000 people if small towns (Figure 1). This study focused on both the intermediate and small service centres.

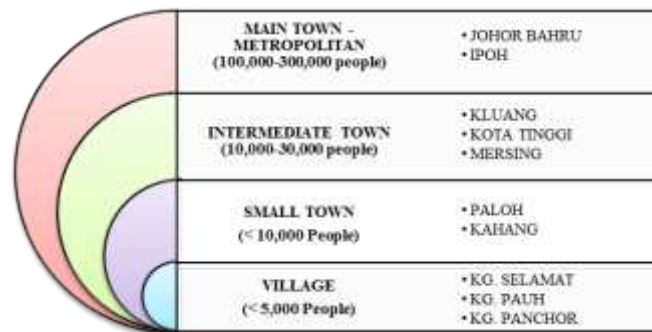


Figure 1: Part of Hierarchy in Malaysia Town.

Source: Adopted from Department of Town and Country Planning Peninsular Malaysia (1998)

Small town plays a very important role as “Rural Development Center” in the growth process of villages and provide service in different field of marketing, providing, agricultural inputs such as fertilizer and agriculture machinery, civic service such as educational facilities, medical care for rural region in their surroundings (Amakichi, 2004). Rural service center actually don’t just provides the social facilities like infrastructure, but the center becomes an industrial, business, transportation and financial activities link between rural and urban area.

¹¹ According to the 2010 Malaysian census, Urban areas is defined as gazetted areas with their adjoining built-up areas which had a combined population of 10,000 or more. Built-up areas were defined as areas contiguous to a gazetted area and had at least 60 per cent of their population (aged 15 years and above) engaged in non-agricultural activities

According to research by Conen, English and Brookfield (1977), Rodinelli (1984), Azman Awang (1984), Baked (1990) and Katiman Rostam (1991), the basic function of the rural service center can be concluded in the Table 1. This basic function categorized the service center as “semi-complete”. However, some rural service center provides various and more than the basic functions in the town and we categorized it in “complete center”.

Table 1: The Basic Function of Rural Service Center

No.	Rural Service Center	Description
1.	Administration in Local Area	Local authorities/local head office (<i>Pejabat Penghulu</i>) or Government agency office (Branch)
2.	Commercial and Business Center	Agricultural needs/ Grocery store/ Market/
3.	Small and Intermediate Industry Center	Resource-based activities
4.	Transportation Center	Link between service center and another town
5.	Financial Center	Banking and credit services
6.	Social Facilities Center	Facilities on Education, Health, Religious, Recreation and Security.

Source: Modified from Conen, English and Brookfield (1977), Rodinelli (1984), Azman Awang (1984), Baked (1990) and Katiman Rostam (1991)

RESEARCH METHODOLOGY

The area of study focus at the service centers located on the Malaysia Peninsular east coast also included in Special Tourism Zone based on the 2nd National Physical Plan . Along that corridor zone, a few rural service centers were selected based on the population and town hierarchy level. **Table 2** and **Figure 3**, show the selected town. Selected town justification is to study the Special Tourism Zone approach in rural service center on providing facilities in tourism activities.

Table 2: The Rural Service Center Selected Town

HIERARCHY LEVEL	STATE	TOWN/ SERVICE CENTER	POPULATION
Major Settlements Center (<i>pusat petempatan utama</i>)	KELANTAN	1. Tumpat	8,871
	TERENGGANU	2. Dungun	2,724
	PAHANG	3. Kuala Rompin	598
	JOHOR	4. Mersing	10,310
Minor Settlements Center (<i>pusat petempatan kecil</i>)	KELANTAN	5. Tok Bali	1,061
	TERENGGANU	6. Kuala Besut	2,460
		7. Marang	4,466
		8. Kijal	4,332
	PAHANG	9. Nenasi	282
	JOHOR	10. Endau	3,236
		11. Sedili	878
		12. Sg.Rengit	2,018

Source: Population and Housing Census of Malaysia (2010)

Field observation and estimation techniques were conducted to obtain detailed information about the function (economy activities) interaction between the rural service centres and tourism activities. The tourists were interviewed to get their opinion and reaction on the tourism provision in catchment area. Interview samples were chosen randomly and the samples represent the tourist's reaction. The boundaries of the town (determined by local authority) are the limitation of this study.

Location coefficient analysis was used to obtain information about a function in the rural service centre. This analysis is used to determine the contribution function either the function dispersed in the area or concentrated in the service centre (Katiman and Khaw, 1985). Higher value of location coefficient indicates more concentrated function in the rural service centre and this signifies as the higher order economic activities. Habitually, this higher order activity just offered in certain service centre. While the lower value of location coefficient indicates the higher offered function in the settlement area. **Figure 2** below shows the formula to determine location coefficient value.

$C = \frac{t}{T} \times 100$	<p>C = Location coefficient (level of concentration)</p> <p>t = Concentration center (equals with 1)</p> <p>T = Total function in the study area</p>
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Figure 2: Formula to Determine Location Coefficient Value

Source: Modified from Yazid Salleh, Katiman Rostam & Mohd Yusof Hussain (2011)



Figure 3: Study area location

Source: Population and Housing Census of Malaysia (2010)

RESULT AND FINDINGS

The fundamental factor in urban and regional planning/studies is observance of the economic condition of the region or area is being studied. Overall, result from the observation and simple census on 6820 premises shown 383 types of function in study areas. From 383 function types, there are contributing to 2577 functions in the study areas. Dungun service center is the highest rank with 57 functions among the service center in this study. While Sedili service center become a lower rank with 11 function provide in the area (refer Table 3)

Table 3: Function Types, Total Function and Commercial Premises in Study Areas.

Service Center	Number of Function Types	Total of Function	Number of premises	Town Population	Total Population
Tumpat	40	389	856	8,916	142,096
Dungun	57	632	1251	2,724	149,851
Kuala Rompin	34	144	474	598	109,599
Mersing	49	412	1290	10,310	33,722
Tok Bali	31	128	529	1,061	N/A
Kuala Besut	40	338	721	2,460	N/A
Marang	27	96	478	4,466	N/A
Kijal	21	84	460	4,332	N/A
Nenasi	19	93	370	282	N/A
Endau	31	124	234	3,236	N/A
Sedili	11	55	67	878	N/A
Sg.Rengit	23	82	90	2,018	N/A

Source: Site visit, 2015

As the result, **Table 4** and **Figure 4** below show the findings. Dungun and Mersing service center provide higher offered in commercial and small industries function while Sg.Rengit and Selili Besar higher offered in commercial, social facilities and small industries. This situation showed all service centers already support the tourism activities with commercial and business function. Mersing and Sedili Besar has lowest offered in transportation facilities and others service center was not offered comprehensive function in administration and financial. This situation can be a threat to rural service center, especially for tourist services need.

Table 4: Location Coefficients for studies area.

Function Types (Categories) Study Area	Mersing		Tumpat		Dungun		K.Rompin		Tok Bali		K.Besut		Kijal		Endau		Marang		Endau		Sg. Rengit		Sedili Besar	
	Total Function	Location Coefficient	Total Function	Location Coefficient	Total Function	Location Coefficient	Total Function	Location Coefficient	Total Function	Location Coefficient	Total Function	Location Coefficient	Total Function	Location Coefficient	Total Function	Location Coefficient	Total Function	Location Coefficient	Total Function	Location Coefficient	Total Function	Location Coefficient	Total Function	Location Coefficient
Administration ▪ Local Authority office ▪ Government office	12	8.33	9	11.11	8	12.5	5	20.00	3	33.33	3	33.33	4	25.00	2	50.00	3	33.33	4	25.00	4	25.00	3	33.33
Commercial and Business ▪ Shop/ Store/Market/Supermarket ▪ Hardware, Agriculture store ▪ Workshops	1103	0.09	686	0.15	1040	0.10	643	0.16	432	0.23	562	0.18	372	0.27	356	0.28	277	0.36	172	0.58	42	2.38	27	3.70
Small and Intermediate Industry ▪ Resource-based industry (factory)	67	1.49	37	2.70	73	1.37	49	2.04	23	4.35	43	2.33	30	3.33	36	2.78	25	4.00	15	6.67	12	8.33	12	8.33
Transportation ▪ Bus Station, Jetty ▪ Taxi, Rental Car Terminal	6	16.7	4	25	6	16.67	7	14.29	3	33.33	6	16.67	4	25.00	2	50.00	2	50.00	2	50.00	2	50.00	2	50.00
Financial ▪ Banking premises ▪ Money exchange	12	8.33	5	20.00	14	7.14	10	10.00	5	20.00	7	14.29	7	14.29	4	25.00	3	33.33	5	20.00	1	100	1	100
Social Facilities ▪ Health facilities – Clinic, Hospital ▪ Education - School, Collage, University ▪ Safety - Police station, Fire Station ▪ Religion – Mosque, Church, Temple ▪ Recreation - House Club, Gymnasium	66	1.79	78	1.28	59	1.69	50	2.00	32	3.13	45	2.22	40	2.50	23	4.35	21	4.76	27	3.70	19	5.26	19	5.26
Tourism Facilities ▪ Hotel, Chalet, Guest House, Homestay	24	4.17	37	2.70	51	1.96	48	2.08	31	3.23	46	2.17	21	4.76	37	2.70	39	2.56	9	11.11	10	10.00	3	33.33

As the result, **Table 4** and **Figure 4** below show the findings. Dungun and Mersing service center provide higher offered in commercial and small industries function while Sg.Rengit and Selili Besar higher offered in commercial, social facilities and small industries. This situation showed all service centers already support the tourism activities with commercial and business function. Mersing and Sedili Besar has lowest offered in transportation facilities and others service center was not offered comprehensive function in administration and financial. This situation can be a threat to rural service center, especially for tourist services need.

← LOWEST LQ's VALUE, HIGHER OFFERED FUNCTION	SERVICE CENTER/TOWN	HIGHER LQ's VALUE, LOWEST OFFERED FUNCTION →
Commercial & Small Industries	Tumpat	Transportation
Commercial & Small Industries	Dungun	Transportation
Commercial & Small Industries	Kuala Rompin	Administration, Financial & Small Business
Commercial & Small Industries	Mersing	Transportation
Commercial & Social Facilities	Tok Bali	Administration, Financial & Transportation
Commercial & Tourism Facilities	Kuala Besut	Administration & Transportation
Commercial & Tourism Facilities	Marang	Administration & Transportation
Commercial & Social Facilities	Kijal	Administration & Transportation
Commercial & Social Facilities	Nenasi	Administration & Transportation
Commercial & Social Facilities	Endau	Administration, Financial & Small Business
Commercial & Social Facilities	Sedili Besar	Administration, Financial & Transportation
Commercial & Social Facilities	Sg. Rengit	Administration, Financial

Figure 4: Location Coefficient Analysis Result

The interview was randomly conducted to tourist to get their opinion and reaction to the rural service center influence to tourism provision. In order to get some opinion and reaction, the same question provided to 25 samples (tourist). The majority (30%) tourist often used commercial and social facilities function in the rural service center, while 12% tourist less used the financial and administrative function. Otherwise, there still hope the financial facilities (banking and money exchanges) can be easier to access. Tourist also unsatisfied with the services in the study areas. 30 percent respondent unsatisfied with limited social facilities provided and lack of transport (refer **Table 5**).

Table 5: Tourist opinion and reaction in the study areas.

Categories Question	Facilities that are often used in the rural service center (%)	Unsatisfied facilities and need to be improved (%)
Commercial and Business	30	10
Social Facilities	30	30
Transportation	16	30
Financial	12	25
Administration	12	5

CONCLUSION

The results have confirmed that not all service centres are able to fulfil the tourism activities' demand. However, the varieties of function in every service centre contribute to supporting the tourism activities in rural areas. The potential elements in supporting tourism activities in rural areas are as follows (Figure 5):



Figure 5.5 Potential function of rural service centre in tourism activities

- (i) Strategic accommodation for tourists in the rural area**

The most important facility in tourism is accommodation. Tourists in urban area usually have access to accommodation anytime and anywhere which supplies to higher facilities demand. In rural area, accommodation facilities are limited due to lower demand as compared to the urban area. The rural service centre is a suitable place to provide the facilities and this can be supported with another function in the centre.
- (ii) Easy access to financial and credit services**

Rural service centre must play a role as a centre for tourists to get easy financial and credit services access. Furthermore, this important function attracts more tourists because of an affective financial services and trading.
- (iii) Comprehensive transportation hub for tourists**

A major problem in rural tourism facilities is transportation. Transportation development and planning in rural area is quite slow compared to the urban transportation development and planning. To solve this, a detailed planning with comprehensive system must be provided; such as an informative road map for tourists; creating a road tour to promote local attractions and providing special buses/taxis for tourism activities in rural areas.
- (iv) Centre to fulfil tourists' demand for their needs and goods**

Concentration is assumed to reduce costs and improve access to a variety of services, both public and private and for both rural households and enterprises. Hence, the centre should offer services including agricultural extension, health and education (and access to other government services), as well as banking, post, services of professionals such as lawyers and accountants and lower order services such as bars and restaurants, and wholesale and retail sales of manufactured goods from within and outside the region.
- (iv) Center for government provided facilities and infrastructure to local people**

Lowers order services still must be provided to the local people in term of contribution government for their needs. Basic and importance facilities such as rural clinic, supermarket, schools, religions building (mosque and temple) and safety units (police stations, fire fighter) must be center in the rural area. Concentration services must be provided to enhance the efficiently mobility and reduce the transportation cost.

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DESIGN OF SYSTEM TO SUPPORT COLLABORATIVE MARKETING ON SMES PRODUCTS

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ABSTRACT

A Collaborative Marketing System was designed to encourage working group creation in Small and Medium Enterprise (called SPPK-UKM). This system facilitate a collaborative work among working group members in order to accomplish a task over the distributed system. It is enable to coordinating, controlling, and validating a task in parallel or sequentially. Some activities as production, promotion, distribution and selling can be controlled by each members in accordance with member's responsibility. It is an appropriate tool to take in hand the Small and Medium Enterprise collaborative marketing. All members in the SPPK-UKM, such as production, export consultant, courier, and buyer enable to cooperate and collaborate to accomplish sequence task the collaborative activities form order creating till product distribution. A system administrator is assigned to control all these activities of the members the SPPK-UKM was developed using object oriented base on Unified Approach methodology. Analysis and design was modeled by Unified Modeling Language. There are five actors was identified in the analysis and design phase. There are production, export consulting, customer, courier and administrator in the SPPK-UKM. And analysis phase has identified some use case that related to transaction of production, transaction of export consulting and transaction of customer.

Key words: Collaboration, small and medium enterprises, center of industries, commodities, export consultant, customer.

INTRODUCTION

Determination of the free market, had a negative big impact to marketing local products. The entry of a wide range of quality imported products that have a cheap price, flowing without any hindrance. Among small industries felt the burden of unbalanced competition between local products with little capital, while outside producers with a fairly modern marketing mechanism is able to provide the best for consumers in Indonesia. As a result of local products into internal exile. Some of the things that the background of this state of which is:

- Local producers never do market research both domestically and in export destination countries: Each importing countries have superior products are constantly being developed tailored to the needs of the destination country markets by making it a reliable export commodities, while most industries Indonesia does not have a superior product that is a trade mark, but only re-produce products that are already made in other countries. At least local products enter foreign markets caused by poor product standards that the main requirements to qualify in an overseas market.
- The absence of a mechanism system integrated marketing of SME products are good: To perform the export necessary mature strategy and planned with an integrated support system. Among small industries need to understand about: how to produce a superior quality product, strategy products distribution that are quick and able to reach out to various export destinations, packaging techniques are quite attractive consumers, capable of supplying the small and large scale at

competitive prices, and sales network adequate. However, the realization it was relatively difficult for the small industry, this is due to limited funding and lack of information about the data and product specifications required in destination countries.

On the other hand export consultants who have the information needed products in the overseas market difficulties in finding the appropriate product standard export market in a short time, given the geographical condition of Indonesia is so vast . To overcome this, the necessary cooperation between industrial centers across the province with the export consultants widespread in many big cities.

The Internet is an effective tools kits for cooperation between the communities without being limited by geographic constraints. Forms of cooperation between small industry and export consultant through this tools is the best solution that allows industrial district communication, coordination, and cooperation in the marketing and sales of featured product. To achieve that matter, Its need a system of marketing support collaborative web-based, which allows the center of small and medium industries can collaborate in terms of: information dissemination product specifications specific market needs, working together to create and produce standard products according to market needs, make arrangements quota of the product to its price remained stable, product distribution management, automated quality checks, as well as complementary information needed by each of the relevant parties, such as producers, distributors (whole sellers), cargo or even a particular association that became the agent system or mediator.

PROBLEM FORMULATION

The problems addressed in this study relates to how to build the Collaborative Marketing Support System for Small and Medium Enterprice (CMSS-SMEs). The problem can be formulated as follows: Web-based Collaboration System with existing document handling group category is general and does not fully applied in SMEs collaboration product sales. Electronic Commercial, generally utilized large companies that have already established marketing support services, so that need to design a system of collaborative product marketing among small industries. Unavailability the means communication and dissemination of information flow relatively easily and effectively among SMEs, export consultants, and customers in the sale of products, so its need means communication dissemination of appropriate information to support product sales collaboration among SMEs

OBJECTIVES

Conduct a study as comprehensively on:

1. Web-based collaboration systems and applications that may be made.
2. Model of support system for the web-based collaborative marketing case studies of collaborative selling small and medium enterprice.
3. Data and facts on the ground related to the marketing constraints of small and medium enterprice today.
4. Designing and building prototype collaborative marketing support system for sales of commodity products of SMEs, that allowing participants to exchange information, processing data and interact together in doing deals and selling excellent products.
5. Perform functionality testing prototype collaborative marketing support system using a variety of sample (sampling) data obtained from the results of field studies.

MATERIALS AND METHODS

1. The object of observation data is carried out at the Department of Trade and Industry with products that to be researched in the sale of SME products is agro-industrial products by taking samples of vegetables and fruits.

2. Phases of software development collaborative product sales system of SMEs, using object-oriented development approach known as object oriented systems development approach developed Unified Approach Ali Bahrami. Modeling notation system used is the Unified Modeling Language Web Base developed Jim Conallen. The stage will be carried out as follows:
3. Development of a business model that will be used to review business processes, especially in the sales model of SME products.
4. Development of requirements, that is a model that describes the needs of the system software supporting collaborative marketing.
5. Development analysis model to map the behavior of the system as required in marketing support collaborative software, into elements of modeling.
6. Design and implementation of the results of the analysis.

RESULTS AND DISCUSSIONS

Analysis of the SME Export Activity

The process of marketing of SME's products is a network of cooperation among government agencies and non-governmental. The form of cooperation is made so simple to avoid complexity in rationing product. Four major part in the process of interaction of sales and marketing of commodities SME consists of:

1. Industry center, which centers that supplies all the products needed by both the local market and overseas market.
2. Consultants' exports, the exporter appointed by the government and authorized to perform certain commodity product sales abroad.
3. Foreign markets or foreign consumers who need a particular commodity.
4. Cargo services, is a trusted courier to trucking to the address of the buyer.
5. In this study, four sections above will be a case study in implementing collaboration systems SME's product sales.

Product Distribution Process Analysis

Export consultants appointed by the government as the representative of the SMEs to expand into overseas markets. In conducting its activities, Export consultant doing the activity refers to regulations document issued by the National Agency for Export Development (BPEN). Based on these documents any export consultants seeking market opportunities in various export destinations. When there is a chance, the Export Consultant will create a reference document as a parameter to search for and capture every commodity produced industrial centers. This reference document also serves as a director in determining the specifications of the product sought. Here's an illustration of the scenario creation process regulatory documents to export transactions occur.

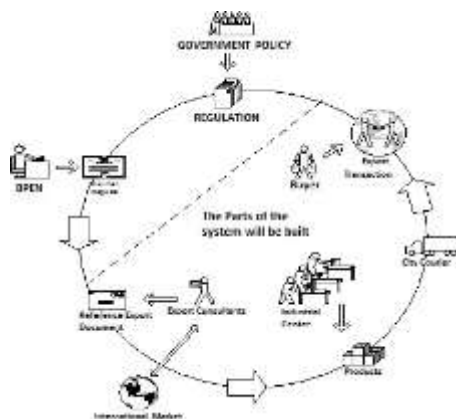


Figure 1. Illustrated of SME's Product export performing

Business Process SME Products Export Activity

Terms and complete product information to qualify the product facilitates the export market. The product specification must be made as detailed as possible. Thus the components that must be considered by industrial centers and export consultant in export activities are seemingly in the following figure:



Figure 2. The component supporting product export SME [8]

Analysis that performed to determine parameters produced export reference document does not include all the parameters as illustrated above, but is more focused on data and product specifications such as: price, quantity, specifications of products, form of payment and delivery schedules.

OVERVIEW OF THE SOFTWARE

After analyzed form of the raw documents that are already available, the next step is to conduct an analysis of the shape of the system to be built. To facilitate the analysis, the illustrated of the system will be divided into several stages.

CMSS-SMEs Software Specifications

CMSS-SME is software that is intended for participants of collaboration, namely: industrial Centers, consultants export, cargo services, and customers. This system serves to supply and sale of commodities collaboratively from all industrial centers and serves to control every specification of products to be offered by way of mapping the reference document export, so that the products offered completely in accordance with market needs. Collaborative product sales goal is to sell products with the standard specifications of any industrial centers, and the fulfillment of supply to customers in a relatively quick time. If a product specification document has the same criteria and specification with a reference document export criteria, then the system will automatically publish product on the website. Another purpose of this system is to provide chance and similar quotas to the industrial centers to get a share of transactions in performed export commodities, so that equalization sale transaction will be more balanced and equitable



Figure 3. The general configuration software

Actor Identification

Actor obtained by actors outside the system. Actor identified into two parts, namely the administrator and users that affect the system. Based on the description of the specification to the general picture of software, identified actors are as follows:

- Administrator, which manages the SME Association participant.
- Industries Center, collaboration participants who access the system to enter data products that will be published.
- Consultants exports, which interact with the system and enter data export reference document as a basis for qualifying test whether a product passes the quality test.
- Cargo or transportation, which interact with the system in terms of data entry status of the product being distributed.
- Customer, which represented by wholesaler from various countries registered as participants can access the system to obtain product information.

Use Case Development

After identified, there are five actors associated with the system. Software functions in the general picture shows that there are some actors action against such a system to perform its responsibilities to the system include the following actions:

- When participants perform membership registration, the system responds and process data participant candidates, validate every input and store it in the database if the participants have not yet registered.
- When the Administrator selects the membership, the system responds and process the data and generate long prospective participants and participants then displays them in a list of membership based on membership type specific.
- When the industrial centers include the product specification will be published, the system will react by doing a search reference document export. If there is then the system will compare the reference document with a document input from the user. If the results of the comparison have in common criteria specification, the product specification data is received, otherwise the data is rejected.
- When the consultant export the reference document creation menu select Export, the system reacts by generating a reference document export form. And when submit, the system will perform validation document, then select whether a similar document already exists or not. If not, the system will save it as a new document.
- When a buyer, order products, the system responds to bring the product order form (purchase Order). And when submit, the system responds by tracking all centers who have booked product specifications, then perform calculations and division. If the quota has been fulfilled and the centers have been then the system will automatically send purchase Order to each of the designated centers.

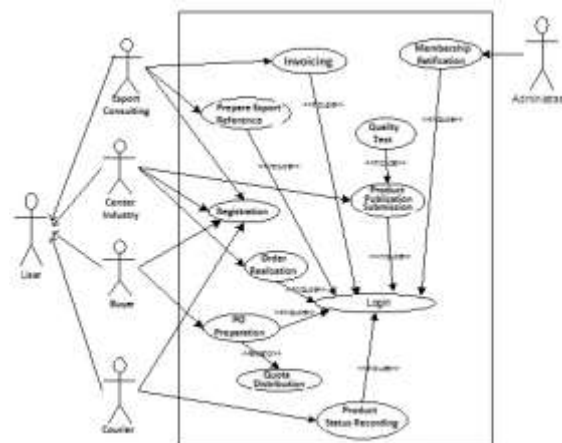


Figure 5. Use Case for CMSS-SME's

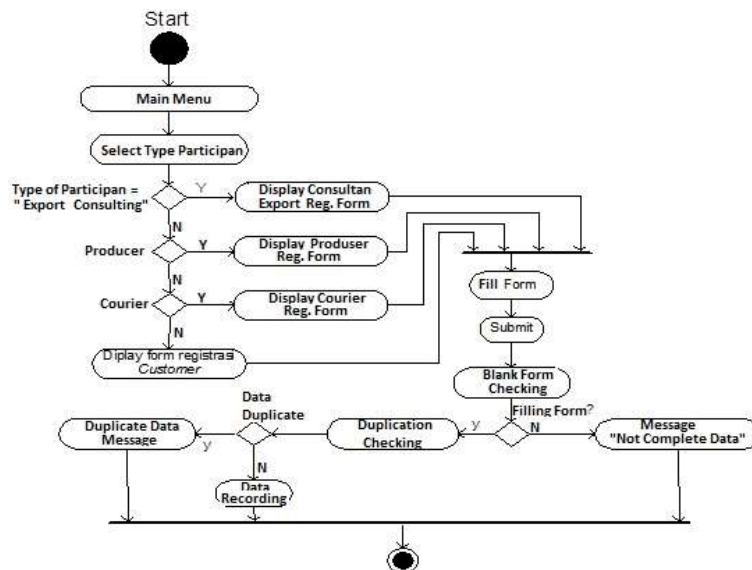


Figure 7. Diagram State for registration Membership

Design Access Layer

Designing the access layer is required in the manufacture of FIES-SMEs, because the prototype system that will be made utilizing the facility database connection with the DBMS. This design focus on how to design a database for each class that is connected with database connection. At the access layer database connection in general do `clsOpenDB` class. It is this class that is used for storage, change, query data, and deletion of data. Generally the data is described as follows.

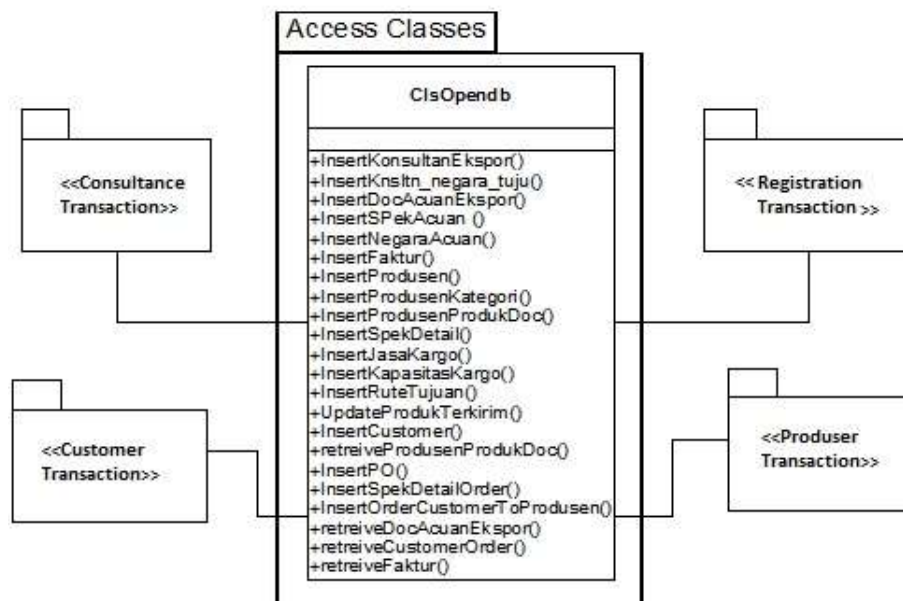


Figure 8. Access Layer Design

CONCLUSION

In this research, the construction of the prototype software that serves as an agent or as a mediator of the interaction between actors with other actors in a collaborative system. Prototype software built named FIES-SME stands for System Support Marketing Collaborative case studies of product sales Small and Medium Enterprises. The research effort has been assessing the extent to which an

evolution of the mechanisms of modern marketing system can be applied to a group of Small and Medium Enterprises in Indonesia. This effort involves the utilization of web-based collaboration system as a means to "Document sharing" in the process of seeking export markets broader than a particular commodity. Based on the description above, we can conclude the following matters:

- SPPK web-based SMEs is a study that is interesting enough to be further developed, adapted to the data, facts. It is based on the results of field studies that allow a system of web-based collaborative marketing support can be applied in collaboration SME product sales.
- Prototype FIES-SMEs can be designed such that it becomes a web-based collaboration system that allows SMEs can exchange information, processing data and interact together in doing deals and selling superior products to export destinations.

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FRAMEWORK DEVELOPMENT FOR INTEGRATED AGRICULTURE

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ABSTRACT

The purpose of this paper is to look deeper into development of integrated agricultural system in Kota Kendal Region, aimed to increase the role of agriculture to Indonesia's economy. As the World Bank Report 2016 showed the economic slowdown in developing countries that have been the foundation of world economic growth, and basically the national economy of Indonesia grew only by 4.79% in 2015. The analysis of this paper is based on primary data in the form of questionnaires and observations and secondary data collection methods such as scientific literature, statistical data (Department of Statistics) and literature review. Based on primary data (questionnaires), 55 respondents (71%) said that the dry irrigation was the problem of paddy cultivation. They also said that although there are already subsidized fertilizer, farmers are still experiencing financial difficulties in obtaining good fertilizer to maintain the agricultural cultivation well. The interview resulted that the livestock production was not optimal and most farmers still have limited capabilities due to the lack of intensive coaching and mentoring about agriculture. Four steps were identified after analysis of various scientific literature with the consideration of the existing problems, potentials and challenges. A framework for the development of an integrated agriculture system can be done with improve the agricultural infrastructure, especially irrigation; developing a model of Integration of agricultural sectors; developing the agriculture technologies; and improve the ability for agriculture by giving training and continuous monitoring.

Key words: integrated agriculture, development framework, rural revitalization

INTRODUCTION

Agriculture has an important role on economic development. Over the past 20 years, with the investment and technology the agriculture had growth rapidly in East and South Asia. This growth lead to progress towards achieving the Millennium Development Goals(United Nations Environment Programme & World Bank, 2007). Another study showed that in Indonesia, the role of agriculture growth is strong in rural areas although it had declined in the post-crisis period (Hadiwidjaja & Suryahadi, 2011). One aspect of the Sustainable Development Goals(SDGs) is 'Zero Hunger', which means to end hunger; achieve food security; improved nutrition; and promote sustainable agriculture (United Nations, 2015). As to realize the 'Zero Hunger', a country must have food security. Agriculture has a major role to food security because agriculture is a source of human food needs(Suparta, 2010).

Indonesia is an agricultural country that has potential to be evolved. As a developing country, the agricultural sector plays an important role on the overall Indonesia national economy (Tunjung, 2013). Statistics show that the percentage of the population of Indonesian who work in the agricultural sector is quite a lot. It reached more than 50% which means 20,6 million inhabitants(Indonesia Statistics Institution, 2013). The large amount of population who works in agriculture is actually potential to economic development. Moreover , in terms of human resources Indonesia has a lot of agriculture graduates who can relied upon to increase the production of agricultural products(Ika, 2014). Furthermore, Indonesia is internationally significant in its production and export of rice, palm oil, coffee, rubber, cocoa, and spices (Barichello & Patunru, 2009) and also

have experienced self-sufficiency in rice in 1984(Anggraeni, 2013), it means that the agriculture can be potential with the a appropriate handling care.

Recently, the economic in developing country(including Indonesia) tend to decline and it also happened to the agriculture sectors(Brooks, 2010). As the report of The World Bank (2016), it showed the economic slowdown in developing countries that have been the foundation of world economic growth. Basically the national economy of Indonesia grew only by 4.79% in 2015. The decrease of number agricultural production also lead to the weakening of Indonesia’s economic growth. Decreased agricultural production is also caused by a reduction of agricultural land or agricultural land conversion. Spontaneous urbanization of rural society is main reason of land fragmentation and inefficient land use(Lang, Chen, & Li, 2016).

Table 1.1 Statistics of Agricultural Land in Indonesia

No	Land Type	Year					Growth (%) 2013 over 2012
		2009	2010	2011	2012	2013	
1	Wetland	8,068,427.00	8,002,552.00	8,094,862.00	8,132,345.91	8,112,103.00	-0.25
2	Dry Field/Garden	11,782,232.00	11,877,777.00	11,626,219.00	11,947,956.00	11,876,881.00	-0.59
3	Shifting Cultivation	5,428,689.00	5,334,545.00	5,697,171.00	5,262,030.00	5,272,895.00	0.21
4	Temporarily Unused Land	14,880,526.00	14,754,249.00	14,378,586.00	14,245,408.00	14,213,815.00	-0.22

Source: Ministry of Agriculture, 2014

Integrated agriculture can be a solution for the development of agriculture which is in decline. Integrated agricultural systems already implemented in Bali, such as Klungkung, Tabanan, Buleleng Regency, etc. Basically, the integration of agriculture means to integrate all of agricultural sectors. Technically agricultural integration is realized by forming an integrated system of all farming include food crops, crops and horticulture, livestock, plantation , fishery , and forestry plants in one area(Anugrah, Sarwoprasodjo, Suradisatra, & Purnaningsih, 2014). One of the regencies in Indonesia, which has the potential of agriculture is Kendal Regency, Central Java Province. Kendal Regency has 540,99 Km² area of agricultural land with a percentage of 53.98%(The Central Bureau of Statistics Kendal Regency, 2014) . Kendal Regency is one of the National Service Center Kedungsepur which has a considerable contribution to the national needs, especially food needs (source of rice, vegetables, and fruit).

Kota Kendal Region is one of the city service center in Kendal Regency and has a role to serve the needs of Kendal Regency in both services and service of food needs. As for the food needs Kendal Regency, integrated agriculture in Kota Kendal Region can be developed to realize all agricultural aspects so that can be integrated each other. The aim of this paper is to (1) to analyze the agricultural potentials of Kota Kendal Region; (2) to analyze the agricultural problems of Kota Kendal Region; and (3) to discuss the development of integrated agricultural system in Kota Kendal Region. The rest of sections in this paper are organized as follow: in the second section describes the materials and methods used in paper. The third section particularly presents discusses the potentials of agriculture and solving the problems. The potentials of agriculture aspects can be integrated each other. On the basis of discussions, it draws a concluding remark with a framework for the development of an integrated agriculture system.

MATERIALS AND METHODS

Study Area

Our study area is Kota Kendal Region which consists of five districts/kecamatan: District Patebon; District Pegandon; District Kota Kendal; District Cepiring; and District Ngampel. Those five districts were located close to each other. The study area has 77 kelurahan/villages. Kota Kendal Region covers 166.87 Km with 235129 population and 47026 households (The Central Bureau of Statistics

Kendal Regency, 2014). The study area is city service center of Kendal Region and has a big role to meet the needs of Kendal Regency.

Data Collection

The data used in this study are primary data and secondary data. Primary data collected by questionnaires and secondary data were collected by reviewing the documents. Primary data collection through a questionnaire conducted by sampling. Sampling conducted in this study is a cluster sampling which is part of probability sampling. Technically, on cluster sampling, the population is divided into regional groups and then choose the representatives of each group. Geographical areas might first be selected(Doherty, 1994) then dwellings inside these areas and could be administrative areas. Samples of the study were 77 respondents. It is based on cluster sampling in the administrative area, i.e each one representative of respondents to 77 kelurahan/villages.

Data Analysis

The data were analyzed by qualitative and quantitative methods or mixed of both approach. The qualitative analysis approach was conducted to elucidate the integrated agricultural system frameworks. Quantitative analysis approach described the potential of agriculture in the region Kendal and the existing problems. The approach of quantitative analysis was done descriptively.

RESULTS AND DISCUSSIONS

Result and discussion talk about agricultural potentials, agricultural problems and framework integrated agriculture.

Livestock

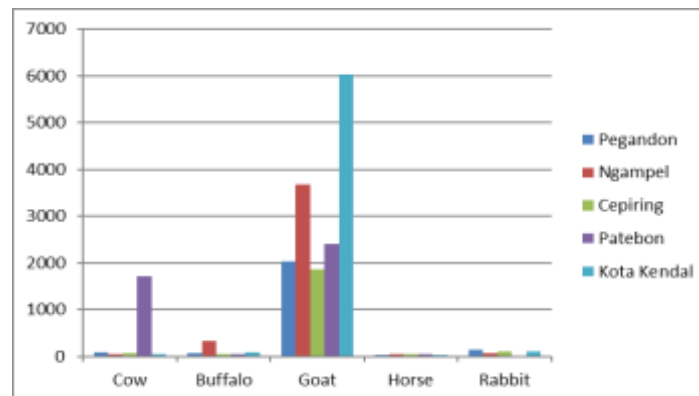


Diagram 3.1. Number of Livestock in Kota Kendal Region in 2014
 Source: The Central Bureau of Statistics Kendal Regency, 2014

Livestock commodities in Kota Kendal Region are cow, buffalo, goat, horse and rabbit. The majority of livestock are goat, and cow and mostly located in Kecamatan Kendal, Ngampel and Patebon. Large differences in numbers between goat, and cow compared to the number of buffalo, horse and rabbit caused by high market of goat, and cow. The average commodity existing livestock’s are cultivated for their meat, especially cow, goats and which have very high market, especially in time of qurban¹². So far the result of the livestock’s production is only meat (no diversification). Livestock products in Kendal are potential to be diversified into another products, such as tannery, dairy, sausage, etc.

¹² Muslims activity to slaughter sacrificial animals (cows , buffaloes , & goats) at a predetermined time

Paddy

Table 3.2 Wet Land Area in Kota Kendal Region

KECAMATAN/DISTRICTS	Irrigation	Presentation
	(Ha)	(Ha)
(1)	(2)	(5)
Patebon	1,411	31.85%
Pegandon	852	23.67%
Kota Kendal	1,360	40.00%
Cepiring	1,281	42.60%
Ngampel	1,196	35.30%

Source: The Central Bureau of Statistics Kendal Regency, 2014

Kota Kendal Region has large percentage of wetland. Most residents who worked as farmers can be developed into a community farm(based residential) to develop modern agriculture(Li, Liu, Long, & Cui, 2014) with the role of technology so that the crops could be superior. It is a potential to Kota Kendal Region to become a stable supplier of rice for its hinterland.

Fishery

Some areas of the Kota Kendal Region are coastal zone. The economy in the coastal areas supported by the ponds and marine fishery. The fishery activity has been supported by the facility such as fish auction place. Kendal Regency has 5 place the fish auction, and three of them are located in the Kota Kendal Region.

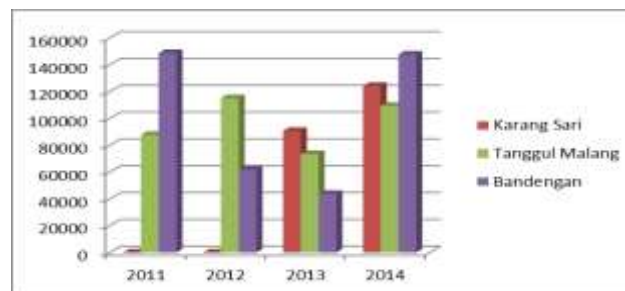


Diagram 3.2 Fishery Production Specified according to the Marine Fisheries Fish Auction Sites in Kota Kendal Region 2011-2014

Source: The Central Bureau of Statistics Kendal Regency, 2014

Fisheries production in Kota Kendal Region was fluctuated and tend not to have an increasing trend. Although the production was fluctuated, with the support of the fishery activity and adequate facilities, fishery in the Kota Kendal Region can be a potential source of fulfillment fish for its hinterland. Furthermore, fish production can also be diversified and can be a fishery tourism destination.

Agricultural Problems

Almost 80% all of the fields in Kota Kendal Region are irrigated fields. Source of water irrigated fields depends on river water. The fields that experiencing the lack of irrigation water from the source will suffer from drought. The drought happened to make crop failure. Based on the results of questionnaires, as many as 55 respondents (71%) said that the drought irrigation is a major cause of crop failure. Study before have shown that drought can cause decline in crop yields resulting in reduction in income for farmers which will cause increase in market prices of products(Dercon, Hoddinot, & Woldehana, 2005).

They also said that although there are already subsidized fertilizer, farmers are still experiencing financial difficulties in obtaining good fertilizer to maintain the agricultural cultivation

well. Beside them, the interview resulted that the livestock production was not optimal and most farmers still have limited capabilities due to the lack of intensive coaching and mentoring about agriculture. Sewage plants that can be used as animal feed have not managed/processed well into feed quality and shelf life to the needs of the dry season. It also showed that the agricultural technology is not yet optimized.

Those problems above were common problems in rural areas(Shiru, 2008) and obviously indicated the need of solutions which can be done by rural development. As known that the agricultural activities were located in rural area. Study of (Oladipo, 2004) showed that a higher level of success has been achieved through the planning of rural projects conceived and implemented in an integrated manner. In this case, we can know that “integrated manner” has a big role on rural development, including agricultural. Furthermore, research of (Dash et al., 2015) also empirically demonstrated that the integrated agricultural was profitable. Integrated rural development approach is a multidimensional strategy for improving the quality of the life of the rural people. It concludes that rural development is imperative for improved of agricultural growth and development(Nchuchuwe, Francis, & Adejuwon, 2012).

Integrated Agricultural Framework

Integrated farming is the core of their agricultural activities, either from the process of planning, policy formulation to implementation of the plan. In addition, all aspects of agriculture in the Kota Kendal Region must be integrated each other(Anugrah et al., 2014). The integration which is questioned is integration between paddy, fisheries, and livestock. The integration was realized by the principle of 'zero waste'(Ali, Yusuf, & Syamsu, 2010). Agricultural model of zero waste is an agricultural model that does not allow a byproduct becomes waste/useless(Sunanto, 2012).

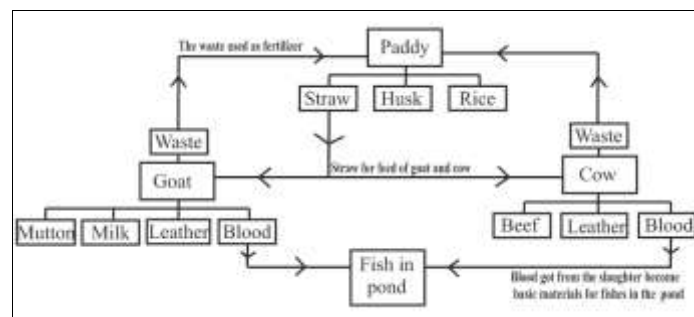


Figure 1. The Integration of Agriculture Sectors

The application of zero waste in integrated farming is to utilize the rice product consisting of straw, husk and rice. Straw is used to feed the goat and cow. Husk used as a mixture of fertilizer so that the results can be better fertilizer and the rice would be used for human’s feed. Cow utilized meat, leather and blood (got when the cow was slaughtered). Cowhide can be tanned and used as basic materials leather and cow blood can be used as ingredients for basic material feed for pond commodities. Goats used for meat, milk, blood and leather. Waste from both of goat and cow processed into fertilizer for paddy field.

After formulating the integration of various sectors with developing the existing potentials, the next step is to solve the problems that hinder the development of agriculture in Kota Kendal Region. Drought irrigation is one of the main problems that hamper agriculture. Drought is one of the most common disasters which can undermine livelihoods and well-being despite the use of various mitigation strategies(Mogotsi, Nyangito, & Nyariki, 2012). Previous study recommended solutions to drought, they are;(1)the construction of more dams and necessary infrastructure for irrigation; (2)adoption of local knowledge into mitigation strategies; (3)improving access to agricultural inputs; (4)and enhanced provision of technical assistance to farmers in the area as solutions to the drought(Mogotsi et al., 2012).

The next step to resolve another agriculture’s issue is developing the role of technology and diversify the agricultural production. Diversification involves processes of adding value to the production of agricultural cooperatives, the development of new products or new business matrices in

order to penetrate further into or develop the markets(Ritossa & Bulgacov, 2009). Diversification agricultural products can be driven by the development of technology, both are continuous with one another. Development of technology to produce the diversification of agricultural products must also be followed by an increase in the quality of knowledge and their capacity as executors of agricultural activities. Innovation strategy to increasing the farmer’s capability can be done through strengthening of farmer institutional role, innovative behavior characteristic, quality of information and external institutional support(Sumardjo, Lubis, & Harijati, 2015). An adapted form of the framework is presented in the table below.

Table 3.3 Logical Framework of Integrated Agricultural System Kota Kendal Region

	Narrative Summary	Assumption	Indicator		Measure of Verification
			Initial conditions	Final condition	
G O A L	Realizing integrated agriculture in Kota Kendal Region the next 10 years	Farmers are willing to develop agriculture in an integrated and supported by the government	Agriculture in the Kota Kendal region are not yet integrated	Integrated development of paddy field, cow, goat and fish in the pond	Data of agricultural development in Kota Kendal Region (Source : observation next 9 years)
P U R P O S E	Creating stability of paddy field production with provision infrastructure of agriculture	There are capability of the government in providing agricultural infrastructure	Agriculture has not been stable over the problem of drought irrigation	Drought problems can be solved and agricultural production is stable	Harvest data of Kota Kendal Region (Kendal Statistics Institution)
	Creating diversified agricultural products	There are supports for realizing the role of technology to help diversify agricultural and livestock raising	There has been no product diversification from paddy farming , goats , cattle and fishing pond	there are diversified products from paddy farming , goats , cow and fishing pond	Agriculture and livestock production data (source data from the Department of Livestock and Agriculture) ; Department of Industry and Trade)
O U T P U T	Improve the agricultural infrastructure (irrigation)	The economy is stable	Lack support of adequate agriculture infrastructure	Fulfillment agricultural infrastructure	Data of agricultural infrastructure (source: observation each 2 years)
	Developing a model of Integration agricultural sectors	Agricultural products are stable	There is are model of integrated agriculture system	There is integrated agriculture system	Agriculture and livestock production data (source data from the Department of Livestock and Agriculture
	Improve the agricultural ability by giving training and continuous monitoring	Farmers are willing to follow the training and apply the training’s materials	Farmers do not have the ability to process the role of agriculture with technology enhancements	Farmers have ability to process the role of agriculture with technology enhancements	Training efficiency data and monitoring data (source : observation each 2 years after the training have done)
I N P U T	Procurement of the development budget	Procurement development budget made if the project is feasible based on a feasibility analysis	Low investment from the private sector or government funding through the budget	Available budget development funds from public and private	Data realization of budget revenues and expenditures Kendal Regency(Source : Budgets Year 2016-2026)

	Narrative Summary	Assumption	Indicator		Measure of Verification
			Initial conditions	Final condition	
	Cooperation between stakeholders	Cooperation can occur in the presence of an agreement and commitment among stakeholders	Not yet established cooperation between government, private , and community	The formation of partnerships involving government, private , and community	The data in the field of development cooperation (Source : Interview with the head of village / head of district year 2026

CONCLUSION

The analysis of scientific literature leads to the conclusion, that establishment of integrated agricultural in Kota Kendal Region can be realized in within next 10 years (considered to the Indonesia's economy condition). Basically, integrated agricultural system creates benefits of economic-social and ecological. The main steps to create the integrated agricultural sytem are solving the problems and development the potentials. Challenges also considered on making process of the integrated agricultural system framework. The scientific literature analysis showed that a framework for the development of an integrated agriculture system can be done with improve the agricultural infrastructure, especially irrigation, developing a model of Integration of agricultural sectors, developing the agriculture technologies so that can diversify the agricultural products and improve the ability for agriculture by giving training and continuous monitoring.

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THE ROLE OF QUADRUPLE HELIX MODEL IN PROMOTING INNOVATION PROCESS OF RURAL SMALL AND MICRO ENTERPRISES: CASE STUDY OF PENGALENGAN VILLAGE, BANDUNG REGENCY, WEST JAVA

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ABSTRACT

Innovation and its diffusion are considered as main engine in the current regional development. Besides institution and leadership, innovation contributes significantly in promoting endogenous regional development in many countries. However, limited understanding on how the process of innovation and its diffusion as well as the network among actors occurred in rural areas. Consequently, rural development and planning theory failed to explain the mechanism on how the network of internal and external actors stimulated rural development. By using the network analysis among university, private sector, local government and community organization, this study examines how this network initiated and encouraged micro and small enterprises development in Pengalengan, a village in southern part of Bandung Regency, West Java, Indonesia. This study showed that the network stimulated diffusion and its diffusion among micro and small enterprise leading to rural development. By applying mixed method and diffusion of innovation's Rogers theory (2003), this study explain how the diffusion and its diffusion occurred and how this quadruple helix model become the new strategy in rural development in Indonesia.

Key words: Innovation, diffusion of innovation, rural development.

INTRODUCTION

Innovation in rural areas are not common to solve the problems. The conservative understanding of innovation as a process-based science technical is not absolutely applied in a rural situation (Shucksmith and Dargan, 2008). Applying innovation in rural areas is more difficult than urban areas, caused by several factors such as a weak economic base, low economic density, weak network and competition causing the lack of driving factors behind innovation (Quigley, 1998). Inadequate number of intellectuals and qualified human resources in the development of innovation and development are also the difficulty of reaching the innovations in the rural areas. Networks of local actors also play a key role in mobilizing resources (local or external) for the development, adoption and implementation of different types of innovation in the productive system of rural areas. In order to make this possible, the system set by actors must in itself be innovative. In other words, it is often necessary that actor's start-up an innovative system for mutual interaction, but this in itself is not sufficient enough to push towards the creation of innovative productive systems capable of generating employment and wealth. (Escarcia, 2014) The paper work aims at examining the network which stimulated diffusion innovation among micro and small enterprise leading to rural development.

Empowerment Program of Micro, Small, and Medium Enterprises (UMKM) in Pangalengan arises from the lack of development of its UMKM as its main economic matters and the condition was worsened after earthquake. The program is expectedly able to bring the intellectual agent that is able to accompany people as well as to transfer knowledge and formulate solutions along with local communities. The focus of this empowerment is bring confidence to see things - new things, awareness and a willingness to learn and to try also stay focused to innovate and improve business. Society is not only passively accept innovations from the outside but emphasized the willingness and ability to innovate independently as well. So, UMKMs do not only depend upon the facility empowerment fostered by the program. Until people can actively form the group (Cooperative

Nurkayana) in order to continue the mission of empowerment and knowledge sharing. The program is realized as a result of the cooperation between actors who share the role in the development process. Actors involved in this program are members of an agency of local communities (later transformed to form economical cooperative groups known as koperasi), academics as facilitators (ICSD and School of Business and Management ITB), Private as financiers (Star Energy) and the Government as a regulator and supervisor (District and Office of UMKM) .Based on description above, related research networks are needed as well as the role played by actors in the innovation process and the empowerment of UMKM in Pengalengan.

THEORETICAL FRAMEWORK

From Innovation system of rural development to quadruple helix model - Innovation for Rural Development

Mahroum et al. (2007 p. 10) defines the rural innovation as "the introduction of something new (new changes) for economic or social life in rural areas, which adds new economic or social value to rural life". Rural areas have some structural characteristics that harmed them from the perspective of innovation:

- A weak economic base, low business density, low clustering, all tend to weaken the transfer of knowledge, networking and competition - that is the fundamental driving factors of innovation in the industry (Quigley, 1998)
- Low quality of knowledge other than agricultural or land management sector (which is almost always located in rural areas). So, students and academics who are definitely interested in urban scenarios for training at colleges, universities, etc. creating an intellectual desert in rural areas. Young people leaving rural communities to get higher education, often do not go back and thus rob communities of skilled workers for knowledge-based industries (Mahroum et al, 2007).

According Mahroum (2007), in order to encourage innovation reached in rural areas, there are several steps that necessarily to be done:

- Supporting Local Partnerships, helping rural businesses through forums and associations to create a critical mass to need "buyers" and "supplier". This will help rural businesses issuing smart idea to supply and demand so as to create a market for innovation
- Providing 'within neutral' infrastructure, it can be used regardless of a person's location. Most of the established broadband infrastructure in rural areas but available to meet the needs of investment in research mode and connectivity to create a model that brought down the distance and work in a virtual environment
- Investment in knowledge transfer and educating the policy-makers to work together with proper universities to transfer the skills and train the local communities
- Individual development. No innovation can be reached unless people contribute in it. The government should support rural areas in individual targets to becoming entrepreneurs. Entrepreneurs in rural areas open up the employment opportunities (<10 employees) or consist of the self-employed. Under these circumstances the main groups that receive attention are women and senior citizens. There is a better chance to elderly workers, the retirement age tends to slowly reached in the rural areas compared to urban areas and more flexible working arrangements.
- Maintaining a high quality of life in rural areas. Encouraging the government to carry on investing in the provision of rural public services to help their regions maintain their quality of life more comparative (Mahroum, 2007)

Actors and Network of Innovation system

The role of actors in the development of rural areas should be seen in the light of the combination of three elements. The first one is the increasing involvement of social, economic and public actors in the socio-economic processes of change. The second one is the emergence of new economic activities, which act as the foundations of new development strategies, with an increasingly important weight falling on non-farming activities. And the last one is the presence of strategic factors towards competitiveness in relation to these new activities, such as knowledge, innovation and networking (Young, 2010). Regarding patterns of resilience, some regions and local actors respond to these challenges with cost-reduction strategies, thereby increasing the scale of production and technological development (Esparcia, 2012); the presence of leadership could be one of these determinant strategic factors (O'Brien et al., 1998). Three factors stand out for their importance to new innovation systems: the involvement of actors, the generation of new activities and the introduction or adaptation of innovations. This is based on the creation, adoption or adaptation of new knowledge by the actors, combining their initial stock of implicit tacit knowledge with other explicit knowledge (offered or contributed by advisors, consultants, development actors, etc). This process can materialise in the form of innovative projects (as are presently analysed in this study) but also in the form of structures that go beyond the previously mentioned projects. Therefore this is a process in which local economies and stakeholders develop, learn and adapt to new environmental conditions (Hermans, 2008; Dargan and Shucksmith, 2008).

In relation to rural development, learning processes depend on several factors, such as the individual perspective, set of values and attitude of each agent (whether they are more or less ambitious, whether they take sustainability into account in decision making processes, whether they favour participatory strategies, etc.). The complexity, uncertainty and potential conflict which may arise as a result of an increasing number of involved players is a different issue, whose solution lies in negotiation, commitment and agreement during the implementation and development of projects (Shortall, 2004; Collier and Scott, 2009; Muniz, 2009). It is also important to have a dynamic perspective on the position of actors since they may change as the different stages of projects unfold. Several methodologies are useful in representing these 'negotiation landscapes', for example the introduction of 'what-if' simulations, maps charting the influence and interdependence between actors and analyses of the degree of convergence and divergence between actors, the distribution of power and the level of centrality in decision making processes (Bendahane et al., 2005; Derkzen et al., 2008). In this context, the identification of potential conflicts and the assessment of the feasibility of different policies may also be critical (Hermans, 2008).

Quadruple Helix Model

Quadruple Helix (see Carayannis and Campbell 2009) The Quadruple Helix model is based on the Triple Helix model and adds as fourth helix the 'public', more specifically being defined as the 'media-based and culture-based public' and civil society. This 'fourth helix associates with "media", "creative industries", "culture", "values", "lifestyles", "art", and perhaps also the notion of the "creative class"' (Carayannis and Campbell 2009, pp. 218, 206).

Carayannis and Campbell acknowledged the nonlinear dynamics within the Triple Helix and extended this to the Quadruple Helix (see Carayannis and Campbell 2009, p. 218): The Triple Helix is broadened within the Quadruple Helix through a media-based and culture-based public subsystem. The purpose of this extension is to include the public as well as the civil society as a fourth subsystem. The media-based public not only supports the diffusion of knowledge in a state (nation-state), but also the culture-based public with its values, experience, traditions, and visions, which promotes knowledge for the knowledge society (Carayannis and Campbell 2009, pp. 217–227)

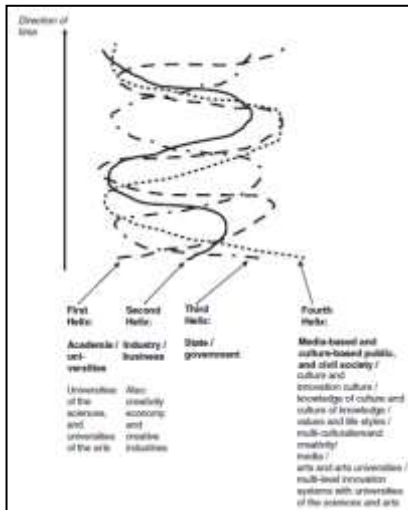
Let us consider now in greater detail the production of the resource of knowledge. Knowledge (for example, the advancement of green technology) can act as key to success for sustainable development. Essentially, it should be understood today that nation-states that concentrate on the progress of society, higher competitiveness of their economies, or better and sustainable quality of life have to apply the resource of knowledge. In the transformation to a knowledge-based society, knowledge-based economy, or knowledge-based democracy (see Carayannis and Campbell 2009, p.

224). This should emphasize that a broader understanding of knowledge production and innovation application requires that also the public becomes more integrated into advanced innovation systems. The public uses and applies knowledge, so public users are also part of the innovation system. In an advanced knowledge society and knowledge economy, knowledge flows out into all spheres of society. When we speak of the “public” in context of the Quadruple Helix, we mean in more particular: the media-based and culture-based public and civil society. But also other aspects are being addressed as well: culture (cultures) and innovation culture (innovation cultures) 19 ; the knowledge of culture and the culture of knowledge (Carayannis 2012) ; values and life styles; multiculturalism, multicultural, and creativity; media; arts and arts universities; and multilevel innovation systems (local, national, and global), with universities of the sciences, but also universities of the arts.

These diverse and heterogeneous settings of culture should help fostering creativity, which is so necessary and essential for creating and producing new knowledge and new innovations. “ We can also call this the creativity of knowledge creation ” (Carayannis and Campbell 2010 , p. 48). In organizational and institutional terms, this encourages developing “Creative Knowledge Environments.” Hemlin et al. (2004 , p. 1) define such contexts in the following way: “Creative knowledge environments (CKEs) are those environments, contexts and surroundings the characteristics of which are such that they exert a positive influence on human beings engaged in creative work aiming to produce new knowledge or innovations, whether they work individually or in teams, within a single organization or in collaboration with others”

METHODOLOGY

This research used a mixed method research to overcome the weaknesses that exist in the approach of both quantitative and qualitative approaches. More specifically, the research method chosen is Concurrent Triangulation Strategy which uses quantitative and qualitative methods together, both in data collection and analysis, and then compare the data obtained, so that it can be found where the



data can be aggregated and distinguished. Dominantly used qualitative approach to seeking the truth through discovery of the essence of phenomenon and putting a human as research instrument that is responsive and adaptive. This research use Social Networking Analysis through participant observation approach, the researcher is directly involved as active agents and sources of information, participate actively participating in learning process directly, or be passive recipients of information through deep interview. The number of respondents of this study was more than 15 people included local authorities, private sector, empowerment agent (academician), local informal leaders and local people.

Fig 1. The conceptualization of the “Quadruple Helix” innovation system.

Characterisation of Case Study

Pangalengan is one of sub-districts in Bandung district, West Java. Pangalengan is located at south, 41 km away from Bandung city and this sub-district is famous with several tourism places, which are Situ Cileunca and Cibolang Hot Spring. Pangalengan is located at plateau, 1500 dpl above sea level precisely, with the temperature around 13 – 25 OC. Pangelangan is also well-known with its agriculture and livestock. However, since the earthquake in 2009, most of area in Pangalengan destroyed and its economic condition declined drastically.

Started in 2009, Start Energy cooperates with School of Business Management ITB (SBM-ITB) to promote a social entrepreneur program for Pangalengan community. This program is initiated

by doing social mapping to explore social-economic-cultural condition in Pangalengan. The result of mapping recommended Start Energy to invent in managerial and financial support to micro, small and medium business (UMKM) in Pangalengan. The implementation of the program then realized it through three projects, namely the Entrepreneurship Training Center, Incubator, and Micro Credit through Nurkayana UMKM Cooperation.

After almost four years it had established (2009-2013), the project showed positive progress. First, related to the community cultural values and orientation. Our observation shows that local people are more open with the introduction of technology and more being optimistic toward their future and next generation. They also more respect cooperation and willing to try a new collaboration to create a good result to improve their quality of life. Second, related to local economic development, through Nurkayana UMKM Cooperative (Koperasi Nurkayana) which is established by Start Energy, at the end of 2010, Nurkayana UMKM Cooperative has been able to roll out savings and loan funding to 23 of its members that passed the 2 years selection with diverse business and production generated from each of the micro business (Bambang Rudito, 2014).

Towards a characterization of actor's network

In relation to rural development, majority of people in the Pangalengan said they life is a fate. They tend to have short-time orientation with little consideration for future and sustainability. They are individualistic, have high prejudice with other people success but tend to be dominant. They also have negative perception related to cooperation. It is why mostly of collaborative works always fail to develop in Pangalengan. Bring Innovation to this area is full of complexity and potential conflict. There should be process of communication through certain channel in local community. Government's encouragement does not guarantee the feasibility of the project can be implemented.

In this case program initiated from Star Energy (as a corporation). Start Energy Geothermal Limited is an oil and gas company. One of its operational areas is located in Wayang Windu, Pangalengan, South of Bandung. The CSR programs of Start Energy's in Wayang Windu focuses on a community development in agriculture sector. Star Energy have several program of CSR which are not sustainable in Pangalengan. Star Energy cooperates with School of Business Management ITB (SBM-ITB) to conduct community research in order to looking for key of solution for make sustainable program. SBM ITB makes ethnography collaboration with local agent (leader of community organization). They bridge the cultural communication, and also learning from several factors, such as the individual perspective, set of values and attitude of each agent.

Local agent as a media-based public supported not only the diffusion of knowledge, but also the culture-based public with its values, experience, traditions, and visions, which promoted knowledge for the knowledge of society. Through the empowerment, local agent can be transformed into leader from SME's community. Local agent together with the community initiated to build SME's Cooperative after empowerment program from SBM ended.



Fig 1. Role of Actors

Shifting role towards Innovation Process

Innovation-Development Process (Proses Pengembangan Inovasi) is the activity that consists of decision, activity, and impact which appears from introduction of both need and problem through research, development, and innovation's commercialization which is conducted in diffusion and adoption method by user and the impact result. These are following stages in innovation's development. Every stakeholder holds specific role which also transforms themselves through the process when stages are conducted.

Problem Introduction and Research

The process of introduction of problem and need is divided into two processes. First process is social mapping of residence by ethnography method to deepen culture value, started from residence's orientation value, point of view, lifestyle, and life expectation. The result shows that Pangalengan has many UMKM entrepreneur whom have role as main economic driver. Unfortunately, micro enterprise sector does not develop well because it always gets tackled by limited fund, managerial skill, and market. The second process is mapping of UMKM users' condition (CIEL and SBM together with local residence, 2009, post earthquake) by bottom up approach of users in economic view, from production system, distribution, and up to UKM users' consumption by participated observation method and interview.

The research is conducted by direct observation of UMKM users in every villages and participative research (action research) is conducted directly afterwards with need and problem as the basic.

Knowledge

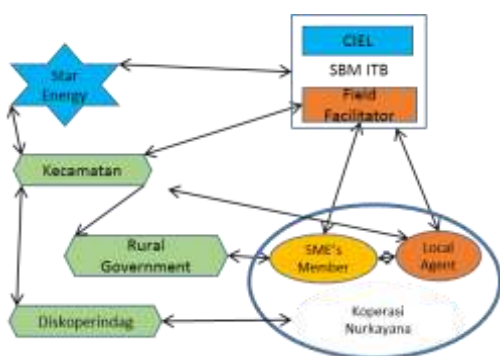
Knowledge's improvement phase has been conducted for 8 months (December 2009 – July 2010) with these following methods:

- General Training, which teaches knowledge that UMKM users need which is based on result of research. The knowledge that is needed consists of business planning, financial management, organization, marketing, design, and innovation.
- Focus Group Discussion (FGD) which is clustered, based on knowledge's application similarity from established business type.
- Private consultation (direct/ indirect)
- Application

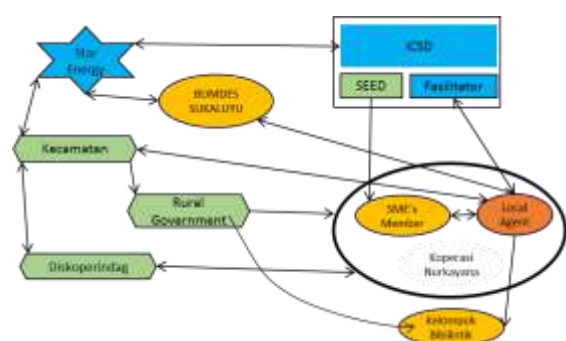
After training and consultation, UMKM users started to apply something to improve their enterprise quality:

- Accounting Management
- Packaging Development and Marketing
- Legislation
- Production Technique Development and Organization management

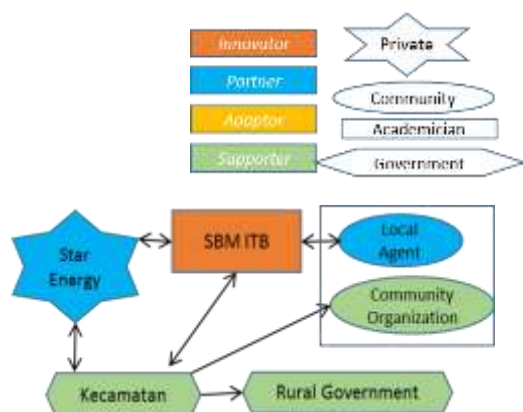
Problem Introduction Phase Networking



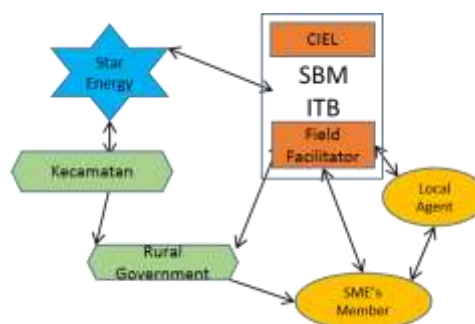
Research and Knowledge Phase Network



Application and Organization Phase Network



Current Network



The Success Factor of Innovation Application in UMKM at Villages

The important factor to facilitate UMKM's innovation at village, according to Hindle (2007), is knowledge and skill, business network, competition, link to higher education institute. In empowerment program, improvement and skill are reached by knowledge's dissemination phase which is conducted by general training, FGD, and private consultation. Business network and competition is formed through the creation of UMKM's communication forum in form of cooperation where users can exchange ideas, discuss, develop supply chain, and compete each other in production's improvement at market. Link to higher education institute is reached by cooperation of empowerment program by SBM ITB as academic consultant in knowledge transfer and empowerment facilitation by trainer and facilitator.

The other influencing factor that succeed the program is full understanding towards UMKM users through user's glasses and track, also trust establishment which is intensive and intimate. Sometimes when intellectuals come to village, they bring abundance theories that compartmentalized comprehension towards residence with academic comprehension which makes it difficult to obtain the root of problem objectively. Observation skill and condition comprehension also usually difficult to differentiate between users' desire and need. The communication development in order to make trust establishment is also the field knowledge that needs high experience hours to disperse to every elements of residence without any subjective view.

Innovation development ensures users not only enable to know information about innovation but also understand and enable to apply it and grow the desire to keep innovate independently. The final result of the empowerment development is residence that enable to actuate the empowerment independently, without facilitator. One of efforts to strengthen the role is the creation of organization based on community's consciousness so there would be a role transition by local residence.

CONCLUSION

Based on the analysis it can be concluded that the innovation appears regarding the needs of problem solving. Strategy of systematical innovation is needed to have the innovation of empowerment program implemented and quickly adopted, conflicts and unwanted consequences can be reduced as well. Related to the region innovation system there are several elements have to be fulfilled by creating interaction among regions that conducting learning of knowledge and innovation and built a network of stakeholders who have an influence in the division and conducting program. From the explanation above, it can be said that existing innovation program in Pengalengan is an example that is already showing signs that innovation system in rural area is about to begin. Where subdistrict area of Pengalengan has been able to conduct learning consistently in developing innovation knowledge of entrepreneurial management within interpersonal interaction in quadruple helix network, including the

star energy (private), districts and Diskoperindag (government), SBM and ICSD (Academics) and the dominant role of UMKM (society). Quadruple Helix through a media-based and culture-based public subsystem. Local Agen and Koperasi Nurkayana as media based effectively being extension for the public as well as the civil society as a fourth subsystem. Koperasi Nurkayana not only supports the diffusion of knowledge in Pangalengan, but also the culture-based public with its values, experience, traditions, and visions, which promotes knowledge for the knowledge society. In contrast to some of the innovations that commonly applied in other regions in Indonesia, innovation related to the settlement of the territorial issue and the urban areas in general are still divided between the various parties. Then reflecting the successful empowerment program of UMKM in Pengalangen, diffusion of innovation in UMKM is possible to achieve in rural areas to solve the problems.

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ROLE OF INDONESIAN INSTITUTE OF SCIENCES IN EMPOWERING SMALL-MEDIUM ENTERPRISES TO USE APPROPRIATE TECHNOLOGY IN VILLAGES AT REGENCY OF SUBANG

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ABSTRACT

Indonesian Institute of Sciences (LIPI) is the largest research and development (R&D) institute in Indonesia. LIPI's headquarter is located in Jakarta, capital city of Indonesia, by which LIPI is supported LIPI's branches widely dispersed in many areas in Indonesia. Each branch of LIPI has specificity and special duties in doing R&D activities starting from basic sciences, applied sciences, social sciences until interdisciplinary sciences. One of LIPI's branches that conducts applied sciences is *Centre for Appropriate Technology Development (CATDev-LIPI)* located in Regency of Subang, West Java Province, Indonesia. *CATDev-LIPI* focuses on researching, developing, and disseminating appropriate technologies originally rooted from local resource and culture. Practically, *CATDev-LIPI* pays attention more to small-medium enterprises (SMEs) located in villages of Regency of Subang in using and optimizing appropriate technologies developed by *CATDev-LIPI* itself, SMEs, and other institutions/enterprises that they also develop similar appropriate technologies. In Regency of Subang, total number of SMEs is 5.873 units in 2013 year. Unfortunately, not all SMEs use either low, medium, or high technology, most of them focus on trading activities. Only do limited number of SMEs run their business using technology, more notably appropriate technology in villages of Regency of Subang, West Java Province. In this case, role of *CATDev-LIPI* is focused on empowering SMEs that they use particular technology in their production activities. In reality, some SMEs in Regency of subang face many challenges in developing their business starting from capital, market, management, human resource, and technology. Majority of them are located in villages where those areas have limited public access and facilities hindering their daily business activities. Presence of *CATDev-LIPI* through "local science and technology program (*IPTEKDA*)" is able to support and promote SMEs to leverage their business scale comprising not only in marketing and managing business but also in optimizing appropriate technology. Evidently, there are five SMEs in Regency of Subang that they are intensely assisted by *CATDev-LIPI* to use appropriate technology in their production activities. This study is qualitative research method by using case study as a main approach. Concept of innovation diffusion initiated by Roger is as key analysis framework in this study. This research was conducted in 2015 year by interviewing and observing five SMEs located in Regency of Subang. They has been assisted by *CATDev-LIPI* until now comprising of SMEs of poultry fodder, SMEs of pineapple products, SMEs for wheat flour products, SMEs for cassava products, and SMEs of cattle stockbreeding. This study finding is that each of SMEs has unique characters in adopting and running appropriate technology in their production scale, many new challenges are also faced in each SME. Through role of *CATDev-LIPI* with optimizing *IPTEKDA* program, they are able to minimize technology usage problems and able to increase business income as well.

Key words: Indonesian Institute of Sciences, Small-Medium Enterprises, Appropriate Technology, Villages, Subang Regency.

INTRODUCTION

Around the world, small-medium enterprises (SMEs) are business units which are created by many people to increase their income. In advanced countries, SMEs are created by creative people or real entrepreneurs to increase their economy as well as to grow new business model. Conversely in developing countries like Indonesia, SMEs are mostly dominated by those who do not have a job in formal sectors such as government office, private-owned large enterprises, state-owned enterprises, multi national corporations, and other legally medium-large enterprises. In other word, they who do activity of SMEs are informal sector category [1]. In Indonesia, classical and continuous problems of SMEs are limited funding, low-quality human resources, conventional business management, traditional production and marketing proses, lack of coordination, and usage of limited advanced technology [2] [3] [4]. Also, minimal role of local government in promoting SMEs in higher economy level is remaining many questions [5]. According to Saedah, Indonesia has number of SMEs accounted by 3,9 million units, those SMEs are able to absorb 9,14 million people. The majority number, 75% SMEs are widely located in all provinces in Java Island, and 25% of them are dispersed outside of Java [6].

Geography area is determinant factor for SMEs to access many public and private facilities. Commonly, SMEs that are able to access new technology are located in industry areas, in Java Island especially. Recently, SMEs are hindered by technology in processing and marketing their products. Technology is one of main triggers to grow each SME in fostering business span [5] [7] [8] [9]. In Regency of Subang (West Java Province), total number of SMEs is 5.873 units in 2013 year. Majority of them are located in villages where those areas have limited public access and facilities hindering their daily business activities. At common, they focus on traditional production sector like poultry fodder, pineapple products, wheat flour products, cassava products, and cattle stock breeding. Agriculture and cattle are basic production sector developed by local people in Regency of Subang. SME's handicap are classical problems (funding, human resources, management, coordination, marketing, and technology) [10].

Utilisation of technology is crucial factor of SMEs in this area, so that creative SMEs are limited in this area. Availability of technology is a must for increasing competitiveness [11]. Limitation of technology used by SMEs in Regency of Subang is assisted by role of Centre for Appropriate Technology Development (*CATDev*) - Indonesian Institute of Sciences (LIPI)¹³. It is located in Regency of Subang at West Java Province (in Java Island). This institution facilitates SMEs to create and use appropriate technology Regency of Subang and its surrounding area. Again, disseminating and marketing SME's products are main program which is jointly conducted between SMEs and *CATDev*. Involvement of *CATDev*-LIPI in assisting SMEs to use appropriate technology is part of program which is called "IPTEKDA". It is the program aimed to assist and to develop traditional SMEs in local area, particularly for those that have limited access in funding, technology, management, human resources, and other facilities. At practice, this assistance program yields fruitful result as soon. Many SMEs has benefited various appropriate technologies developed by themselves, starting from production stage up to marketing stage. In addition, this program is able to push several SMEs in recycling waste of cattle to be bio gas energy.

At glance, it seems easy of how *CATDev*-LIPI assists and pushes SMEs to be intensively involved in creating and utilising appropriate technology. Notwithstanding, many challenges and handicapes are faced by *CATDevs*-LIPI in running this effort. Factually, there is special strategy how *CATDev*-LIPI can implement IPTEKDA program successfully. Therein function of *CATDev*-LIPI is central in addressing challenges during continuous IPTEKDA's program. Surely, this study will answer about how can *CATDev* promote and encourage SMEs in creating and utilising appropriate technology through IPTEKDA program ?

¹³ *CATDev*-LIPI is LIPI's branch located in Regency f Subang area at West Java Province. It will be more detailed discussed in section 2 below (profile of *CATDev*-LIPI).

CONCEPTUAL FRAMEWORK

Small and Medium Enterprise (SME)

The small and medium enterprise (SME) sector has an important role to play in economic development (backbone), poverty reduction and employment creation in developing economies [9] [12]. Many terms are present related to definition of what small and medium enterprise (SME). Definition of SME is depended on number of employment, capital investment, production scale, and laws embedded in a region/country.

Based on research result conducted by Faculty of Management – University of Indonesia in 1987, profile of SME is defined as follows [13]:

1. This business unit faces classical problems like: investment, easiness to access business license, location, marketing products, business relationship, and procurement of supporting goods.
2. Minimal capability of human resources in collecting investment, in marketing products, and lack of technical and administration skill in managing business.
3. Tend to expect governmental assistance/programs like investment, marketing, procurement of supporting goods.
4. At least, 60% using traditional technology.
5. At least, 70% marketing direct products to consumers.
6. To get governmental assistance or other assistance, preparation of document is deemed to be totally difficult and complex.

According to Indonesia laws, SME has distinctive characteristic based on capital investment number. National Act Number 20 Year 2008 about micro-small-medium enterprises mentions that:

Micro enterprise:

- Having net economy value maximally accounted by IDR 50.000.000 (fifty million Indonesian Rupiah). It is not included land and building assets which are used to run business.
- Having annual sales value maximally accounted by IDR 300.000.000 (three hundred million Indonesian Rupiah).

Small enterprise:

- Having net economy value ranging from IDR 50.0000.000 ((fifty million Indonesian Rupiah) to IDR 500.000.000 (five hundred million Indonesian Rupiah). It is not included land and building assets which are used to run business.
- Having annual sales value ranging from IDR 300.000.000 (three hundred million Indonesian Rupiah) to IDR. 2.500.000.000 (Two billion and five hundred million Indonesian Rupiah).

Middle enterprise:

- Having net economy value ranging from IDR 500.0000.000 ((five hundred million Indonesian Rupiah) to IDR 10.000.000.000 (ten billion Indonesian Rupiah). It is not included land and building assets which are used to run business.
- Having annual sales value ranging from IDR. 2.500.000.000 (two billion and five hundred million Indonesian Rupiah) to IDR. 50.000.000.000 (fifty billion Indonesian Rupiah).

Appropriate Technology

Basically, technology is a means to easily assist and help people in running daily activities. Technology is not only hardware like machines, tools, but also software like information system [14] [15]. According to Indonesian Act Number 3 Year 2014 about Industry (Article 1 subsection 12) mentions that “Industry technology is development result, maintenance, invention, and/or innovation in form of technology process and product technology included engineering and prototype design, method, and/or applied system in industry activities”.

Appropriate technology (AT) is not divided into either advanced or simple technology, it more concerns how a technology can be applied in a particular time and place [16]. The concept of AT hence endeavors to eliminate the adverse effects of modern technology by devising the same to retain its organic link between man and nature and to sustain growth by making units as small as

possible. It also tries to change the life-style of the world by bringing mankind back to a life of simplicity which is in harmony with nature. The concept of AT is also closer to the operation of small scale industries. It advocates for smaller technologies dispersed in various areas with a bias against sophisticated large scale capital-intensive technologies [17]. According to Indonesian laws, appropriate technology (AT) is defined as follows:

1. Law of Ministry of Small-Medium and Cooperative Number: 26/Per/M.Kukm/VI/2007, on Article 9 Chapter 1: appropriate technology is technology which can be economically and technically used and exactly applied in a production process.
2. Law of President Instruction Number 3 Year 2001 about implementation of appropriate technology. Appropriate technology is technology which can be easily used by users/people in accordance with their needs. It can answer many problems, save green environment, increase added value of economy and life environment. An appropriate technology is developed and applied in condition for:
 - a. Accelerating economy recovery, increasing and developing society activities, enlarging job vacancies and new enterprises, increasing productivity and production quality.
 - b. Promoting regional development through improvement of human resource quality and responsible utilisation of natural resources toward competitive advantage at local, regional, and global level.
 - c. Triggering emergence of innovaton at technology field.
3. National Act No. 20 Year 2008 about micro-small-medium enterprises, main subjects of appropriate technology development are:
 - a. Unemployment/jobless/poor people, and those who can not continue their education level.
 - b. People who have small-medium enterprise and need appropriate technology in developing their enterprises.
 - c. Rural and urban areas which need appropriate technology in developing region.
 - d. Institutions which function to address problems of innovation of appropriate technology and to serve individual/society/community in using appropriate technology.

IPTEKDA Program

IPTEKDA or assistance for developing science and technology at local area is the program aimed to assist and to develop traditional SMEs in local area, particularly for those that have limited access in funding, technology, management, human resources, and other facilities. This program is yearly initiated, conducted, and funded by Indonesian Institute of Sciences (LIPI). The most responsible agency in planning and implementing IPTEKDA is Bureau for Finance Planning (BPK) at LIPI. Based on guideline for formulating IPTEKDA in 2016 year, IPTEKDA is not only a effort to conduct commercialisation of research and development (R&D) products in business perspective, but also a responsibility of LIPI to empower society. This program is aimed to reduce poverty through empowerment of SMEs. This empowerment is consisted of science-technology (S&T) support, funding, sustainable business, and innovativeness. By this program, SMEs are reinforced by S&T approach and sustainable-managed fund [18].

IPTEKDA scheme is aimed to promote local potency in order to be local prominent products. Application of IPTEKDA is implemented by involving universities, R&D institutions at local areas. Through this strategic cooperation scheme, it is possible to provide S&T support to SMEs optimally in order to accelerate innovation process. Surely, innovation can emerge by means of low production and operational cost as well as effective and efficient goal, considering this program is decentralised program of LIPI [18]. The main goals of IPTEKDA are following [18]:

- a. Benefiting capability of researchers and engineers of S&T in promoting increase of technology and economy on SMEs and opening job creation.
- b. Linking close interaction between academician/research field and enterprises/business field.
- c. Promoting SMEs to benefit S&T in order to foster development of sustainable enterprises.
- d. Increasing competitiveness of SMEs thourgh S&T input, training for technology capability, enterprise mentoring, widening market share, reinforcing enterprise capital.

Innovation Diffusion

Joseph Schumpeter formulated a classic definition, which still serves today as a basic definition of the word: Innovation is the planning, generation and realization of new products, product quality, manufacturing processes, new methods of organization and management, as well as the development of new markets to buy and sell goods. In addition, Schumpeter stresses that innovation is generated by people [19]. Whereas, Borras and Edquist define innovations as new creations of economic and societal significance, primarily carried out by firms (but not in isolation) [20].

Innovation is an interactive process comprising three components namely: invention of new technology; technology diffusion; and utilisation of technology by users/people [21]. According to this definition, innovation is not on “vacuum space”, it must be implementable to users. Innovation is not stagnan process, it needs to be distributed from creator/innovator to users/beneficiaries. Commonly, we recognize its activity as innovation diffusion. Kossai and Piget mention, economic theory suggests that the diffusion of new technologies can have a significant impact on economic growth and development [22]. Faced with shortages of capital, technology, and talent, entrepreneurs in developing countries need to find solutions to their problems with scarce resources. These innovations are largely low-cost solutions addressing the needs of low-income customers. Therefore, if these kinds of innovation diffuse, they typically spread to countries with similar socio-economic conditions [23].

Rogers uses concept of “innovation diffusion” to describe feasible innovation from creators to users. Diffusion is the process by which an innovation is communicated through certain channels over time among the members of a social system. Diffusion is a special type of communication concerned with the spread of messages that are perceived as new ideas. Whereas, an innovation is idea, practice, or object perceived as new by individual or other unit of adoption. In this case, innovation diffusion is 1) an innovation, 2) which is communicated through certain channels, 3) overtime, 4) among the members of a social system. And then, innovation difusion comprises five steps in this process namely: 1) knowledge; 2) persuasion; 3) decision; 4) implementation; 5) confirmation [24].

Innovation diffusion is permeation of innovation adoption of an individu who has adopted innovation to other individu in same social system environment. Innovation diffusion is not totally different to innovation adoption process. In adoption process, innovation carrier comes from outside social system environment, but in innovation diffusion, innovation carrier comes from inside social system environment [25].

Analysis Framework

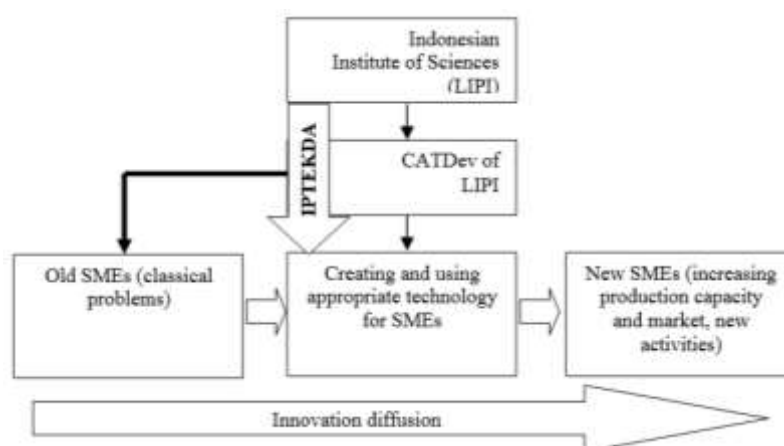


Figure 1. Analysis Framework

In this study, old SMEs face many classical problems particularly limited funding, weak management and coordination, as well as minimal production capacity. Through assistance conducted by CATDev-LIPI, old SMEs are pushed to use appropriate technology developed by CATDev-LIPI and many other technology creators in Regency of Subang and its surrounding area. In this case, CATDev-LIPI

utilises IPTEKDA program funded by LIPI as central institution of CATDev. Whatever CATDev-LIPI conducts to assist SMEs in Regency of Subang is type of innovation diffusion at practice. This program yields fruitful result in which SMEs are able to grow as new enterprises and to increase production capacity and market as well.

RESEARCH METHODOLOGY

This research is qualitative research using case study approach. For scientific reason, this study aims to get and describe real data such “reasoning, condition, argument, and strategy” related to how CATDev-LIPI assists SMEs in creating and utilising appropriate technology (AT) in Regency of Subang. Yin [26] reveals that qualitative research is focused on naturalistic phenomena by which researcher is key instrument in digging up data. Therefore, this research is not to generalise existing phenomena, it describes clearly and more detailed existing phenomena where those subjects¹⁴ are present. In qualitative method, relation between researcher and subject is very close and intense.

Primary data were collected by two main technics namely interview with informants (subject of research) and direct observation at field. Also, this research is supported by secondary data withdrawn from review literatures like scientific books, journals, articles, electronic mass medias, scientific proceedings, and relevant documents (laws, acts). To avoid subjectivity, both primary and secondary data were entirely and concurrently collected through triangulation method involving capability of researchers. This research time was conducted in 2015 year involving 5 (five) SMEs as main research subject (Table 1). Those SMEs were chosen because they are actively involved in IPTEKDA program conducted by CATDev-LIPI in 2014 year. In addition, they have been succesful SMEs by which each SME is able to show significant change either before they had not got assistance from CATDev or after they have got assistance from CATDev.

Table 1. Five SMEs as Research Subjects in Regency of Subang¹⁵

No.	Name of SME	Location
1	Cassava products	
2	Poultry fodder	
3	Pineapple products	
4	Wheat flour products	
5	Cattle stockbreeding	

FINDINGS AND DISCUSSIONS

Regency of Subang at Glance



Figure 2 . Map of Subang Regency in Java Island

Source: https://id.wikipedia.org/wiki/Kabupaten_Subang [28].

Subang Regency is a regency of West Java, Indonesia. It has an area of 1,893.95 km² and its population was 1,465,157 at the 2010 Census; the latest estimate is 1,575,649 at the 2014 census. Its administrative seat is in the town of Subang [28]. This area has height between

500-1500 metre from sea surface (41.035,09 hectare or 20% from all Subang area). Subang comprises several districts i.e.: Jalancagak, Ciater, Kasomalang, Sagalaherang, Serangpanjang, Jalancagak and Tanjungsiang [29]. On the map above (red colour), Regency of Subang is located among regencies of

¹⁴ In a qualitative research, people are functioned as subject, not object as quantitative research method. This is because people as interviewee have close relationship with researcher as interviewer at field. See Maxwell [27] : A Realist Approach for Qualitative Research, SAGE Publication.

¹⁵ The number and kind of informants are forward developed from study of Khusnawati and Prasetyo in 2015 Year [10].

West Java Province. This area is part of West Java Province located in Java Island. From Subang to Jakarta, capital city of Indonesia is reached around 134 km to west direction. Regency of Subang has rich local potential which it can be developed to higher economy value. Many local resource-based SMEs are located here. Based on yearly report of Government of Subang in 2013 year cited by Khusnawati and Prasetyo, the number of SMEs is 5.723 units in 2012 year and 5.873 units in 2013 year. SMEs grow as accounted by 2,60% for a year (2012-2013) [10].

Profile of CATDev-LIPI

The Centre for Appropriate Technology Development (CATDev) was initially designated as the Division of Appropriate Technology Development (DATD) in 1986, a unit within the R&D Centre for Applied Physics, Indonesian Institute of Sciences (IIS). Both CATDev and IIS is branch of Indonesian Institute of Sciences (LIPI) which has headquarter in Jakarta-Indonesia. Located in Subang, West Java Province, CATDev is a manifestation of IIS concern to fulfill the community need for appropriate technology, was supported by the local Government of Subang District and UNDP. Parallel with the dynamics of national socio-economic situation, CATDev broaden their scope of activity including small and medium enterprise's development addition to its focus i.e. community development.

CATDev vision is to become a national reference in development and implementation of appropriate technology (AT) toward sustainable development, with the mission is to cater the necessity of government, community and small and medium scale enterprises for AT. As a technology provider, CATDev support community and small medium enterprises in need of technology innovation in the area of food, agriculture, energy and implementing the technology. The approach of program implementation is not only designated to create employment opportunities, but also to support government policies in applying regional development strategies. The main activities of CATDev :

- a) **AT Development** - They promote design and engineering of equipment and processing technology needed by people and small and medium enterprises in the area of food, agriculture, energy and environmental technology.
- b) **Community Development** - CATDev develop strategy for CD through implementation of AT to strengthen the capacity of community in generating sustainable sources of income by optimally utilizing their potency. We provide consultancy, assistance in the process of technology transfer and implementation of community empowerment strategy.
- c) **Training and Disseminating Ideas of AT** - Training is a method that has been consistently utilized to disseminate ideas of AT. It is offered as packages of many subjects to include area of food and feed technology, post harvest, renewable energy and entrepreneurships. CATDev also disseminates its activities and best practices through public library, printed and electronic media, international and national conference on AT.
- d) **Empowerment SMEs** - Technical assistance for small and medium enterprises through various program i.e. financial and technical support through application of technology transfer strategy.

CATDev is supported by 126 personnel consisting 55 experts, 22 technicians, and 55 supporting staffs. They has infrastructures and facilities as the followings:

- Building for Education and Training
- Meeting rooms with capacity 80-100 people
- Guest House with capacity 30-50 people
- Laboratory Food/Post Harvest Processing
- Laboratory for food and animal feed testing
- Warehouse of Metal Mechanic
- Warehouse of Woods
- Pilot Plant for Fruit and Vegetable Processing
- Pilot Plant for Flours and Derivatives
- Pilot Plant for Fish and Avian Food
- Clean Water Production



Figure 3. Organization Structure of Centre for Appropriate Technology Development
Source: LAKIP Pusbang-TTG LIPI (2015) [16]

Division of management and dissemination of R&D results is the most responsible division to apply appropriate technology to users (SMEs). This division is divided into sub-division of dissemination and cooperation and sub-division of management of R&D results. In other field, researchers and engineers groups are those who create and innovate new appropriate technologies. Besides, mentoring and empowering are main functions of CATDev included in its division and researchers/engineers inside. Support of two divisions namely division of administrative affairs and infrastructures development is not never absent in every CATDev's activity.

Disseminating Appropriate Technology In Practice: Strategy and Its Results

Strategy

CATDev is funded from governmental budget, especially from LIPI's budget. Annual activity conducted by CATDev is not separated from main goal of LIPI. As an applied science institution, CATDev focuses on how technology can be applied by users, and one of them is Small-medium enterprise (SME) located in Regency of Subang area. Assistance of applied technology to SMEs is main priority of CATDev. In some cases, CATDev also provides assistance of raw materials for SMEs to continue their production process. This program is funded through program of IPTEKDA-LIPI (Table 2).

Table 2. Technology Type for Five SMEs Provided by CATDev through IPTEKDA Program

No.	Name of SME	Year	Assistance of applied technology
1	Cassava products	2013	Stage I <ul style="list-style-type: none"> - 1 unit of wheat production machine - 3 gas stoves and two household fireplaces - Raw materials: 2383 kg ambon bananas, 100 kg glutinous rice, 100 kg white rice, 100 litre cooking oil Stage II <ul style="list-style-type: none"> - 1 unit of cormorant/boiler by capacity 30 litre - 1 package of digital printing - Raw materials: 2025 kg ambon bananas, 100 kg glutinous rice, 100 kg white rice, 50 kg wheat flour, 30 litre cooking oil Stage III <ul style="list-style-type: none"> - Raw materials: 100 kg glutinous rice and 100 kg white rice - 1400 sheets of packing by width 18x26 cm
2	Poultry fodder	2014	<ul style="list-style-type: none"> - Changing existing production machines from diesel machine to electricity machine

			- 1 unit tool to cast "pellet"
3	Pineapple products	2014	- Pulper press - Refractometer - Digital weight - Pleneumatik system wrapper - Desaign of packaging
4	Wheat flour products	2014	- Disk for milling wheat - Machine to run wheat mill - Establishing a "well" by using jet pump machine - Repairing drying machine - Widening scuttle for precipitation of tapioca
5	Cattle stockbreeding	2014	- 1 unit for cutting grass - 1 unit of biogas digester biogas by capacity 5,5 metre cubic - Repairing shed/stalls for cattle - Adding 9 caws

Source: Khusnawati and Prasetyo (2016) [10]

Here, the role of CATDev is not merely as R&D institute, but also as government institution. As government-funded institution, CATDev runs two directly concurrent roles namely: as provider service to empower and mentor SMEs and also as innovation initiator by using S&T approach in assisting SMEs to grow well. Taufik stresses that government role in developing countries is vital to encourage and accelerate growth of industries which its growth is based on innovation [30]. Based on innovation diffusion initiated by Roger [24], CATDev disseminates many applied technologies which is created by CATDev itself and SMEs to other SMEs in Regency of Subang region. CATDev uses many communication channels in disseminating appropriate technology. Firstly, CATDev cooperates with local government agencies of Subang Regency. Certainly, many similiar programs between CATDev and Regency Government of Subang in fostering SMEs in in this area, especially regarding with innovation-based SMEs.

Secondly, local knowledge is used by staffs/officials of CATDev in communicating with local SME players is very important for continuation of this program. Use of *Sundanese* language deeply rooted in *Sundanese* people of Subang area is key strategy conducted by CATDev's staffs/officials. Not rarely, researchers/engineers of CATDevs are directly involved in running production and marketing process conducted by SMEs. The key is local people who are involved in communicating appropriate technology. This way is to accelerate dissemination and diffusion of applied technology initiated by CATDev. Thirdly, CATDev provides training and workshop in creation and application of applied technology for SME entrepreneurs in Regency of Subang region and its surrounding areas. Not only in production process, but also in marketing field, SME entrepreneurs are encouraged to increase business level through applicable technologies. CATDev runs this program routinely to assist SMEs as well as to disseminate applied technologies. Staffs and officials in Regency of Subang are ready to assist SMEs every time and every where, because they have good skill in terms of training and workshop for SMEs.

One of prominent programs to support CATDev's program is IPTEKDA. As discussed above, this program is directed to assist SME entrepreneurs concerning with application of technology created by research and development (R&D) centres of LIPI. CATDev utilises IPTEKDA program to reinforce funding in disseminating applied technology created by CATDev itself. Also, this program has spirit of sustainable entrepreneurship empowerment to bear new and young entrepreneurs in local areas. Therefore, two programs in disseminating applied technology and in growing new entrepreneurs can be concurrently implemented through CATDev program and IPTEKDA program. IPTEKDA is not a communication channels of innovation diffusion, but it is a program by which three communication channels initiated by CATDev are easily implemented at field. IPTEKDA is LIPI's large program to assist development of SMEs and to reduce poverty of SMEs as well. CATDev benefits this program to facilitate and accelerate CATDev's programs of appropriate technology application in local area. IPTEKDA is very helpful for CATDev in disseminating and in diffusing R&D results to users (SMEs). Notwithstanding, IPTEKDA is not sole program to support CATDev's programs in its daily activities.

Results

IPTEKDA and CATDev's programs are useful for disseminating and diffusing applied technology, also for developing SMEs in rural areas. There are significant impacts of those programs, each SME has developed as new business units by conducting production and management change. Variation and increase of products are significant impact of applied technology dissemination and diffusion initiated by CATDev. Even, one of SMEs is able to recycle waste to useful energy (biogas) to sustain its business continuation (Table 3).

Table 3 . Change of SMEs Before-and-After IPTEKDA Implementation

No.	Name of SME	Before Iptekda	After Iptekda
1	Cassava products	Production was operated by order system (household capacity)	Able to vary products differentiation and quality as well as continuous production process
2	Poultry fodder	Limited in production process due to old machine by using diesel-fueled machine	Able to maximize production process. In next stage, electricity cost is handicap for this SME to run its business
3	Pineapple products	Small production capacity due to manually-operated production process	Able to increase production capacity, product quality, and increase sale of products
4.	Wheat flour products	Small production capacity due to manually-operated production process	Able to increase production capacity, product quality, and increase sale of products
5	Cattle stockbreeding	Difficult to recycle cattle waste; limited in cattle fodder; not feasible cattle shed/stalls	Able to integrate for fattening cattle, recycling cattle waste, providing silage fodder, and utilising biogas to cook

Source: Khusnawati and Prasetyo (2016) [10]

Remaining challenges of innovation diffusion process

Innovation diffusion process of appropriate technology conducted by CATDev do not run smoothly. Practically, CATDev faces several challenges in doing dissemination and diffusion process of appropriate technology in many aspects like macro policy (laws), institutions, and society dynamics.

- a. At macro policy level, many policies issued by Government of Indonesia influence performance of CATDev in doing daily activities. In dissemination process and technology transfer of creating and using appropriate technology, CATDev also follows direction of macro policy like bureaucracy reform related to change of organization structure, research and development (R&D) funding scheme concerning with budget spending to apply appropriate technology.
- b. At institution level, CATDev is demanded to add its organization function not only concerning with appropriate technology on upstream but also on downstream. In this case, SMEs are not merely assisted related to how they use or apply appropriate technology practically, again, CATDev acts as initiator and mentor for SMEs in creating and innovating new appropriate technology. Surely, this function change needs adjustment of organization structure, human resource composition, budget change, and increase of new information to realize this function of CATDev.
- c. At society level, dynamics of society is inevitable fact. Over time, society will change in accordance with recent socio-economic condition. Technology development, particularly information technology (IT) is determinant factor how people move and change according to recent development. Many interdisciplinary studies are needed and developed by CATDev to address social dynamics issues. Even, appropriate technology must be accorded with recent SME's need, This means that development of applied science conducted by CATDev is not only for applied science need but also for applied science for society. (several data were withdrawn from [16] – LAKIP Pusbang-TTG)

CONCLUSION

Effort of CATDev-LIPI to diffuse appropriate technology to SMEs of poultry fodder, SMEs of pineapple products, SMEs for wheat flour products, SMEs for cassava products, and SMEs of cattle stockbreeding is fruitful. IPTEKDA is key program to implement appropriate technology and

innovation to SMEs. Many SMEs have well grown as business entites since CATDev mentored and empowered them in 2013 and 2014 year. For a year, significant economy and management change has appeared in those SMEs in Regency of Subang. Cooperation with Regency Government of Subang, utilisation of local knowledge, and providing training and workshop to SMEs are main strategies to implement CATDev's programs at local area. Also, IPTEKDA is pivotal catalisator and facilitator in running diffusion of appropriate technology which is conducted by CATDev-LIPI. Though, many problems are remaining like suddenly change of macro policy at national level, change of CATDev's internal institution, and dynamics of society at recent time.

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RURAL COMMUNITY PREFERENCE IN MANURE WASTE UTILIZATION FOR SOURCE OF BIOGAS: CASE STUDY OF WRINGINANOM VILLAGE, INDONESIA

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ABSTRACT

Wringinanom has the potential for biogas utilization from waste manure. There are 389 farmers household with 699 cows in 2015. However, currently there are only 30 household used biogas. Under this conditions, the goals of the study are to determine the level of willingness to pay of rural communities to use biogas, and the factors that influence it. Sampling method is using random sampling for farmers household. The analytical method used are willingness to pay (WTP), ability to pay and binary logit analysis. The results of study showed that the ATP is lower than WTP ($ATP < WTP$) so it is called captive riders. These means the household who have “Yes” preference is high potential to use biogas. Moreover, the binary logit regression resulted to a model of $Y = -5.875 + 0,99 X5 + 0,781 X6 + 1,677 X13$. The significant variables are land availability (X5), number of cattle/cow (X6), number of installed ADs in dusun (X13). Using those variables, the rural community preference is calculated and resulting to 32% probability to utilize manure waste for biogas production.

Key words: Rural Preference, Manure Biogas, Willingness to Pay, Ability to Pay, Regression

INTRODUCTION

Demand of energy use rises along with the increase of population. The demand of energy in 2011-2030, based on BAU, shows that the demand of final energy consumption in the future will be dominated by industrial, transportation, and household sectors [1]. Most of the energy consumption in Indonesia is from fossil fuel. Therefore, the Government of Indonesia (GoI) target to reduce the fossil fuel consumption and to increase the renewable energy utilization. One of the renewable energies available in Indonesia is biomass. Biomass is one of energy used for cooking in rural household. Moreover, biomass also can be used for energy supply in industrial and commercial sectors. The use of renewable energy is very potential and fit to the government’s desire to promote the use of biogas [1]. Malang, East Java is one of the region having the program to follow up the national program to improve the environment quality through Sustainable Rural development program. Referring to this program, the local government promotes self-sufficient energy village (SSEV). A village is considered as SSEV if at least 60% of its energy demand has been fulfilled [2].

Wringinanom Village is the village in Malang which has potentials in biomass since it is planned as an agropolitan area in Malang [3]. The potential biomass can be utilized as source of energy in Wringinanom is manure waste for the high number of cattle, amounting 699 heads in 2015. However, there are only 30 out of 389 farmer households who have been used manure waste for energy source. On the other hand, the government and private sectors have owned some scenario in the provision of biogas from subsidies of Animal Husbandry Department of government, HIVOS, and CSR [4]. Therefore, identifying the willingness of community to use biogas is necessary. Wringinanom is one of the villages in sub-districts of Poncokusumo with the number of poverty 630 householders of 1786 householders [5]. The study using economic approach method then is needed. One of economic approach methods to find out the potential of service value substitution is by using method of Willingness To Pay. Basically, the willingness to pay of the community shows the level of

public acceptance related to the renewable energy use [6]. Based on the problems above, the study is to find out the level of the willingness to pay of farmers household and factors influencing the biogas use. From the factors, the policy of biogas development in Wringinanom can be formulated.

MATERIALS AND METHODS

Based on the problems and the goals, quantitative research method was used for the study. Quantitative method is defined as the research method referring on the philosophy of positivism, used to examine the population or particular sample, data collection using research instruments, and quantitative data analysis or statistics [7]. In this study, Willingness To Pay (WTP), Ability to Pay (ATP) and Binary Logit Regression are used for data analyzing.

Willingness To Pay (WTP)

The method is implemented by bargaining and asking respondents whether they are willing to pay or receive a certain amount of money proposed as the starting point [8]. If “Yes”, then the value of money is lowered or raised to the level agreed. After knowing the initial price determined as the starting point, then the questionnaire contains questions that consumers are asked whether they want to pay a certain amount of money proposed as a starting point to provide options dichotomous choice, “Yes” or “Not”. If the answer “Yes”, then the bargaining value is raised to the level agreed. If “Not”, the bargaining value is lowered to the level agreed. Four categories would be asked in this questionnaire, those were:

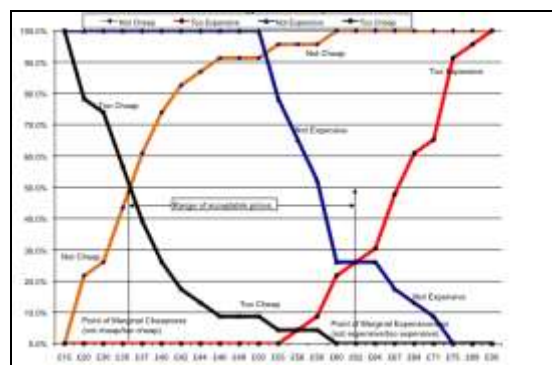


Figure 1. Determination of the optimal price range. Source: Shoemaker, 2008

Ability To Pay (ATP)

To find out which category of community’s WTP is, it needs ratio of ability to pay. ATP is the difference between income and expenditure [9].

$$ATP = \text{Income} - \text{Expenditure}$$

In the implementation, there is often found a clash between the amount of willingness to pay and ability to pay [10].

ATP > WTP

This indicates that the ability to pay is more than the willingness to pay for services. It occurs when the user has a relatively high income but the interest in these services is relatively low, the condition is called that the user is free to choose (choice riders).

ATP < WTP

This condition is the opposite of the above conditions where the user wishes to pay for these services is greater than the ability to pay. It possibly occurs to the users who have a relatively low income but the interest in these services is very high, so that the user wishes to pay for these services tend to be more influenced by the interests, in this condition the user is called captive riders.

ATP=WTP

This indicates that the ability and willingness of the user to pay services consumed is the same. In these conditions, it happens the balances of the interests of the user to the costs incurred to pay for these services.

Binary Logit Regression

There are some factors influencing the use of biogas in the community. These variables come from internal and driving factors. Internal factors are age, education, the number of family members, gender of householders, the number of cows, the number of birds, and revenue in a year. While driving factors comes from outside the population, those are environment, economic, technology, and society [11]. The willingness of society to use biogas could be low despite having the potential of livestock manure to be used as an alternative energy [12]. Some influencing factors can be derived from demographic and socioeconomic characteristics of the community. These factors include the availability of land, training, education, institutional followed by them, and education.

In addition, based on the study conducted by Liu Wenling (2013), it is influenced by demographic characteristics and perceptions. Demographics consist of age, education and income. Whereas the public perception consists of concern for the environment, knowledge of biogas, the assumption of the benefits and use of biogas, the assumption of the cost of biogas, the neighbors interest in the use of biogas, the perception of influence in the use of biogas of others, and location of residence [6].

Table 1. Variables used in the study

Factors	Variable	Sub Variable	Source
Internal	Age of Householder	Age of householder (X1)	Kabir et al, 2013 Liu et al, 2013 LY Nguyen, 2015
	Education	Education of householder (X2)	
	Number of Family Member	Number of Family Member (X3)	
	Income	Income (X4)	
	Rest of Land	Land availability (X5)	
	Number of Cow	Number of cattle (X6)	
External	Environment	Health Impact (X7)	
		Concern for the Environment (X8)	
		Use for Fertilizer (X9)	
	Economic	Reduction of Energy Expenditure (X10)	
	Technology	Following Socialization of Biogas Socialization (X11)	
	Society	Neighbors Farmers (X12)	
		Number of Installed ADs in Dusun (X13)	
		Neighbors Using Biogas (X14)	
institutional followed (X15)			

Some tests conducted in regression analysis are goodness of fit test, the overall model fit test, the significance test of the independent variables [13]. From the calculation, the regression model will be $Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \dots$

The dependent variable (Y) in this study is the willingness of the farmer to pay biogas that has two (2) categories: are willing to pay or are not willing to pay for the biogas.

RESULTS AND DISCUSSION

Wringinanom Profile

The Area of the Study

Wringinanom is a village located in the district of Poncokusumo, Malang, East Java and situated 800 masl. The total area of Wringinanom is 974.80 Ha comprising three smaller unit of community called dusun.

Table 2. Features of Wringinanom Village

1.	Size of Territory	964,80 Ha
2.	Number of Dusun	3 dusun (Simpur, Kunci, Besuki)
3.	Elevation	800 masl
4.	Average of Rainfall	2.000 mm
5.	The Highest Rainfall	2.300 mm (2000-2009)

Source: Poncokusumo in figures, 2014

Farmers' Characteristics

In Wringinanom, there are 699 cows, consisting of 170 dairy cows and 529 beef cows raised by 389 farmers. Since 2012, the local government has been providing financial support for biogas development resulting 30 units of anaerobic digesters (ADs) installation where 25 units is constructed in Dusun Kunci, while the rest is dispersed in other three dusun. The ADs from the government has type of fixed dome with size of 4m³-8m³.

Willingness To Pay

The number of respondents of this study were 95 farmer households. Respondents who wanted to use biogas were 36% of the total respondents with subsequently being entered into the analysis of willingness to pay. The graph below was the result of the willingness to pay analysis for farmers who were not willing to use biogas.

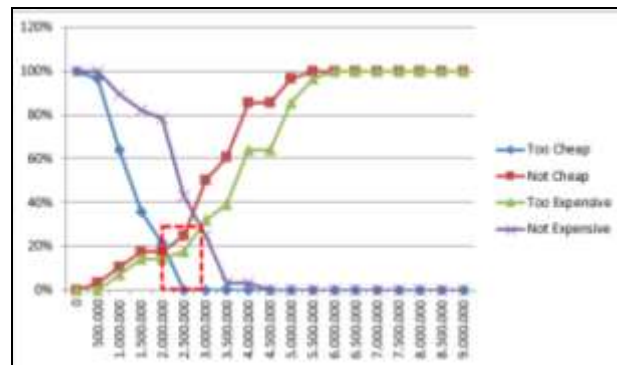


Figure 2. Farmers Household's Willingness To Pay Range

The willingness to pay of the farmer communities was in the range Rp2.300.000-Rp3.200.000. The optimum pricing was taken when the line in the graph intersect the line too cheap and not cheap, too expensive and not expensive. The optimal price was the price used as a range of willingness to pay for compared with the ability to pay.

Comparison of WTP and ATP

WTP and ATP comparison was conducted to assess the preference to use utilize manure waste for biogas production. Here was the comparison of WTP-ATP in each village.

Table 3. Comparison of WTP and ATP of Farmers who were not Using Biogas

Village	WTP (Rp)	ATP (Rp)
Kunci	2.300.000-3.200.000	784.783
Simpur	2.300.000-3.200.000	958.333
Besuki	2.300.000-3.200.000	1.100.000

Based on these things, the household were in the captive riders category because ATP<WTP. It is willingness of user to pay for these services is greater than the ability to pay. It is possible for users who have a relatively low income but the importance of such services extremely high, so willingness to pay for such services tend to be more influenced by interests.

Binary Logit Regression

All household respondents either willing or unwilling to use biogas were entered in the binary logit regression analysis. It was to determine the factors that influence and a model of the biogas development.

Table 4. Hosmer and Lemeshow Test

Step	Chi-square	Df	Sig.
1	4.492	8	.810

Hosmer and Lemeshow Test is a test model that can explain the data or not. There were two hypotheses on the Hosmer and Lemeshow test, namely:

H0: The model had been able to explain the data

H1: The model had not been able to explain the data

In table above could be seen that the significance value of 0.810, which meant that H1 was rejected because it was more than 0.05. It could be concluded that the model was able to explain the data and the probability predicted was fit to the observed probability for significant value $0.892 > 0.05$.

Based on the results of the first step of analysis, it showed that there were three (3) independent variables that had a significance value less than α (0.05), those were the availability of land (X5), the number of cattles (X6), and the number of installed ADs in dusun (X13). It concluded that those variables influenced the decisions of farmers who did not use the biogas to be willing to pay biogas.

Having found the dependent variables that influenced the influential variables were returned to the binary logit analysis and variables that did not effect on it taken the model out. There were the results of the calculation of binary logit analysis of the second stage.

Table 5. Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)
Step 1a Availability of land (X5)	.097	.023	17.659	1	.000	1.101
Number of cattles (X6)	.613	.269	5.211	1	.022	1.847
Number of installed ADs in dusun (X13)	.104	.047	4.768	1	.029	1.109
Constant	-5.875	1.229	22.862	1	.000	.003

From the SPSS calculations, it showed that the three independent variables, namely the availability of land (X5), number of cattles (X6), and the number of installed ADs in dusun (X13) remained in the model. It caused all of these variables had a sig < 0.05 . So it was found a model.

$$Y = -5.875 + 0.99 X6 X5 + 0.781 X6 + 1.677 X13$$

The model could explain that the variables that influenced the determination of the population to use biogas, that the availability of land (X5), number of cattle (X6), and the number of installed ADs in dusun (X13) was positive. That meant that higher the value of these variables will greater the possibilities for people to wanted to pay for using biogas. Lower the value of the independent variables will fewer people were willing to pay biogas. Community preferences after using the formula of probability of the model obtained as follows.

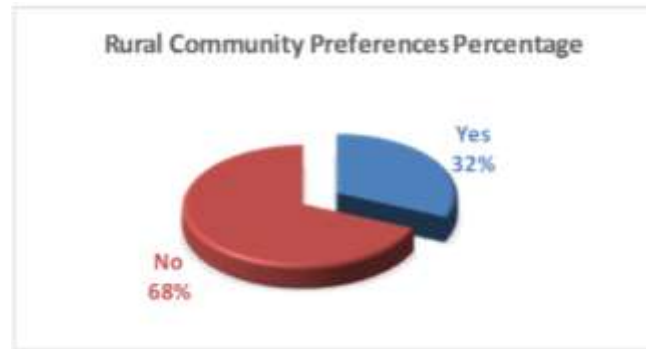


Figure 3. Rural Community Preference Percentage

That indicated that the maximum number of households who wanted to use biogas in Wringinanom based significant factors was 32%.

CONCLUSIONS

Based on the analysis, it was found that the level of WTP of Wringinanom's farmers were $ATP < WTP$. Then, it included in the category of captive riders which meant the willingness to pay for a community that would accept biogas was high. It was critical for the biogas development. Willingness probability model of farmers to use biogas could be identified with $Y = -5.875 + 0.99 X_6 + 0.781 X_5 + 1.677 X_{13}$, with the availability of land (X_5), number of cattle (X_6), and number of installed ADs (X_{13}) respectively positive. After the initial data input then found optimum biogas utilization use by households of farmers was 32%. It meant that there were 32% of farmers who had a high willingness to use biogas so it needs the scenario policy from the government, private sectors, and NGOs with regarding influential variables. Thus, utilization of biogas will be more optimum and sustainable.

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THE CHANGES OF SOME SOIL CHEMICAL PROPERTIES AND PRODUCTION OF SWEET POTATO TREATED WITH FISHPOND SEDIMENT AND FISHPOND WATER IN PETIR VILLAGE, DARMAGA, BOGOR, INDONESIA

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ABSTRACT

Bogor is situated about 70 km southern part of Jakarta, the capital city of Indonesia. Bogor is the upstream of the rivers via Jakarta. The water from Salak mountain is used by farmers not only for agriculture but also for fishponds of fresh water fishes. The objectives was to clarify the nutrient contents of fishpond sediment and fishpond water and to evaluate their effect to the changes of soil chemical properties and the production of sweet potato in Petir village, Darmaga, Bogor. Fishpond sediment and fishpond water were analyzed for selected chemical properties. The treatments in the field experiment were without any fertilizer, fishpond sediment, fishpond water, combination of fishpond sediment and fishpond water, and conventional fertilizer. The experimental was completely randomized design with three replications. After 2 weeks of incubation period, before planting sweet potato, the soil samples of each plots were collected and analyzed. Sweet potato were harvested after four months. The results showed that the fishpond sediment contained very high organic carbon, high total nitrogen, high available phosphorus and very high basic cations (Ca, Mg, K and Na). The fishpond water contained relatively high nitrate and phosphate. From the field experiment fishpond sediment and fishpond water improved some soil chemical properties better compared to conventional fertilizer. Combination of fishpond sediment and fishpond water was the best treatment. This treatment also resulted in the highest production of sweet potato. The results suggested that combination of fishpond sediment and fishpond water can be recommended as soil ameliorant or fertilizer.

Key words: contamination, nitrate, phosphate, upstream, waste

INTRODUCTION

Bogor is a city in West Java Province of Indonesia, and is located in approximately 70 km south from Jakarta, the capital city of Indonesia. Mount Salak locates on the south side of Bogor, and makes much amount of rain falls to Bogor. Annual precipitation in Bogor is more than 3000 mm. Much amount of fresh water, which flow out from Mt. Salak, is used for agriculture and fishponds of fress water fishes in the surrounded areas of down town Bogor. These streams are the upstream of rivers in Jakarta, and the rivers flow out to Jakarta Bay. The farmers feed the fishes with pellet and chicken manure during raising the fishes in the ponds. The farmers use fishpond sediments as concrete to harden the border of fishponds and fishpond water is let flowing to the canals. The fishpond sediment and fishpond water are supposed to contaminate the rivers flowing to Jakarta. Feeding the fishes in pond with pellets and chicken manure may have accumulation of organic matter, nitrogen (N) and phosphorus (P). Olah et al. (1994) reported that 30-95% of N applied to fishpond accumulated in sediment. Boyd (1995) showed that most P applied to fishpond accumulated in sediment.

The eutrophication of Jakarta Bay has been focused. Arifin (2004) reported that nitrate and P in the form of phosphate concentrations in Jakarta Bay have been increased. Phosphate was increased 10-times higher from the period of 1975-1979 to 2000-2004. Lapointe et al. (1992) suggested that

dissolved inorganic nitrogen and soluble reactive phosphate concentrations of more than 1.0 and 0.1 μM , respectively, caused blooming of micro-algal population. It was reported that massive fish kills have been observed in Jakarta Bay, and the oxygen depletion by intense algal blooms is suspected as key factor. Arifin (2004) observed that nitrate and phosphate concentrations in Jakarta Bay are higher at < 5 km from coastal line than that of >10km, respectively. Nitrate and phosphate input is generally higher during rainy season. It is suggesting that the anthropogenic nutrients input by agriculture and industry to the rivers of Jakarta Bay basin was suspected as a main factor for the eutrophication of Jakarta Bay's coastal marine ecosystem. One of the input by agriculture is fishpond of fresh water fishes in upstream. Discarding the fishpond sediment and fishpond water as a waste contaminate the environment especially with nitrate and phosphate. However, there are few data for the chemical properties of fishpond sediment and fishpond water in agricultural sites in Bogor and the possibility to return fishpond sediment and fishpond water to the agriculture field as soil ameliorant or fertilizer.

The objective in this study was to clarify the nutrient contents of fishpond sediment and fishpond water and to evaluate the application of fishpond sediment and fishpond water to the changes of soil chemical properties and the production of sweet potato in Petir village, Darmaga, Bogor which is located in the foot of Mount Salak and the upstream of rivers flowing to Jakarta.

MATERIALS AND METHODS

The research was conducted in September 2013. The first step of this research was to evaluate the fishpond sediment and fishpond water. Petir village, Darmaga, Bogor was selected because this village had many fishponds of fresh water fishes. The position of Petir village from Bogor was presented in Figure 1.



Figure 1. The Position of Petir Village

The one year old fishpond was selected. The size was 168 m² with depth 50 cm. The top layer (0-20 cm) of fishpond sediment and the fishpond water were collected. The selected chemical analyses of fishpond sediment and fishpond water were conducted. Some fishpond sediment properties status were judged according to criteria of nutrient status published by Soepraptohardjo (1983).

Field experiment was conducted in Petir village. The materials which were used in the field experiment were fishpond sediment, fishpond water, urea, SP 36, KCl and sweet potato. Evaluation of the fishpond sediment and fishpond water as fertilizer was conducted by making comparison with without any fertilizer and conventional fertilizer (N, P and K fertilizer). Therefore the treatments were plot without any fertilizer (C), plot of fishpond sediment (FS), plot of the fishpond water (FW), plot of combination of fishpond sediment and fishpond water (FS + FW) and plot of conventional fertilizer namely N fertilizer in the form of urea, P fertilizer in the form of SP 36, K fertilizer in the form of KCl (CF). The rate of fishpond sediment was 33.3 ton ha⁻¹ and the fishpond water was 20 L per week. The rate of conventional fertilizers were 100 kg urea ha⁻¹, 100 kg SP 36 ha⁻¹ and 200 kg KCl ha⁻¹. Urea and KCl were splitted twice in application while SP 36 was applied in one application. The treatments were replicated in three (3) replications. Therefore the number of plots were 15 plots. The size of the plot was 9m x 2m. Experimental design was randomized completely design. This

experimental design was selected because of flat field. The treatments were applied two weeks before planting. The treatments were applied along the bed. After two weeks incubation, soil samples were collected and analyzed in each plots to evaluate the changes of chemical properties. After soil samples collection, sweet potato was planted along the bed. Observation of the sweet potato was conducted by measuring the production of tuber.

The chemical properties of fishpond sediment and soil were analyzed. pH was measured in a 1:1 (w/v) water solution using a pH meter. Available P content was obtained by the Bray 1 method (Bray and Kurtz, 1945) while potential P was determined by digesting the soil sample using HCl 25%. Their absorbance at 693 nm was determined using a UV-VIS spectrophotometer. Cation exchange capacity (CEC) was obtained by extraction with 1 mol L⁻¹ NH₄OAc pH 7.0 and the contents of exchangeable bases calcium (Ca²⁺) and magnesium (Mg²⁺) were determined by atomic absorption spectrophotometer while those of exchangeable potassium (K⁺) and sodium (Na⁺) were determined by flame emission spectrophotometer. Base saturation was defined as the ratio of total exchangeable bases to CEC, expressed as a percentage. Exchangeable aluminum (Al) was extracted with 1 mol L⁻¹ KCl. These methods of soil analyses were the same as described by Hartono et al. (2005). Analyses for fishpond water were pH, ammonium (NH₄⁺), nitrate (NO₃⁻) and phosphate (PO₄³⁻). pH was measured using a pH meter. NH₄⁺ and NO₃⁻ were determined by distillation process and titration while PO₄³⁻ was determined colorimetry (Murphy and Riley, 1962). Analyses of variance followed by a Tukey's test were applied to evaluate the effect of treatments to the parameters for field experiment.

RESULTS AND DISCUSSION

Chemical Properties of Fishpond Sediment and Fishpond Water

Chemical properties of the fishpond sediment and fishpond water were presented in Table 1 and Table 2 respectively. The fishpond sediment pH was slightly acid. Organic C was very high, total N was medium. Available P content (Bray 1-P) was high. The potential P content was medium. The soil cation exchange capacity (CEC) was high. The Ca, Mg, K, and Na content was very high. The exchangeable Al was not detectable. The fishpond sediment base saturation was very high.

Table 1. Chemical properties of fishpond sediment

Parameter	Unit	Value
pH (H ₂ O)		5.10
Organic C	g kg ⁻¹	54.2
Total N	g kg ⁻¹	4.20
Available P (Bray 1)	mg kg ⁻¹	14.9
Potential P (P HCl 25%)	mg kg ⁻¹	142
CEC	cmolc kg ⁻¹	21.9
Exchangeable Ca	cmolc kg ⁻¹	25.1
Exchangeable Mg	cmolc kg ⁻¹	9.12
Exchangeable K	cmolc kg ⁻¹	1.22
Exchangeable Na	cmolc kg ⁻¹	1.16
Exchangeable Al	cmolc kg ⁻¹	nd
Exchangeable H	cmolc kg ⁻¹	0.26
Base Saturation	%	167

Table 2. The content of NO₃-N, NH₄-N, Total Inorganic Nitrogen (TIN) and phosphate in water samples

Parameter	unit	value
pH		6.00
NH ₄ ⁺	mg L ⁻¹	9.80
NO ₃ ⁻	mg L ⁻¹	3.30
TIN	mg L ⁻¹	13.1
PO ₄ ³⁻	mg L ⁻¹	0.22

TIN = Total Inorganic Nitrogen (NH₄⁺ + NO₃⁻)

As for fishpond water it contained 13.1 mg L⁻¹ total inorganic nitrogen (TIN) and 0.22 mg PO₄³⁻ L⁻¹. Fried et al. (2003) suggested that the PO₄³⁻ levels should be less than 0.05 mg PO₄³⁻ L⁻¹ to prevent algal growth. This fishpond water contained PO₄³⁻ higher than 0.05 mg PO₄³⁻ L⁻¹. With the size 168 m² and the depth 50 cm, at the end of cultivation (harvest time) it was flowed out to the canal 1.10 kg TIN and 0.02 kg PO₄³⁻. These amount of TIN and PO₄³⁻ were very potential to contaminate the rivers flowing to Jakarta bay.

Compared to other fishpond sediment from the previous researches, the total N of this fishpond sediment was higher than that of Rachman et al. (2004). Rachman et al. (2004) reported that total N of his fishpond sediment was 2.80 g kg⁻¹. This fishpond sediment contained total N 4.20 g kg⁻¹ (Table 1). The potential P also of this fishpond also was higher than that of Wahab et al. (1984). Wahab et al. (1984) reported that potential P of his fishpond sediment was 70 to 110 mg P kg⁻¹. This fishpond sediment contained 142 mg P kg⁻¹. The organic C of this fishpond sediment was comparable with finding of Avnimelech et al. (1999). This fishpond sediment contained 54.2 g kg⁻¹ while Avnimelech et al. (1999) found that organic C in his fishpond sediment was between 49.8 - 62.0 g kg⁻¹. From these facts that high in organic C, available P, CEC, basic cations, medium in total N and not detectable in exchangeable Al, fishpond sediment and fishpond water were potential to be used as ameliorant or fertilizer for crop in Petir Village instead of flowing to the canal and rivers.

Effect of Treatments to the Changes of Selected Chemical Properties after Two Weeks Incubation

Soil pH, EC and Exchangeable Al

The effect of treatments to the soil pH, EC, and exchangeable Al after two weeks incubation was presented in Table 3.

Table 3. The effect of treatments to the soil pH, electric conductivity and exchangeable Al

Treatments	pH H ₂ O (1:1)	EC mmho cm ⁻¹	Exch. Al cmolc kg ⁻¹
C	5.19±0.05	0.05±0.00	0.57±0.32
FS	5.15±0.04	0.07±0.02	0.36±0.12
FW	5.25±0.02	0.05±0.01	0.65±0.21
FS+FW	5.30±0.06	0.06±0.01	0.23±0.22
CF	5.10±0.14	0.07±0.02	0.71±0.12

Exch.=Exchangeable

Statistically, the treatments did not affect the soil pH, EC, and exchangeable Al. However, the soil pH was increased 0.11 pH unit by the application of combination of fishpond sediment and fishpond water. The conventional fertilizer decreased 0.9 pH unit. The soil pH of the soils were classified as acid soil. The EC were little bit increased by the application of fishpond sediment, fishpond water, combination of fishpond sediment and fishpond water and conventional fertilizer. The values of EC were below 2 mmho cm⁻¹ therefore the EC values indicated the soils were normal soil.

The Al were decreased by the application of fishpond sediment and combination of fishpond sediment and fishpond water. As for the fishpond water and conventional fertilizer increased the exchangeable Al.

Soil Organic C and Total N

The effect of treatments to the soil organic C was presented in Table 4. Statistically the treatments affected the values of soil organic C significantly.

Table 4. The effect of treatments to the soil organic C and total N

Treatments	Organic C%	Total N
C	1.73±0.23a	0.16±0.01ac
FS	2.25±0.05ab	0.19±0.01a
FW	2.15±0.17ab	0.14±0.02bc
FS+FW	2.55±0.29b	0.18±0.02ad
CF	1.83±0.18ab	0.15cd±0.00

Means followed by the same letter within a column are not significantly different (Tukey's test, $P < 0.05$)

The treatment of combination of fishpond sediment and fishpond water significantly higher than that of control, fishpond sediment, fishpond water and conventional fertilizer. Although statistically not significant, the values of organic C of fishpond sediment and fishpond water were higher than that of control and conventional fertilizer. Average increase of soil organic matter due to application of fishpond sediment, fishpond water and combination of fishpond sediment and fishpond water was 0.59%. The significant increase of organic C in treatments of combination fishpond sediment and fishpond water because of the high organic C content in fishpond sediment.

As for total N, the effect of treatments to the soil total N was presented in Table 4. Statistically the treatments affected the values of soil total N significantly. The highest value of total N was plot with Fishpond sediment treatment and the second was combination of fishpond sediment and fishpond water.

HCl 25%-P and Bray 1-P

The HCl 25%-P was P potential to be P available (Soepratohardjo et al. 1983). Bray 1-P was available P. The HCl 25%-P and Bray 1-P were presented in Table 5.

Table 5. The effect of treatments to the soil HCl 25%-P and Bray 1-P

Treatments	HCl 25%-P (mg P ₂ O ₅ 100g ⁻¹)	Bray 1-P (mg P kg ⁻¹)
C	151±5.97a	36.5±5.38a
FS	147±10.1a	42.1±2.95ab
FW	145±14.4a	43.0±0.23ab
FS+FW	166±9.95a	46.6±1.71b
CF	166±9.67a	41.0±4.16ab

Means followed by the same letter within a column are not significantly different (Tukey's test, $P < 0.05$)

Statistically, the effect of the treatments to the HCl 25%-P was significantly different. However, the value of HCl 25%-P of combination fishpond sediment and fishpond water was higher than that of control suggesting that this combination add the amount of P in the soil. As for Bray 1-P, statistically, the effect of treatments were significantly increased the amount of available P in the soil. The treatment of combination fishpond sediment and fishpond water resulted in the highest value. The single treatments of fishpond sediment and fishpond water also resulted in higher values of Bray 1-P than those of control and conventional.

Cation Exchange Capacity (CEC), Basic Cations and Base Saturation (BS)

The effect of treatments to the CEC, basic cations and BS was presented in Table 6. The treatments increased the CEC and basic cations compared to control treatments. However, the treatments did not increase the BS. CEC of the treatments were statistically higher significantly than that of control. The treatment of fishpond sediment, fishpond water and their combination resulted in higher CEC than those of control and conventional. Their CEC were about 3 cmol kg⁻¹ higher than those of control and conventional. Soil Ca, Mg, K and Na content of the fishpond sediment and combination of fishpond sediment and fishpond water were higher than those of control and conventional fertilizer. The

combination of fishpond sediment and fishpond water resulted in the highest values for all basic for Ca, Mg, K and Na contents in the soil.

Production of Sweet Potato

The effect of the treatments to the production of sweet potato is presented in Figure 2. Statistically the effect of the treatments did not affect the production of sweet potato. However, the treatment of combination of fishpond sediment and fishpond water resulted in the highest value for the production of sweet potato. This higher production was supposed due to improvement of soil chemical properties.

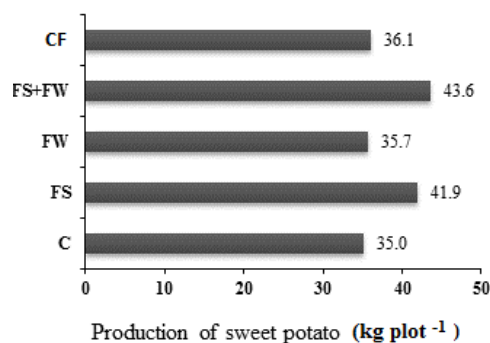


Figure 2. Effect of treatments to the production of sweet potato

CONCLUSIONS

It was found that high amount of total inorganic nitrogen and phosphate were found in water of fresh water fish cultivation ponds. It was also found in soil of fresh water fish cultivation ponds high amount of total N, available P, HCl 25%-P and base saturation. Water and soil of fresh water fish cultivation ponds were potential to be used as fertilizer and ameliorant for crops. The field experiment results suggested that combination of fishpond sediment and fishpond water were the best treatment in improving the soil fertility status and plant growth.

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Table 6. The effect of treatments to the soil cation exchange capacity (CEC), exchangeable basic cations and base saturation (BS)

Treatments	CEC	Ca	Mg	K	Na	BS
		cmolc kg-1.....			(%)
C	18.4±3.26a	4.60±0.72ab	2.50±0.18a	0.44±0.01a	0.29±0.03a	42.9±3.20a
FS	23.0±1.05bc	5.41±0.44ab	2.76±0.16ab	0.67±0.14a	0.49±0.05b	40.8±4.35a
FW	22.4±0.14abc	4.15±0.40a	2.50±0.24ab	0.51±0.08a	0.33±0.02ad	33.4±2.78a
FS+FW	23.6±0.68c	5.56±0.53b	3.03±0.22b	0.77±0.27a	0.53±0.11bc	41.9±4.42a
CF	19.1±0.12ab	4.27±0.34ab	2.43±0.14ab	0.45±0.01a	0.29±0.04ab	39.0±2.95a

Means followed by the same letter within a column are not significantly different (Tukey`s test, P < 0.05)

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ADOPTION OF SMART-VILLAGE CONCEPT ON E-GOVERNMENT IMPLEMENTATION STRATEGY: CASE STUDY OF E-GOVERNMENT MASTERPLAN OF TEMANGGUNG REGENCY

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ABSTRACT

Currently, the Indonesian government is aggressively implementing e-government at the various levels of government, both central and local. This was followed by some initiatives such as PEGI (Peringkat E-Government Indonesia), the system that annually measure the capability of E-government using 5 parameters. One of parameter in PEGI is whether the local government has a master plan for ICT implementation, so that the implementation of e-government can be better planned and monitored both the outcomes and performance. On the other hand, the rise of jargon and concept of smart-city in main cities in Indonesia makes some local government being confuse to adopt smart-city concept that match with their local characteristics, especially to integrate the concept into e-government adoption. Nevertheless, the adoption of the concept of smart-city should not be used uniformly in all regions, due to differences in the characteristics and profile of each area. In this study, we proposed strategy to adopt e-government concept that suitable with local characteristics and needs of the region. As an example case, this study is conducted in Temanggung Regency, which has the characteristics of a rural community but has a high spirit on ICT adoption. One of the e-government strategy proposed is the adoption of the concept of smart-village instead of the smart-city. This approach is proposed based on the results of the study on the profile of the area, citizen culture, infrastructure conditions, the readiness of the government and the readiness of the implementation of e-government as a whole. Adoption of smart-village recommend the availability of infrastructure services to support the services that can empower rural communities such as the smart farming, public health monitoring, smart logistics to support of agricultural products marketing and many more. The adoption strategy provides guidelines for local governments to determine the relevant ICT development priorities.

Key words: e-government adoption, strategy, smart-village, rural.

INTRODUCTION

The e-government initiative in Indonesia region nowadays not just an alternative but is a must. Therefore, the activity to implementation of e-government in some local government has become highest priority. The central government give some incentive for local e-government initiative and innovative, such as PEGI (Peringkat E-Government Indonesia), the system that annually measure the capability of E-government using 5 parameters. PEGI become an important indicator to show the progress of e-government implementation in local government, and the existence of IT masterplan become of one parameter in PEGI.

On the other side, the concept of smart city and its relevant issue, become quite popular in local government in Indonesia, especially as an extended services of e-government. Smart city refers to the provision of facilities and infrastructures as well as the utilization of information technology to improve communication among communities and between communities and governments, as well as a provider of interaction media. Smart city can be accomplished if supported by some elements such as the availability of facilities and suitable communications infrastructure, the capacity and capability

of the of communication channel, the communication device to deliver the content of information and applications that are used to interact, and the applications to deliver information contents. However, in many cases, the concept of smart city refers to the implementation of ICT in large cities such as Bandung, Jakarta, Surabaya, and others. For areas where the majority of the population live in rural areas, the concept of smart city may not relevant to be applied, especially in information and application contents that might be only suitable for the city community. Therefore, it would be interesting if we analyze the similar concept that might be relevant to be implemented in rural area, which called as "smart village".

The concept of smart village already widely implemented in various countries around the world, especially countries with has big portion of populations that live in rural areas. Some countries that had been implementing this concept are India and Malaysia. The research community in smart village is growing rapidly, and has attract some researcher, institution and community to exchange the experience and knowledge via focus group discussion on some event. Based on recent e-government trend, we will proposed the conceptual approach on implementation of e-government in Temanggung regency, which will cover smart village concept, supporting elements, feasibility of implementation and its relevancy to e-government implementation strategy.

SMART VILLAGE: ISSUE AND CONCEPTUAL FRAMEWORK

Smart Village Definition

Village may be considered as a set of services that are carried out effectively and efficiently for the residents and businesses in a specific neighborhood. This service can be specific depending on the demographics of the area and population characteristics (Viswanadham, 2014). To improve the service, we need to design management models and technologies that can support such as resource electricity, water, buildings, markets, health and others. The village may be a tourist site, a village, riverside villages, the mining area, settlement near the forest and others. The villagers work mostly in general agriculture, fisheries, and industries such as leather, handicrafts, and other SMEs.

The concept of "smart" itself is more emphasis on policy areas, focusing as a trigger for the development of the role of ICT infrastructure, capabilities and training of human resources, social conditions and the relationship with the environment (Heap, 2013). The performance of village depends on physical infrastructure and increase the availability and quality of knowledge, communication and infrastructure, each of which serves as the intellectual and social capital. Smart village refers to the investment in human capital and social in addition to physical investment.

In the district area which is majority of the population lives in the village, the village is the center of development. Therefore, the development needs to be focused on the economy and welfare of the community, for every level, from the lowest level to the strategic level. Among some priorities, the most interesting focus is how to speed the village development so it can attract people to stay in the rural and give the significant contribution to balance the population ratio between rural and urban, by utilization of ICT. In this issue, the smart village concept can give significant solution to balance between rural and urban development and is expected can reduce the migration tendency from rural to the urban area.

Issue and Innovation

Smart village development is the concept of comprehensive development of rural areas. It can be divided into four main issues of development, which are (Razak, Malik, and Saeed, 2013):

- Infrastructure component, include physical infrastructure support factor and local government.
- Environment component, related to the availability of resources and infrastructure at local level.

- Social component, related to some issues such as social community problem, level of democratic participation, social innovation, social services and others.
- Culture component, issues regarding the acceptance of new technology, change the business model and the social interaction, readiness of information disclosure and cultural transformation while keep preserve the value of local culture.

The issues mentioned above is need to be considered in order to realization of smart village, because smart village is about socio-economic transformation as a whole, not only technology implementation. The innovation on smart village realization, can be divide into four groups (Viswanadham and Kameshwaran, 2013):

- Smart infrastructure, refer to the management and efficient use of infrastructure.
- Smart technology and innovation, refers to the application of technology and innovation appropriate technology for rural communities
- Smart institution, referring to the institutional governance of intelligent and efficient in the government administration.
- Smart service delivery, refers to the efficiency and innovation in the public service.

The four innovation support each other in realization of smart village concept. However, its implementation can be tailored to the capabilities and capacity of the area. Linkage four areas of innovation can be seen in Figure 1.



Figure 1. Four areas of innovation in Smart Village. Source: Visnuwadham and Kameshwaran (2013)

Smart Village Ecosystem

Development of smart village basically stressed on how the government prepare the ecosystem that support the smart village implementation. The ecosystem consists of four main component, and for each component, consists of several sub components. The main components are: institutions, resources, services chain, and delivery services infrastructure. The main and sub components of smart village ecosystem is displayed in table 1.

Table 1. Main Component and Sub Components of Smart Village Ecosystem (Visnawadham and Kameshwaran, 2013)

Main Component	Sub Component
Institutions	Local Government Local institutional leader Regulation and policy Community and NGO
Resources	Land, mining High school, local higher education Water, energy resources Financial resource Agricultural resource Human resources and social condition Public health and local environmental condition
Services Chain	Water distribution

	Housing Market Education Vocational training Job opportunities SMEs Financial Agricultural services
Delivery Services infrastructure	Land transportation Job opportunities in agriculture and SMEs Network and mobile infrastructure POS services Procurement, logistic and marketing of agricultural and SMEs product Traditional market

The ecosystem above can also serve as a framework for smart village governance conceptual model. Figure 2 describe the ecosystem of smart village and mapping of smart village ecosystem into smart village governance model.

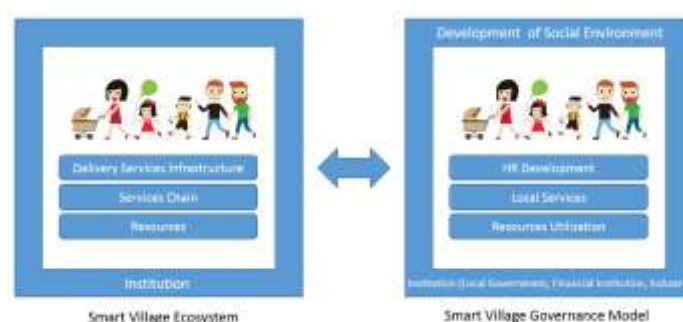


Figure 2. Mapping from Smart Village Ecosystem model into Smart Village Governance Model

Smart Village: Implementation Trend

Smart Agriculture

Smart Agriculture is often also known as precision farming, which can be defined as a farm management system based on ICT to identify, analyze and manage the variability in the field with the optimization of benefits, sustainability and protection of land resources. Information technology can be used to support better decisions about various aspects of agriculture. Some of the technologies that can be applied to the precision farming such as (Beecham, 2014):

- GPS receiver: used to collect location information from certain objects, which can be used to input digital mapping (GIS) to agricultural resources.
- Mapping and monitoring of agricultural products that are used to monitor the amount and flow of agricultural products. The collected data is combined with a GPS receiver, and monitoring crops could provide information of agricultural products.
- Application grid soil sampling and average soil fertility. This method can increase sampling grid intensity so the quantity of sample is more than regular sampling method.
- Remote sensors: a sensor that collects information remotely. Sensor data can be small and simple sensor device, unmanned aircraft, or satellite-based. The data can be used to evaluate the condition of the plant and can be used for a variety of planning such as estimated pests, humidity, soil nutrient content, and others
- Monitoring Agricultural land: Monitoring of agricultural land condition, which can include a pattern weeding (type and intensity), pests (insects or weeds), the condition of soil nutrients, flooding and erosion can be monitored via GPS on a vehicle or sensor on the surveyor's bag, so the data can be associated with location and make it easier to identify the location of problem.

- Integrated agricultural information system that become main support for adoption of precision agriculture paradigm. This system effectively collecting information from various sources, from the farmer and sensor, processing and presenting the information to all stakeholders.
- In addition to the potential use of the above, there is some implementation opportunities in the field of animal husbandry and fishery by utilizing a variety of sensors and connectivity.

Internet of Things in Agriculture

The Internet of Things or IOT also provide significant support to the application of smart village, particularly in smart agriculture or agriculture precision. Benefits of the implementation of IOT on agriculture can be projected into four areas, which are (Kaur, 2016):

- Economic: changes in costs, changes in earnings, cash flow and financing risk
- Technological needs: an accurate GPS system, a technology that detects changes in variables, specific management services in a particular location, financing
- Environment: reduction of waste of natural resources, improvement of efficiency in water usage and other natural resources.
- Management: acquisition and data analysis, decision support systems, and increased attention of local authorities.

The application of IoT in smart agriculture can support the modern agriculture management which can include some field such as smart farming, smart agrilogistic (include distribution of agricultural product) and smart food awareness to identify the level of local food sustainability.

Potential Implementation of Smart Village in Temanggung

Brief Overview

Temanggung is a district in Central Java which cover area 870.25 Km². Most areas is plateaus and hills, as part of the Dieng Plateau. On the border with the Wonosobo regency are Sindoro and Sumbing . Temanggung is located in the provincial road linking Semarang and Purwokerto. Highway Parakan - Weleri connect Temanggung the northern coastal road. Temanggung is divided into 20 sub-districts. Most of the Temanggung population is centered in 7 sub-districts, and the two most populous sub-districts are Parakan and Temanggung. The others have population of less than 976 inhabitants/ha. Figure 3 show the map of population distribution in Temanggung. The yellow color show the area which have low population.

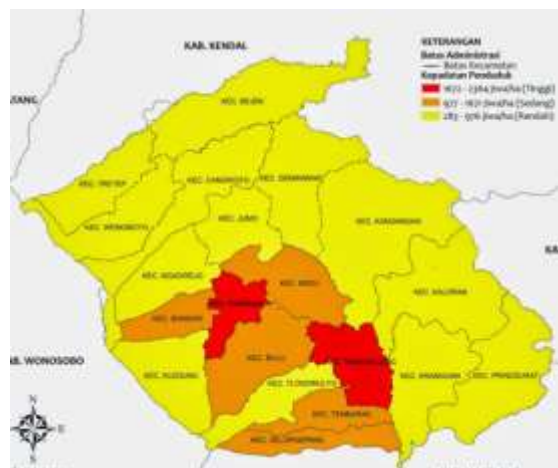


Figure 3. Population Distribution in Temanggung [1]

Most of Temanggung area fulfilled by agricultural land and plantations. It is closely related to people's livelihoods are mostly farmers. The top ranking on the economic structure of Temanggung regency are agriculture (29.85%) and processing industry (19.96%) [1] Main commodity in

Temanggung until 2012 was tobacco and coffee[2,3]. While several other economic development initiatives such as fishery by utilization of water resources, cattle and sheep.

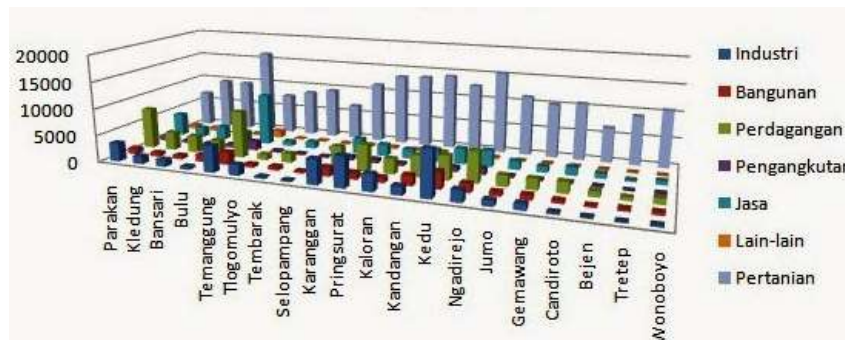


Figure 4. The people's livelihood in Temanggung. The Grey blok is agriculture [1]

Although university or higher education institution in Temanggung is limited, but it is not become a constraint for the community to reach higher education, because access to the cities which has adequate education institution such as Yogyakarta, Semarang and Purwokerto, is quite easy. Many residents Temanggung who study in these cities and this causes the community in Temanggung is relatively well educated.

IT Support

In IT sector, Temanggung local government has develop and implement several application to support administration task and public services. Most of application is given from central government, but they also develop some application as initiative to support local administrative, such as Library System to support The office of archive, library and documentation, SMEs database in Office of Industry, Commerce, Cooperation, and SMEs, and integrated public service application in sub-district which called PATEN (Pelayanan Terpadu Kecamatan). The recent position in rank of PEGI for Temanggung Regency is on 21.

The availability of IT infrastructure also sufficient enough. Local network that consist of a backbone connected between government office using fiber optic, internet connection with maximum bandwidth 100MB, and VPN. Network topologi consist of two main intranet channel which are PDE and CAPIL that connected through wireless.

Potential Application of Smart Village

Potential application of smart village in Temanggung regency wide open. However, for the implementation required more detailed planning and prioritization in line with the development of the area infrastructure capabilities, the availability of telecommunication lines, paradigm changes in society as well as the readiness of human resources.

In general, priority implementation of smart village in Temanggung regency can be mapped as follows:

- The fulfillment of minimum infrastructure requirements, eg stable Internet connectivity, which can be met by utilizing existing conditions or to cooperate with the provider of telecommunication lines had the strongest infrastructure in the regency of Temanggung.
- Provision of institutional infrastructure and governance in the form of readiness of the management body of information, human resources, rules and regulations supporters.
- Providing content incrementally, as the priority needs of the dominant society. Some content may be recommended include:
 1. Agriculture: includes weather data, crops, irrigation pattern, the sale of agricultural, transportation route for agricultural products, market conditions, sales of agricultural products, and others.
 2. Livestock: recap of livestock, breeding conditions, the availability of cattle.

3. Health: The health data maternal / child, pregnant and lactating mothers, midwives and health workers visit, the data availability of drugs, disease conditions and data health workers
4. Education: new admissions, facilities and infrastructure of schools, school status, condition of facilities and infrastructure, information scholarship opportunities and grants for school improvement.
5. Data supporting the community: Temanggung regency information centers, public complaints, the participation of the public reports, participation and response appropriate government officials, weather information, the agenda of the regency, and other information related to public service.

All the above information can be presented in the form of mobile applications are easily accessible through mobile devices. In addition, this information is only at the stage of presentation, and yet provide integration or transaction. Socialization paradigm change communication and information with the public. Pioneering the use of sensors for agriculture, livestock and fisheries, to take advantage of existing telecom network.

- Preparation of an integrated information system to support the analysis and use of data collected from the sensors.
- Utilization of cloud computing technology to accelerate the provision of content and software infrastructure for information contents.

After define the priority, the next step is to define the implementation roadmap to ensure that the concept can be implemented rationally. The rationalization is needed because to reach the specific state, we need to prepare minimum requirement in previous stage. The rationalization that we use to propose the roadmap is:

1. The existing condition of infrastructure availability, that is, the network and telecommunication. We can utilize the local telecommunication provider to support the telecommunication infrastructure, which is mobile based communication.
2. The existing application, which is not yet planned to support agriculture data collection and interaction between farmers and government, so we will propose to develop the content that focusing on agricultural support, education, health and public services.
3. The use of sensor to collect data, and preparing the integrated information system as center of data processing.
4. The utilization of cloud computing technology to collect data and disseminate the information.
5. The roadmap is divided into 5 step, as describe in figure 5. The first step is to prepare supported infrastructure that consist of network and telecommunication infrastructure and organization/institutional infrastructure. While socializing and preparing the integrated application, we can start by collecting data from field sensor. After the data is available, we can process it using integrated system and then distributed it using cloud computing.

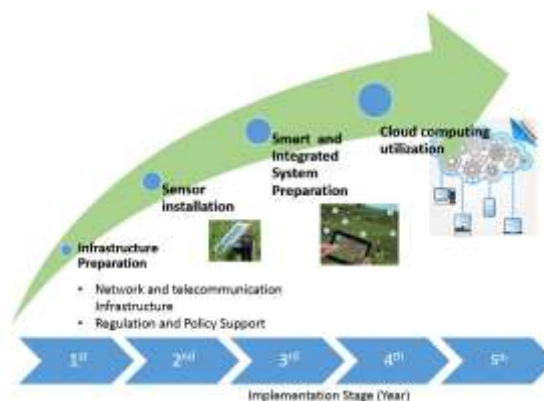


Figure 5. Temanggung Smart Village Implementation Plan

Detail activity of smart village implementation plan describe the activity that should be accomplished for each step, and duration of activity. As we can see from table 2, we can provide the information contents by develop the application gradually based on first priority, which is agriculture, and then step by step until we can provide application to support general public services.

Table 2. Implementation Plan of Smart Village Concept in Temanggung Regency

No	Activity	Implementation Stage (year)				
		1st	2nd	3rd	4th	5th
1	Fulfilled of minimum requirement of infrastructure.	x	x			
2	Providing institutional infrastructure and IT governance	x	x			
3	Content development : Agricultural Health Education Public Services	x	x x	x x x	x	x
4	Socialization : changes in information and communication paradigm		x	x		
5	Pioneering the use of sensor		x	x		
6	Preparation of integrated smart village information system			x	x	
7	Cloud computing utilization				x	x

CONCLUSION

Based on previous analysis, we can conclude some results as follow:

- Implementation of smart city paradigm in e-government could not applied uniformly but depends on local area condition and the local community characteristics. For the rural area, the smart village concept is more suitable to implement.
- The smart village implementation can be done by evaluating and analysing the existing condition, infrastructure availability, and build the implementation plan. The plan should consist several aspect of e-government component such as application, citizen participation, socialization, adopt the appropriate technology, and combined with smart village concept.
- In e-government development plan of Temanggung Regency, smart village can be considered as extended e-government services by utilizing the availability of infrastructure. Implementation of smart village concept can be done by identified the potential application and build the implementation roadmap.
- Based on existing condition and analysis of application needed to support the strategic development program of Temanggung Regency, we can propose the implementation plan of smart village system for Temanggung. The plan is divided 5 phases and consists of the supported infrastructure preparation, sensor initialization, the availability of information content incrementally, socialization, integration of data and information, and the usage of cloud computing technology. We expect that the plan can give a reference for local government to put the priority in e-government implementation.

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INTRODUCING VERTICAL HOUSING TO THE RURAL BEHAVIOUR IN INDONESIA

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ABSTRACT

Housing for high density area is hardly affordable due to land price. But, rural area in Yogyakarta nowadays faces other problem which is the limitation of land due to the conservation of productive land for agriculture. The change of way of life in rural area possibly changes the role of landed houses as part of rural culture. Integrated sources, activities, and relationship are the basic reasons to build vertical housing in rural area. The problem is what characters of vertical housing that match with rural behavior? The methods are questionnaire and assessment for the vertical housing in urban area but occupied by the people originated from rural area that their job in the city of Yogyakarta. Local government plans to build vertical public housing in certain region, therefore the built-apartments undergo an evaluation related to construction, space, and activity to fulfill the need of people. The analysis categorized the characters of building performances and spatial needs during one year occupancy according to rural behavior. Problems related to adaptability living in vertical housing are inevitably turning up. The study indicated the needs of public space or communal space. Additionally, the observation of building performance proves that residents are less involved in building maintenance. The design approach will bring the new concept of space and interaction in vertical housing in urban and rural areas based on rural behavior.

Key words: vertical housing; rural; behavior; interaction; building design

INTRODUCTION

Housing availability is always the main issue according to the increasing population. Government policy includes housing as development strategy for welfare indicators. But, land availability is decreasing and not affordable. The initiation of Indonesia National Program for 1000 towers in 2007 generated the construction of low-cost rental walk-up flats (Rusunawa) and ownership in high-rise, low-cost apartments (Rusunami) in the following years. The constructions had been already held in urban and rural areas. The target of occupants were mainly low income families, people with less access to housing ownership, and people with specific circumstances, for example labors, fishermen, and students of moslem boarding school (pesantren) (Pujiyanto, 2016) (Wicaksono, 2015) (Sinombor, 2008). However, according to Kompas dated 12 July 2014, the National Program still needs further agendas to fulfill the need of 800.000 houses per year. Moreover in 2014, there were still more than 13 million houses needed (Kompas, 2014).

The housing need in Indonesia, more or less is the impact of population growth and urbanization. These two factors are followed by other urban conditions of low income families, such as lack of land-ownership, the need of public transportation, close distance to workplace, the change of way of life, education opportunity, etc. The other factors happen in rural area, which are the need of land for industrial center, security for productive land, and extensive agroindustry. It is clear that urban and rural are facing the same problem. Data from World Bank and Ausaid in 2013 show that 28.6 million people or 11.6% of all households still live below the national poverty line which is US\$ 1.25 per day (World Bank, 2013). In addition, 38% of the vulnerable population live below the poverty line and more than two thirds of Indonesian low-income population live in Java (Rolnik,

2013). About 91% of the Indonesian population is categorized as low-income with limited procuring power (Ministry of Public Housing , 2014). However, data of Indonesian Statistic Bureau indicated steady economic growth and gradual declines in poverty in both urban and rural areas and Indonesia is now classified as a middle-income country (Republic of Indonesia, Ministry of National Development Planning, 2012). Different statements of welfare condition implies that both urban and rural have to be accounted and considered equally in the national development policies.

Urban community and rural community are experiencing different environment. Particular environment affects certain responses to survive. The communities have their own standards of welfare as well. The other circumstances are important to take into account. In other words, people with different background will have different behaviors. Occupants tend to change their environments, when the physical conditions have different orientation with their previous background and characters (Alihodžić & Kurtović-Folić, 2010). The changes could be positive or negative for the surroundings and environments.

Landed house and vertical housing are different in the way of ownership, building capacity, and background of construction. Landed house is privately occupied by single family or extended family, whilst vertical housing is communal residential building. Vertical housing is available according to controlling productive land for agriculture. Building utility for the sake of integrated sources, particular activities, and exclusive relationship possibly changes the role of landed houses in rural culture and becomes the basic reason to build vertical housing.

The research question is what criteria of apartment design that fit to the particular activities and behavior of rural communities? The discussion starts with definitions of rural, kampong, and village. These meanings are able to understand the cultural and social characteristics of rural communities and to identify the activities in the urban vertical housing. Second part of literature review explains the standard of adequate vertical housing for low income family. The study area and research methods become the following description, including the basic background of the occupants. The analysis and result describe the field observation and explain the result of questionnaire quantitatively and qualitatively. The results are able to conclude the factors of vertical housing design related to rural community. The discussion will combine the analysis and result with the literature review in order to determine the criteria of vertical housing.

LITERATURE REVIEW

Rural, Village, and Kampong

Definitions of village and rural possibly bring about the understanding of the characters of inhabitants. According to Indonesia dictionary, village (*desa*) is defined as an area occupied by numbers of family within the authority of local government system, and is led by chief. The definition also comprises the context of outside the city and remote area (KBBI, 2012-2016). Village also means a group of houses and associated buildings, larger than a hamlet and smaller than a town, situated in a rural area. It is usually located in the countryside, a small municipality, kind of way of life, and a self-contained district or community (<http://www.merriam-webster.com>, 2016).

Village, according to Village Law (Undang-undang RI) No. 6 Year 2014 about ‘village’, is the unity of community within particular territory under certain law or tribal law to conduct governmental authority and public concerns in the National Republic of Indonesia.

Whereas, rural is always the dichotomy of urban. It is relating to the country and the people who live there instead of the city, characteristic of the countryside rather than the town, and relating to agriculture background. (<http://www.cambridge.com>, 2016) (<http://www.merriam-webster.com>, 2016) Based on the definition, it can be concluded that rural or village is a self-contained way of life within local authority system. The rural community has the power in independency and cultural matters. When the similar characters emerge in the urban area, it is called kampong.

Kampong is specific urban space which is socially formed with the urbanized economic activities and rural-like interaction of the community (Thompson, 2004). Kampong is located in the city center or city periphery. The appearance of houses reflects the rural community which is modest

and close to each other, however the constraints of life are more urban-like (Pratiwi & Elgifienda, 2008). Kampongs are an intrinsic part of urban history and have been essential to providing low-income housing and contributing to economic development of the city through labor and consumption, and to the cultural and social fabric of Indonesian society (Rolnik, 2013). The term of kampong is close to the condition of low income family. When they live in vertical building, so it is called vertical kampong.

Vertical kampong have equilibrium between well-managed and less-managed of physical characters and traditional space. Non-physical bonds are communal interaction, communal economic activity, new idea of environment matters, and cultural activity. Besides the residential area, the vertical kampong applies space for commercial activity and communal activity. (Cahyandari, et al., 2015)

Public Housing in Indonesia

Conflicts over land in both rural and urban areas are widespread in Indonesia and prevent registration and tenure security. The 1967 Basic Forestry Law and the 1967 Law on Mining essentially eliminated the tribal rights living in these areas, depicting them as illegal squatters. Moreover, nearly one in every four urban residents has migrated from rural areas and many of them still do not have identity cards for their current residential location and do not receive any public services (such as education and health). (Rolnik, 2013). Indonesian government has been working on housing availability to build vertical public housing in urban and rural areas. In fact, the occupancy of public vertical housing has been in optimum level and the housing needs still increase significantly. Therefore, government plans to build vertical public housing in certain region and certain occupants. For example, local government of Gunungkidul built rental apartment for fishermen or ship’s crew in coastal area of Gunungkidul. The availability of vertical housing make it possible for fisherman to stay with their family temporarily.

Adequate housing includes guaranteeing (a) legal security of tenure; (b) availability of services, materials, facilities and infrastructure; (c) affordability; (d) habitability; (e) accessibility; (f) location; and (g) cultural adequacy (Rolnik, 2013). Rusunawa and Rusunami are both vertical housing with different ownership system. Rusunawa is rental apartment and always face the problem of maintenance. Rusunami is owned privately by middle class community in general. Subsidized rental schemes can only succeed in the long term when governmental budgeting is available to also subsidize maintenance of the public spaces and facilities in these buildings, since low-income tenants cannot afford these high costs. People with rural background had to adapt with vertical housing. Problems related to adaptability living in vertical housing are inevitably turning up. Landed house with its open area is contrary to vertical housing with limited open area. People tend to occupy public area such as corridor for circulation for private activity such as sitting, drying clothes, storing things, etc. (Cahyandari, et al., 2015)

STUDY AREA

Yogyakarta local government provides two blocks of apartment for rural people who work in the city center. The places are Rusunawa Juminahan and Rusunawa Cokrodirjan. The occupants are coming from low income families and originated from outside the city. Some of them were subject of eviction in this location before the constructions. All of them are working in marginal sectors, such as becak driver, small seller, and labor.

Figure 1. Object of Study

Observations	Rusunawa Juminahan	Rusunawa Cokrodirjan
Owner	Social Welfare Bureau Yogyakarta	Social Welfare Bureau Yogyakarta
Year of occupation	2010	2007
Number of unit	68 units	72 x 2 blocks = 144 units

Observations	Rusunawa Juminahan	Rusunawa Cokrodirjan
Unit dimension	(4,5 x 5,5) m ² = 24.75	(3 x 7) m ² = 21
Indoor spaces	1 bedroom, bathroom, kitchen	1 bedroom, bathroom, kitchen, drying area

The units are fully occupied and the queue is shifting after 3 years. The application can be proposed maximum twice. The rental price differs for each story. The highest price is the lowest story, and the other way around.

RESEARCH METHODS

Questionnaires were delivered together with regular communal meeting. The community was given brief explanation according to the purpose of questions. The substances of the questions comprised of

- Personal identity: number of family occupancy, family principal, duration of occupancy, origin, reason of migration
- Social activity, public space in door and out door
- Unit condition, building, and areal
- Habitability, security, safety, interaction, and transportation

Visual assessment of building condition was conducted in all building level. It included building maintenance, space alteration, space function, and destruction. The analysis comprised descriptive functional analysis, and spatial analysis. Data were documented in verbal description and pictures.

ANALYSIS AND RESULT

Apartments become the solution for housing backlog. Firstly, apartments are effective and efficient in terms of land width and number of occupancy. Secondly, the design of apartment is usually similar to one and another. Typical units are generally arranged in one row and one stairs, located in town or village. Finally, the construction is mostly easy and fast.

The questionnaire was intended to find out the behavior of occupants according to their background. The location of the apartment in city center were assumed to eliminate the economic factor since all occupants were low income families. In additional, the design of the apartment did not apply specific considerations.

The question about public space indoor and outdoor were intended to see how the occupants compared the spaces. Outdoor communal space was more available than indoor. However, based on visual assessment the outdoor was wider. It assumes that the community misunderstood about the criteria and function of communal space. The space divisions are not in their experiences. Corridors are actually public space for circulation but they use them as communal space for interactions.



Figure 2. Communal Space

The priority of space based on the critical function came up with clinic and garden sequentially. The other functions were commercial space and recycling processing area in the same number, followed by family room and storage room. Health standard in the low income family are still precious factor, because mainly it is not affordable. Garden is also part of recreation space for being healthy and sometimes inaccessible.

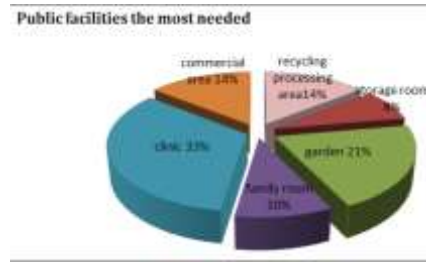


Figure 3. Public Facilities Priority

Vertical housing is the way to learn tolerance in term of privacy. One of the factors of privacy and tolerance is noise. Noise in the vertical housing is coming from outside and inside the building. The questionnaire showed that internal noise was higher than external. It means that the behavior of the occupants did not care about the privacy, even though the building is in the side of a highway. Internal noise interfered the habitability of the apartment.

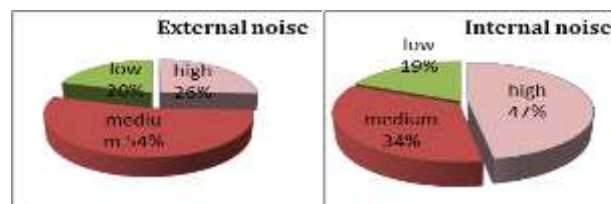


Figure 4. Level of Noise

Rusunawa Juminahan and Cokrodirjan are occupied by migrant villager with economic background. Assessment were conducted to identify building condition during more than one year occupation. Beside social interaction, inhabitants should have building interaction in order to support the maintenance.

Figure 5. Result of Assessment

Assessment and Observation	Rusunawa Juminahan	Rusunawa Cokrodirjan
Occupants	Low income family	Low income family
Public facility	Hall, parking lot, and commercial area	Hall, Parking lot, day care and kindergarten
Outdoor facility	Communal toilet and bathroom	-
Maintenance	Renovation in 2012	-
Visual Assessment	Door and wall cracked Hole in the wall Stair tiles fractured Corridor and hallway for storing private thing Close social interaction	Dirty Wall cracked Fence (balustrade) unsafe Water pipe out of order Leaking in the ceiling Drying clothes in the corridor Close social interaction

DISCUSSION

Migrant people are having specific conditions. They usually still bring their habits or behavior, even though they have already lived in the town. The public apartment for low income family has two main characters which are urban and rural. Rural characters is according to social relationship, whereas urban is close to economic activity. The workers in urban area or city center need place to stay temporary during their activity. They are actually people who live in the city center and need to live near workplace to save cost for transportation. When the vertical housing is built in the rural, it must accommodate the exclusive workers or community with particular similarity. The objectives are

varied depend on the occupant's characteristics, therefore the design is also contextual. For example: apartment for vulnerable people to disaster, for fishermen, for seller, or for labor. Apartment located in vulnerable area to tsunami will have specific design to anticipate the disaster with distance from the beach, location, building story, and building strength. When the vertical housing is built in the urban area, the approaches are different, for example it must comply the goals of accessibility and habitability. The apartment in the urban area might have typical design because mostly its goals are economic and physical improvement considerations. The vertical housing in the low income family encounters difficulties related to building maintenance and management. The people are not used to the characters of vertical building. Despite the location, the characters of behavior determine the design of the building as following:

- Communal space in every story excluded from the corridor
- The number of story is not more than 3 levels because of accessibility and cultural considerations. The closeness to the ground is still the choice
- Vertical circulation is close to the communal space, instead of private space, in order to reduce the noise.
- One block can be treated like one village with one chief, including payment arrangement
- People have to learn the building standards to support the building maintenance
- People learn about security and safety, such as how to use fire extinguisher
- People learn to manage rubbish, water treatment, and create environment-friendly activity and energy saving
- Public space or communal space with the useful function, such as sport and cultural activity

The existence of the apartment can also educate people how to live healthier and civilized with modern building system to accomplish the needs of community and environment sustainability. For example: people can learn how to do toileting or bathing in proper way. The goals of public apartment or vertical housing, according to Public apartment Law No.20 Year 2011 are not only to accommodate low income people, but also to contribute more green open space. This will support land efficiency and land use for sustainable development and environmental concerns.

CONCLUSION

Vertical house can be built both in rural and urban areas. But, the design should consider the goals of the establishment and the background of the occupants. Urban community and rural community can have the same characters because they are originated from rural. Housing for high density in urban area is hardly affordable due to land price. But, rural area nowadays faces other problem which is the limitation of land due to the conservation of productive land for agriculture. The change of way of life in rural area possibly changes the role of landed houses as part of rural culture. Integrated sources, activities, and relationship are the basic reasons to build vertical housing in rural area.

Figure 6. Adequate Vertical Housing in Rural and Urban Areas

Adequate Vertical Housing	Rural	Urban
Occupant	Low income family	Low income family
Special background (the goal)	To provide rental housing depend on the work such as labor, fishermen, farming worker, or student	To improve the quality of settlement To support the cost for settlement
Design (facilities and infrastructure)	Contextual depend on the goal and occupants with concern to communal space, public space	Typical with special concerns on communal space, public space, clinic
Affordability	Rent with low cost	Rent with low cost
Habitability (vulnerable factors)	For instance green building in the agriculture area, construction for tsunami responses, etc	Typical construction standards
Accessibility	Relative, depend on the occupants	High, close to transportation system
Location	Close to the main activity	City center or workplace
Culture	Variety	Uniformity

The need of housing to support their activities is achieved by vertical housing as part of national program. But the same background as seller, labor, or fishermen will decide the character of building besides rural behaviors such as: intense social interaction, communal economic activity, leadership dependence, and public activity.

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FISHERIES AND TOURISM INTEGRATION: POTENTIAL AND CHALLENGE IN PANGANDARAN VILLAGE

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ABSTRACT

As one of national strategic area of tourism in Indonesia, Pangandaran has many tourism attraction potential, especially natural attraction such as a beautiful coastal scenery and nature conservation area. In 2014, there were almost one million tourists came to Pangandaran and at least five thousand of them were international tourist. Tourism contributed the largest proportion on Pangandaran's GDP for the last five years. However, as one of the most favorite coastal tourism area in Java, Pangandaran also has a lot of potential in fishery activities. In 2014, total transaction in the biggest fish market in Pangandaran reached 42 billion rupiahs. The existence of these two potential sectors is a comparative advantage for Pangandaran to increase their economic activity to bring prosperity for the local community. In fact, the development of these two potential sectors has not been optimally integrated. Several findings showed that there were some tourism negative externality especially to fisherman community such as transitions in local community livelihood from fisheries to tourism related livelihood and fisherman community marginalization caused by the development of tourism facilities. Based on these conditions, this paper identified the integration potential of tourism in Pangandaran Village with local fisheries activities to increase the benefits of tourism for local fisherman community. This research used the qualitative approach with in depth interview and observation as the main methods to obtain the information. Furthermore, literature and precedent review were made to complete the analysis.

Key words: Fisheries, Integration, Pangandaran, Tourism

INTRODUCTION

As the biggest archipelago country with 17.504 islands, Indonesia has a lot of coastal and marine resources. In 2013, the number of fish productions in Indonesia reached more than 6 million tonnes and this number always increasing since 1999. On the other hand, the abundance of fishery potential in Indonesia is not providing welfare for the people who work in the fisheries sector especially fisherman. Most of Indonesia fisherman lives in poverty (Dahuri and Dutton, 2000). Besides fisheries, marine and coastal area in Indonesia also provide attractions for tourism industries. Many Indonesian international scale tourism destination come from marine and coastal area such as Raja Ampat, Kuta Beach, and Komodo National Park. The number of tourist who came to Indonesia in 2014 reached 9 million people and tourism has major contribution (4%) towards national revenue of Indonesia.

This paper, therefore, focuses on Pangandaran Village, a traditional fishing village in the south part of West Java Province, about nine hours' drive from Jakarta (the capital of Indonesia) and six hours drive from Bandung (the capital of West Java Province). This village is the center of tourism activity in Pangandaran Regency which is one of national strategic area of tourism in Indonesia. As the center of tourism activity, Pangandaran village has many tourism facilities such as hotel, guest house, souvenir markets, parking area, and many more. Furthermore, this village also has some

attraction such as white sand beach, snorkeling spots, and watersport. As said before, Pangandaran Village is a traditional fishing village which fisheries activity is also a major activity of local community. In 2015, there were 2.134 fisherman in Pangandaran Village which are mostly small-scale fisherman. Pangandaran village also has some fisheries facilities such as fish auction, fish market, and port. In 2014, the amount of fish transaction at Pangandaran Fish Auction reached 42 billion rupiahs with total fish production more than 1,2 million kilograms.



Figure 1 Location of Pangandaran Village

Source: Government of West Java Province (<http://www.jabarprov.go.id>)

Some literature said that there are some negative externality from tourism development in Pangandaran Village especially for local fisherman community. According to Barlan (2013) tourism development in Pangandaran Village led to some negative externality to fisherman especially fishing workers. At the beginning of the development of tourism in Pangandaran Village, many fisher workers who live in or below poverty level forced out due to massive construction of tourism facilities (they must sold their land or houses to investor). This phenomena led to the displacement of fisherman settlement to Babakan Village (4 kilometers away from port). Despite the displacement of fisherman settlement, there are fisherman settlement in Pangandaran Village but the size is small. Another negative externality of tourism expressed by Pratama (2013). He said that development of tourism in Pangandaran Village causes in-migration of fishermen from around the village because of fish prices in Pangandaran Village relatively stable. This in-migration led to an increase in competition of fishermen especially fisher workers. Transitions in local community livelihood from fisheries to tourism related livelihood is another externality of tourism development to the local fishermen community.

MATERIAL AND METHODS

Integration between Fisheries and Tourism

Many literature define integration as institutional collaboration in terms of economic development. Kahnert et al (1969) said that economic integration is the process of eliminating discrimination on a cross-border country (in the context of trade). El-Agraa (1988) also said that integration is eliminating trade discrimination between participating countries and strengthening coordination between them. The definition of integration which suitable for this paper is the broader definition. According to Oxford Dictionary, the world integration refers to the action or process of integrating something which has link in their various parts or aspects. Pinder (1996) also tried to accommodate some scale of integration. Pinder (1996) said that integration is a combination of several parts into a bigger unit. So in this paper the integration between fisheries and tourism defined as combining some tourism element into fisheries activity in order to increase the added value.

Fisheries activity itself covers all aspects related to the utilization of fisheries resources (Cochrane and Garcia, 2009). According to European Commission (2013), fisheries area has many assets that can be developed as cultural heritage attraction. A traditional fisheries activities, traditional

fishery resources utilization and fisherman’s traditional village are some examples of the attraction in the fishery area and it should be the focus of integration (Luck, 2008; Kizielewicz, 2012). In the other words, the integration between fisheries and tourism can be the development of fisheries activity – including all aspects related to utilization of fisheries resources – as a tourist attraction which operated by fisheries actor in the fisheries area.

Precedents

To give more picture about the integration of these two economic sectors, several precedents needed. Related to this case, there are two precedents of integrating fisheries and tourism sector. These precedents were choose due to some similarities in terms of fisheries activity and tourism attraction potential with Pangandaran Village such as beautiful coastal scenery and small scale fisherman activity.

Sardinia, Italy

Integration between fisheries and tourism in Sardinia, Italy reported in FARNET Magazine which published by European Commission in 2013. In Sardinia, Italy, there are many fisheries activity which developed into tourist attraction. Tourist can participate in some traditional fisheries activities such as traditional fishing with local fisherman, enjoy their catch and barbecue with local community. This recreational fishing activities also combined with nature attraction potential in this area such as Mediterranean sunshine, swimming and snorkeling at some spot which only can be reached by boat. This fisheries-tourism activities held in the summer when local fisherman usually reduce their fishing activity to demonstrate and explain their activity to tourists. At the beginning of integration process, these activity only involves fisherman and local community as an operator. But due to increasing the number of tourist, these activity also involving business actors especially to meet the needs of tourists.



Figure 2 Fisheries-Tourism Activity in Sardinia, Italy. Source: European Commission, 2013

Taiwan Coastal Area

Based on research conducted by Chen (2010) titled “Diversifying Fisheries into Tourism in Taiwan: Experiences and Prospects” there are three type of fisheries-tourism attraction in some coastal area of Taiwan. 1) Fishing Boat-Type: This type is an activity when tourist together with local fisherman using traditional boat to doing some recreational yet traditional fishing and diving. This activity including marine caging, whale and dolphin watch, and enjoy the beauty of coastal scenery; 2) Fishing Harbor-Type: This type is fishing activity which held in the port that was built to support fishing. This activity including fish market activity, seafood catering, and enjoy the coastal scenery; 3) Fishing Village-Type: This type is some kind of a tour in fisherman’s village. This activity including stay in local community’s houses, eat local seafood, participate in local festival, and enjoy rural culture and scenery.



Figure 3 Fisheries-Tourism Activity in Taiwan Coastal Area. Source: Taiwan Council of Agriculture (<http://eng.coa.gov.tw>)

METHODS

Basically, this research has a qualitative approach. This approach do not use statistical analysis or other quantification method. Qualitative approach is based on information in the form of words that are considered to have knowledge about some phenomena (Moleong, 2005). All of data used in this research were collected by interview and observation with some literature or documents review for complete the analysis. A stakeholders interviewed are determined by purposive and snowball sampling. These two sampling methods classified as non-probability sampling which is not determined statistically. Purposive sampling is a methods to determine stakeholders by develop some stakeholder criteria based on research goal. This methods involves searching for individuals or groups who meet the criteria which developed before (Palys, 2008). The stakeholders criteria used in this research contained in table 1. Another sampling methods which used in this paper is snowball sampling. Snowball sampling is a methods that involves stakeholders to obtain another key actor to be interviewed (Adler and Clark, 2008). This methods is useful for identify another stakeholders who unidentified in the purposive sampling methods in order to obtain more information used to strengthen the arguments

Table 1 Stakeholder Criteria

Criteria	Stakeholders
An institution that has an authority in tourism and fisheries development	Regency Tourism Department (dinas pariwisata kabupaten)
	Regency Fisheries Department (dinas perikanan kabupaten)
	Sub-Regency Government (pemerintah kecamatan)
	Village Government (pemerintah desa)
	Fish Market and fish auction manager
People who engage in tourism and fisheries activity	Local fisherman
	Local communities (exclude fisherman)
	Seafood Restaurant manager
	Boat tour operator

RESULTS

Fisheries and Tourism Existing Linkages

Despite the negative externality caused by tourism to fisheries activity in Pangandaran Village, tourism activity in Pangandaran Village cannot be separated from the fisheries sector. There has been a linkages between fisheries and tourism, especially related to fish catches. As a coastal area, Pangandaran Village has abundant fish catches and as a tourism area, Pangandaran Village has a very large fish market, especially tourist. Many tourist who come to Pangandaran Village led to high demand of fish processed product. This condition causes a linkage between these two sectors. First linkage between fisheries and tourism in Pangandaran Village occurs in culinary activity. There are more than 20 seafood restaurants in Pangandaran Village which needs fish or other seafood supply, especially in peak season where seafood demand increasing rapidly. The majority of seafood restaurants obtain the seafood raw material from bakul (a local tradeswoman) who bought the fish form Pangandaran Fish Auction. Second linkage can be seen in tourist shopping activity where tourist buy dried fish as a souvenir or some fish snack to be consumed when traveling. Usually tourist buy dried fish directly from bakul who offers her commodity.

For information, in Pangandaran Village there are some regulations made by Koperasi Unit Desa Minasari (KUD Minasari) as fish auction manager which does not allow anyone except a registered bakul to buy fish from the fish auction and also does not allow fisherman to sell their fish to another party without going through the fish auction. After the trading activity at fish auction, bakul can sell their fish to another parties like restaurant, tourist, small industrial fish processing, or corporate who already have an agreement with bakul. Despite the existence of such regulations still

there are few transaction outside the fish auction but the amount is very small and not significant. This case only occurs when fisherman has debts with bakul so they have to sell their fish to bakul to pay off their debts.

Local Community Responses

As a developed tourism area, local community in Pangandaran Village including local fishermen have turned into the community that supports tourism. They realize that the sustainability of tourism activities depend on their behavior towards tourists. This community awareness is an important factor in the development of tourism (Moscardo, 2008). In some cases of tourism development, tourism activity disturbed by local community behavior of local community who are not cooperative with tourist (Armenski and Lukic, 2011). In Pangandaran Village, local community openness towards tourist is a social transformation since the end of 1970s when tourism first entered to the old traditional fishermen village called Pangandaran. Year by year, local community awareness and openness towards tourist growing inside the community.

In the context of integration between fisheries and tourism, local community especially local fishermen openness towards tourists make them very welcome if there are tourists who want to participate their traditional fishing activity on the condition that tourists are ready with all the risk especially seasick (tourist seasick is the main barrier that inhibit the activity of tourism using traditional fishing boat in a relatively long period of time). According to majority local fishermen statement, there has been a tourist who asked to rent their boat used for fishing either by using a fishing equipment or fishing traditionally (but the number of tourists who wants to do traditional fishing were once in a blue moon). But despite their openness towards tourist, local community knowledge about the integration between fisheries and tourism is only about fish product which consumed by tourist whereas there is a potential of fisheries activities to be developed into tourist attraction in line with the statement from European Commission (2013) who said that fisheries activity has many asset to be developed as a cultural tourist attraction. Lack of demand to recreational fishing or another fisheries-related tourism activity make them believe that fisheries activity can not be developed into tourist attraction and also there is no desire from local community to develop this fisheries-related tourism activity.

Potential and Challenge of Integration

Fisheries and tourism integration is an efforts to diversify fisheries product in order to increase added value of the fisheries sector. The main purpose of this integration is increasing local fisherman's income to prevent their marginalization especially for fisher workers. As an activity that contains many traditional values, fisheries activity has many assets that could attract tourist. On the other hand, the integration process between these two sectors can also serve as a diversified tourist attraction in Pangandaran Village which dominated by natural attraction. According to European Commission (2014), as the time goes by, many tourist tend to get bored with the common attraction which can be found everywhere so the innovation of tourist attraction are needed in every tourism destination especially in Pangandaran Village.

Traditional fisheries activity and another fisheries resource utilization should be the focus of this integration because these activities has high-value attraction (Luck, 2008). Furthermore, traditional fishermen village atmosphere is another things that are potentially attractive for tourist (Kizielewicz, 2012). In Pangandaran Village, fishing activity still done in traditional way with small boat which only has 1,25 meters wide and 15 gross ton capacity. Local fishermen in Pangandaran Village also use traditional nets such as nylon nets, string nets, and arad nets. In determining the fish location, local fishermen are still using their feelings and see natural signs. These traditional elements have the potential to be sold as a travel package that can provide new experiences for tourist, especially tourists who come from big cities like Jakarta and Bandung.

Fish landing, and fish processing activities are also interesting to be developed as part of travel package. In the morning and afternoon, fish landing activities which need a lot of people often participated by tourist who just want to feel the sensation of pulling the net together with local

fishermen. Fish processing activities in Pangandaran Village are also interesting. Although fish processing activities in Pangandaran Village still small scaled and few in number, but recently there are increasing in the number of small industries that process fish into snack. In addition fish processing into seafood has attracted tourist because of its freshness and delicacy. Fish processing activities into snack can be packaged as a tourist attraction that offers experience for tourist to process raw fish while processed seafood products can be packaged as a culinary tourism. Both can take part in fisheries-tourism activity trip package.

The existence of a fishermen village in Pangandaran Village is another potential for the development of tourist attraction from the fisheries sector. If packaged and developed properly, this fishermen village could develop into tourist attraction complete with its local activity and rural community values. There are some activities in this fishermen village which related to traditional fishing activity such as fishing equipment and boat maintenance. However, fishermen village in Pangandaran Village are still far from attraction. There is no specific characteristic which distinguishing this fishermen village from another common village in Indonesia such as physical landscape or architecture or the culture of fishing community except boat and another traditional fishing equipment maintenance activity.

Fisheries-tourism activities in Pangandaran Village are inseparable from another attractions especially marine and coastal attraction. The existence of another these nature attractions is an advantage for fisheries-related tourism package. The beauty of underwater ecosystem and scenery in the coastal area of Pangandaran is a potential that cannot be abandoned. These natural attraction can be a complementary for fisheries-tourism activities tour package. The integration of the fisheries sector to the tourism in Pangandaran Village in terms of increasing added value of fisheries activities still meets some challenges. Based on observation and interviews with relevant stakeholders, this research analysis identified the current challenges as below.

- Lack of desire from local community and government: a majority of local community and government especially tourism department still assume that tourism activities and fisheries activities are two partially engaged activities which develop to their own direction. According to tourism department of Pangandaran Regency (Pangandaran Village is part of Pangandaran Regency), natural tourist attraction still the main attraction of Pangandaran. It causes many attraction development programs still focus on the development of natural tourist attraction like cave, beach, and mangrove forest. In addition, lack of local community awareness of the potential attraction from fisheries sector also made people in Pangandaran still reluctant to develop a package of fisheries activities as a tourist attraction
- Lack of role of tour and travel service providers: a majority of tourist activities in Pangandaran Village are not organized by tour and travel. This is because tourism activity in Pangandaran Village majority is a natural tourism such as swimming in the beach, enjoying scenery, or walking around in the nature reserve area which does not require tour management. Although there has been some tour and travel service providers, but it looks deserted of tourists. The role of tour and travel service provider becomes important to plan an integrated fisheries-tourism trip.
- Limited fisheries facilities in accommodating tourist: Fisheries-tourism activities needs more facilities than the facilities used only for daily traditional fishing activities. For examples the size of boats still very small to accommodate tourists. For recreational traditional fishing activity the boat only fit for two until three tourists, lack of safety facilities, and no homestay or another tourists facilities in fishermen village. The improvement of these facilities are needed to increase tourists experience and satisfaction.
- Small and limited market share: Tourist attraction of the fisheries sector has a very limited market share. This tourism activity classified as a special interest tourism which only involve some classes of tourists. This is because the tourism activities from the fisheries sector is still very rarely developed in Indonesia so it needs extra efforts of promotion. Second reason is this activities located in maritime area and requires a relatively long period of time. It is a barrier to some groups of tourist such as tourists with relatively old ages and tourists traveling with children.

DISCUSSIONS

Fisheries and Tourism as a Tools of Local Economic Development

In the context of regional development, fisheries and tourism in Pangandaran Village is an endogenous potential which able to drive the regional development of Pangandaran Village or even on a wider scale. These two sectors is a tool in improving the economic activity in Pangandaran Village with the main goal of well-being of local communities. If we look at the theories of regional development, fisheries and tourism sectors are an important element of local economic development. Local economic development is a theory proposed by Blakely (1989). He said that local economic development is a process of economic development which government and local community participate actively in managing endogenous potential through a patterns of cooperation. The aim of this concept is to stimulate an increase in employment opportunities for local community in the sectors which can improve their welfare by involving all available resources (natural, human, and institutional)

In general, the development of tourism sector in Pangandaran Village has fulfilled several requirements of local economic development application. The active role of local community and local government in managing potential tourist attraction succeeded in creating jobs and new sources of income for local communities. But on the other hand, the existence of the marginalized is a negative externality of tourism development that have to be internalized. The integration between fisheries and tourism is an effort to internalize the externalities caused by tourism development by maximizing the local potential of Pangandaran Village. The integration of these two sectors can expand the potential of providing jobs for local community especially fisher worker who can involve more on tourism sector. However, the pattern of cooperation between tourism actors with fisheries actors which is a condition of local economic development application is a thing that has not happened in Pangandaran Village.

Community Based Tourism as an Approach

Community based tourism (CBT) is a concept of tourism development that provide space for local community to participate in the planning and managing the attraction to improve their welfare (Ruiz-Ballesteros, 2009). CBT focuses on community involvement in planning and operating destination (Hall in Blackstock, 2005). If sustainability is the goal of tourism development, community participation must be given a wide space especially in Indonesian rural areas which still take care of the value of solidarity and gotong royong (mutual cooperation).

The concept of fisheries and tourism integration in Pangandaran Village aims to increase the income of fishermen community especially fisher workers in order to escalate their welfare and preserve them from marginalization caused by tourism. CBT approach in the integration of these two sectors is needed by fishermen in order to voice their aspirations about the development of tourist attraction that affect their daily activity. To achieve that condition, the desire of community to be transformed into community who accept and want to open their daily activity for tourist should be grown (Ruiz-Ballesteros, 2009). This has not been found in Pangandaran Village.

In institutional terms, Pangandaran Village has destination management organization (DMO) which consist of local community, governments, NGOs, and various tourism organizations to develop and manage destination. The existence of DMO is crucial in implementing CBT in Pangandaran Village because of its role as a melting pot of the aspiration of all stakeholders. In the former tourism activities in Pangandaran Village, local community involve in various sectors such as a tourist attraction operator and manager through *kompempar* (tourism interests group), as a guiding sector through HPI (Indonesian guiding community), the tourism boat operator through OP3 (Pangandaran tourism boat operator organization), and other fields. Hopefully the development of a tourist attraction from fisheries sector could involve fishermen community especially fisher workers to operating tourism activity so that they can increase their revenue.

CONCLUSION

The concept of integration between fisheries and tourism is an idea to maximize the potential between these two sectors. This concept has been practiced in some parts of the world including Italy and Taiwan. This study provides an overview of existing conditions about linkages between fisheries with tourism and also gives an explanation about potential and challenges about the possibility of integration between these two. As a tourism area with fisheries potential, Pangandaran Village has the potential to be a fisheries-related tourist destination which contains some attraction from fisheries sector such as traditional fishing activity, fish processing activity, unit the atmosphere of the traditional fishermen village. Unfortunately, the development of fishing activities as a tourist attraction in Pangandaran Village are still very low. Only fish processing into a seafood that has been developed into culinary attraction. The study also outlines the challenges faced in the integration between fisheries and tourism in Pangandaran Village. The Challenges are lack of desire from local community and government, lack of role of tour and travel service providers, limited fisheries facilities in accommodating tourist, and small and limited market share. As two local potential in Pangandaran Village, fisheries and tourism sectors in Pangandaran Village should develop synergies to improve local community welfare. Community involvement in the integration process is an important thing to do in order to make local community as the main actor in the planning and operating the fisheries-related tourist activities. To ensure this, the tourism development approach which gives wide space for community to express their aspiration is needed. It is crucial to avoid marginalization of local communities especially fisher workers caused by tourism activity.

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EVALUATION USAGE ANDROID APPLICATION FOR MIDWIFE IN RURAL AREA

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ABSTRACT

Midwives play important role for maternal and baby health in rural area. Data management includes patient's information, vaccine schedule, and type of vaccine and visiting schedule. In traditional way, data management needs lots of paper and data searching cost much time. Android application is developed to help data management for midwife. It also send short message to mothers two days before schedule. Evaluation of usage android application in rural area in South Tangerang and West Jakarta shows that it helps midwife's job. Data searching can be done in a second and schedule reminder helps mothers to come regularly.

Key words: midwife, android application, rural area, South Tangerang, West Jakarta

INTRODUCTION

In rural area that just has few health services, midwives play important role in women's health. Most of women feel more comfortable discussing their health problem or baby day care with midwives. Midwives always need accurate information to help them in their duties that protect health of women, babies and families (Klein, 2009). Midwives in rural area have to train mother to take care new born baby. They also have to ask mother to breast feed baby. Information about how important and how early contact with baby during breast feeding need to be delivered very carefully. Midwives really need communication skill and accurate information. Smartphone with android operating system is commonly used by many people now a days. Many type of products in varieties price give opportunity to consuming to choose. Many applications in android smartphone are free and have much functionalities to help daily life and duty. Data management and event reminder are some of important function in many android application. Android application is developed to help midwives do their job. Patient data management is a basic function in this smartphone application. Event reminder is a useful function to remind mothers come back to the midwives or as visiting schedule for midwives. Android application is developed with database which is stored in the cloud service.

MATERIAL AND METHODS

Quality of service is a key to keep service always good to be delivered and customer satisfaction score high. In maternity care, quality of care is developed to know how process and outcomes in public report (Voerman et al., 2013). Safety and quality of maternity care are always improved in their research to get patient satisfaction. Some indicators in their research are used in the android application development for midwives. Health importance, applicability to group of patients and potential of improvement are indicators which are adopted in the development.

Layout and some functions in android application are developed based on midwives' need (Ghozzali & Goeirmanto, 2015). Direct interviews and questionnaires are information acquisition method that be used to get all midwives' need in their daily duties. All information is processed to build draft layout of application (mock up). Midwives who participate in the interview are asked again

to see mock up and some fresh comments are captured to improve the design. Database of application is stored in cloud service. Event reminder is designed with two methods of alarm, which are using smartphone application or sending short message. Android application is used by midwives in ten maternity service places (posyandu) in South Tangerang and West Jakarta rural areas for four months. All services are free of charge and midwives got training before using application. First week of android application usage was a trial and error phase for midwives because they really need application but some of their duties have to be done really fast. All participants could use android application without error in the second week.

RESULTS AND DISCUSSIONS

Midwives use smartphone application in their posyandu or during their visit to patients. Many positive comments in the first week usage from participants are about helpful function from data management. Patients' data and history which are input in to the system help midwives in their job. Information from application help midwives to give proper suggestion to patients. Weight and nutrition calculator are favorite functions in application. Midwives let mother know about health and grow of baby after checked and inputted in to the application. Baby condition during visit or before get vaccine always be checked and communication during the process keep midwives know how mother take care it.

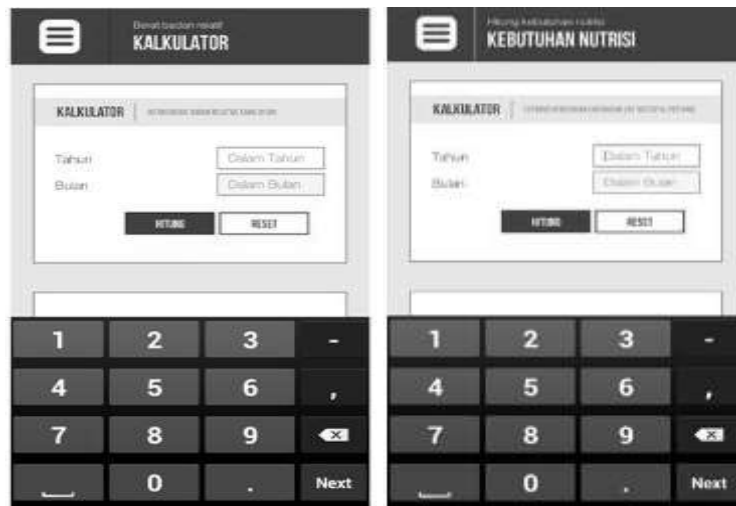
Midwives always asks mother to do breastfeeding every visit or discussion. Some visit, midwives also can meet other family members and discussion with them give many information about mother and baby. Midwives also always ask father of baby to help take care it during several first months. Breastfeeding is an important issue that midwives always ask father or other family member to support. In the visit, midwives also always ask family member to keep their house clean and washing their hands if want to touch the baby. Midwives can remind them to keep clean using some information in the application.



Pic 1. Android application usage during patient visit



Pic 2. Menu in android application for midwives



Pic 3. Weight and nutrition calculator in android application for midwives

Event notification for patients is an automatic service after it set. Many families in the rural area just have old mobile phone, therefore all notifications for patient are delivered using short message service. Visiting schedule for midwives also use event reminder and it appeared as application alarm in the smartphone. After four months using android application, midwives who are participated can enjoy using application and use many function in it. They can do more effective and focus to mother and baby during their meeting in posyandu or visit. Some new and update information are need to improve android application. Questionnaires which are filled by midwives give some suggestion to build new other functions and add some update information.

CONCLUSION

The study was the first step after android application was successfully developed. In South Tangerang and West Jakarta rural areas, midwives still play important role for maternal and baby health. Accurate and update information is important for midwives during their job and it can be found in the android application. Midwives who participated in the study can use this application to help them in the duty. Event notification keep patient and midwives remember all schedules to get vaccine or check grow and health of the baby. Short message service still be used to deliver event notification to patients in the rural area.

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MODEL-BASED MANAGEMENT ENVIRONMENTAL SERVICES STRENGTHNING COMMUNITIES IN REGION WATERSHED (DAS) BESAI, LAMPUNG PROVINCE, INDONESIA

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ABSTRACT

Subzone Watershed (DAS) Besai in Lampung Province with an area of 97.672 ha is part of 938.829,45 ha is one of the priority watersheds for recovery in Indonesia. Sub-catchment area Cathment Way Besai has area 44.720 ha and is located in the region upstream of the watershed and the watershed TulangBawang in Lampung Rarem Way North and River Right Way in Way Kanan Regency of Lampung province. The research objective is to identify and develop potential economic value of environmental services based strengthening forest management and watershed-based society, socialized to stakeholders, especially users of hydrological services and ecotourism. Research methods for economists value of hydrological services utilization using Contingent Valuation Method (CVM) is used to see the willingness to pay (WTP) to explore the preferences of consumers. For ecotourism services Travel Cost Method (TCM) is used to assess a conservation area or sites by looking at the willingness to pay the visitors to DAS Besai. The results showed that the economic value of hydrological services in Sub Das Way Besai Rp 745 per m³, which means that the value of environmental services utilization hydrological Rp 745 for each use of water for 1 m³. If the measurement ecotourism service notice objects that have regular visitors Besai sub watershed area, the economic value of ecotourism services amounting to Rp 270.910.588 per year. Strengthening forest management and community-based Watershed) DAS Besai in Lampung Province has given positive results in terms of program recovery. Output program has been achieved in terms of strengthening the community and also of the efforts to restore the forest and watershed conditions.

Key words: environmental services, watershed, strengthening the community, economic value

INTRODUCTION

Subzone Besai with 97.672 ha area is part of 938.829,45 ha watershed Tulang Bawang and is one of the DAS first priority in Indonesia. Catchment area Way Besai has area 44.720 ha and is located in the region upstream of the watershed and the watershed Tulang Bawang in Lampung Province. In Sub-Basin Besai also a vital infrastructure that is the first government Way Besai hydropower units with installed capacity of 2 x 45 MW. However Way Besai hydropower real operational only less than half of the installed capacity, due to the disruption of water supply in the hydropower dam upstream intake. Way Besai hydropower plant built since the early 1990s and operated in the late 1990s.

DAS Besai area consists of 5 sub-districts Sumber Jaya, Way Tenong, Air Hitam, Gedong Surian, and KebonTebu, West Lampung regency. The population of the five districts at present is 93.302 people. The population density of the area is 458 people / ha for Sumber Jaya sub-district, 268 people/ ha Way Tenong sub-district, and 247 people/ ha Gedung Surian sub-district (BP DAS WSS, 2010). In subzone watershed Besai, there are protected areas covering 13.652 ha, Bukit Barisan Selatan National Park 5.325 ha. The rest are non-forest areas. One of the crucial role of forests and watersheds are the region's role in contributing to environmental services (Abidin, 2014). During this role is not specifically identified either because it is often regarded as a god grace alone or given resources. In fact, humans often ignore the potential benefits as well as environmental services. In

fact, the environmental services of forest resources and watershed management will not be sustainable if it is not managed well by the recipients of environmental services, namely humans.

On this basis, and considering that during this time the issue of environmental services has not been discussed in a participatory manner by communities and stakeholders, the program SCBFWM and BPDAS WSS aims to encourage a discourse of development of the concept of environmental services in the Sub-Basin Way Besai so that the management plan holistically can be developed at this time and which will come. The research objective is to identify and develop potential economic value of environmental services based strengthening forest management and watershed-based society, socialized to stakeholders, especially users of hydrological services and ecotourism.

METHODOLOGY

Contingent Valuation Method (CVM) is used to see the willingness to pay to explore the preferences of consumers (Munasinghe, 1993). This approach is used when there are no relevant markets to environmental goods and services. This technique builds market variables that directly ask to individuals willingness to pay they receive compensation if the goods and services they do not they can use again. Travel Cost Method (TCM) is used to assess a conservation area or sites by looking at the willingness to pay (willingness to pay) the visitors. This approach shows that the value of a conservation area is not only seen on the admission ticket, but also consider the cost of visitors to the location of reserves and their potential loss of revenue since the time he used to visit.

Analysis of the public perception of environmental services in the subzone Besai using proportional sample of respondents. Respondents were farmers or households benefit from environmental services of Besai sub watershed. Similarly, respondents to the analysis of WTP is a general public benefit from the environmental services of Besai sub watershed. Several locations to measure the benefits of hydrological services namely location (1) Common-based organization (CBO) Way Petai, Sumber Jaya Sub-district, (2) CBO Tirta Sari, Gedong Surian Sub-district, (3) CBO Jaga Tirta, and (4) CBO Tirta Kencana, Rigis jaya, Air Hitam Sub-district. The data collection method beauty environmental services and ecotourism aimed at visitors who come to the location of the object and the potential to exploit it. Some of the samples to study ecotourism services namely Rest Area, CBO P.A. Rakit for rafting, and the Way Besai hydropower dam.

RESULT AND DISCUSSION

Measurement Hydrological Services

Hydrological environmental services in DAS Besai comes from water sources from forests and rivers Way Besai (Verbist et al, 2009). Utilization of water resources as hydrological services used by people since 1995, but the use of piped water services since 2006. The distance between houses with bathtub divider between 2-50 meters. While users benefit hydrology distance to water sources ranging from 2-5 km. The approach used in the calculation of environmental services Way Besai economy is to calculate willingness to pay for hydrological services based on the amount of water used by a household water users. The assumptions used are consumers actually use the water volume based on the needs and channel the water available at all times (Bishop, 1999).

To calculate the hydrological services conducted a survey of water user groups and household water users. Four groups of water users (CBO) who sampled the group of water users Jaga Tirta, Sub-district Air Hitam, Way Petai Sub-district of Sumber Jaya, Tirta Kencana, Sub-district Air Hitam, and groups of water users Tirta Sari Sub-district Gedung Surian. Basic sample selection is a representation of water users groups in urban and rural areas. Sample of households that is used by 60 households.

Respondents hydrological service users in subzone Way Besai based on the work of peasants 83%, 12% traders and civil servants by 5%. Almost all respondents cultivate coffee plantations (Hairiah et al, 2003). The average education level of junior high. Based on figures obtained

calculation of Rp 745 per m³, which means that the value of environmental services utilization hydrological Rp 745 for each use of water for 1 m³. The value of the services of water use when compared with the value of ecosystem services in other regions which Cisadane watershed upstream of Rp 1,563,97 per m³ indicates that the value is smaller hydrological services. The differences are due to the utilization of the hydrology of the watershed Cisadane watershed upstream for household and commercial (industrial water in containers), whereas in the watershed Besai mostly for domestic industry.

The average household use of water by the water users of hydrological services is 243 liters per day. Use of the hydrological services for everyday purposes consists of the consumption of 11.40 liters of drinking, bathing 92,5 liter, 119,5 liters, and 20 liters more. The average willingness to pay for the water usage per month Rp 5.453- This value is relatively very low compared with the value of the use of water or an average water bill in urban Lampung Province. Capacity hydrological services of water user groups to water supply, charge/ levy charged water and willingness to pay can be seen in Table 1 below.

Table 1. Capacity of Water of CBO Samples in Subzone Watershed Besai

No.	CBO (Water User Group)	Supply Water (hour/day)	Cost of water / (month/ Rp)	Willing to pay for water services (%)	The maximum price of clean water (Rp)
1	JagaTirta	24	5.000	100	12.400
2	Air Way Petai	18	8.000	54,5	13.090
3	TirtaKencana	24	4.166	58,3	5.000
4	Tirta Sari	24	4.166	87,5	5.000
	Average	23	5.453	75	8.490

The water supply for various users from all groups of respondents an average of 23 hours / day. The water supply for day Water User Group acquired Jaga Tirta, Tirta Kencana, and Tirta Sari, whereas the Water User Group Way Petai smaller water supply at 18 hour / day. The amount of the water supply depends on the smooth flow of water from its source. Three groups of the first water well preserved, while the source of water in CBO Way Petai often damaged. The water supply in the group of water users Way Petai formerly PAM installation which was then submitted to the government village.

Levy of clean water in the water group sampled varied from Rp 4,166, - per month or Rp 50.000, - to Rp. 80.000, -. The amount of the fees based on the deliberations of the group of water users to water user groups Jaga Tirta, Tirta Kencana, and Tirta Sari, whereas in Way Petai water levies by the government village. Officers' collector for the levy for water users group JagaTirta, Tirta Kencana, and Tirta Sari comes from the board or the board is assigned, while in Water User Group Way Petai conducted by officers responsible for administering and collecting levies on water.

User's hydrological services in the subzone Way Besai basically willing to pay higher against the use of water. Respondents were willing to pay a higher rate of 75%. But the ability of respondents without notes the need to repair the installation of clean water, clean water is clearer than the present conditions, and flowing all the time. The average payment of water per month from four samples of Rp 5.453, - the potential for improved payment to Rp 8.490, -

A critical factor in relation with the service/ payment of water use is the level of household water consumption. Based on Table 2 it is known that household water consumption per day in the four groups of water users Jaga Tirta, Way Petai, Tirta Kencana, and Tirta Sari used for drinking, bathing, washing and other amount varies. Total water consumption for household water consumption per day lows use by the user group Water Way Petai for 189 liters/ day, while the group of water users Tirta Kencana amounted to 232,917 liters / day and water user groups Jaga Tirta of 285 liters/ day. Total water consumption for household water consumption per day used by the highest water user groups Tirta Sari amounted to 308,125 liters/ day.

Table 2. The level of household water consumption in Subzone Watershed Besai

No	Water User Group (CBO)	domestic water consumption per day (liter)				
		drink	bath	wash	other	Total
1	JagaTirta	15	150	100	20	285
2	Air Way Petai	9	75	85	20	189
3	TirtaKencana	12,1	73,3	127,5	20	232,917
4	Tirta Sari	11,8	110	166,25	20	308,125
	Average	11,40	92,5	119	20	243

The distribution of water use for drinking, bathing, washing and others showed that the average water use in all four groups of water users Jaga Tirta, Air Way Petai, Tirta Kencana, and Tirta Sari for drinking water needs of 11,40 liters/ day, bathing 92,5 liters/ day, washing requirement of 119 liters / day, while the other needs require an average water consumption of 20 liters/ day. Overall, the average household water consumption for the needs of water for drinking, bathing, washing and other water users into four groups of 243 liters/ day.

Table 3. Investment in clean water installations household level in Subzone Watershed Besai

No	CBO	Hose		Pipe (m)		Tap		Total Cost (Rp)
		Amount	Cost (Rp)	Amount	Cost (Rp)	Amount	Cost (Rp)	
1	JagaTirta	6	48.120	12,4	148.800	2,2	34.800	231.720
2	Way Petai	6	77.690	4	100.000	5	75.000	252.690
3	TirtaKencana	3	28.250	1	60.000	2	30.000	118.250
4	Tirta Sari	8	331.250	1	60.000	2	30.000	421.250
	Average		179.257,5		92.200		42.450	

Based on the table, it appears that the total investment costs incurred for installation of water level of the household include pipes, hoses and faucets in all four groups (CBO) Jaga Tirta, Way Petai, Tirta Kencana, and Tirta Sari amount varies. The total investment of installation of water released by the lowest water user groups Tirta Kencana Rp 118.250, -, whereas in the group of water users Way Petai Keep Tirta and each of Rp 231.720, - and Rp 252.690,-. Based on user distribution tool used for installation of water investments in all four groups of water users, the average cost for the purchase of Rp 179,257.5 pipe, - the average cost to purchase hose Rp 92,200, -, while the average cost to purchase faucets Rp 42 450, -. Total spending on clean water installations issued by the highest water user groups Tirta Sari Rp 421 250, - for investment incurred not only for domestic water supply lines, but also to the investment pool. The pools were built by the users of water services in the area of Sub-district Gedung Surian to as water reserves as well as to cultivate fish. The fish are farmed are carp, carp, tilapia fish and others.

Ecotourism services

In the method of valuation of environmental services ecotourism in DAS Besai to judge the environmental services ecotourism own regulars, namely Rest Area in Sumber Jaya and Way Besai hydropower. Ecotourism services that have regular visitors will be assessed based on the concept of economic benefits to the consumer willingness to pay for services that are enjoyed and the costs incurred to enjoy ecotourism. Rest Area is a recreation area of 800 m² in Sub-district Sumber Jaya. Rest Area was built and managed by the Government of West Lampung regency. Rest Area is one source of local revenue (PAD) in West Lampung District. Within a year revenue targets revenue of Rp 7,086 million, - or Rp 590.000, - per month. The benefits derived from the tourism Rest Area is able to enjoy the surrounding scenery and recreation from the altitude. Way Besai hydropower dam area which is the object of ecotourism is the intake dam. Way Besai hydropower plant with an installed capacity of 2 x 45 MW but only the real operational less than half of the installed capacity, as a result of interruptions in the water supply dam upstream of the power plant intake. Hydropower is

built since the early 1990s and operated in the late 1990s. The benefits derived from the tourism Way Besai hydropower is as a vehicle for recreation and fishing. Most of the visitors were students and teenagers who come from Sumber Jaya and surrounding areas, Bukit Kemuning, and Way Kanan district. Average visitors stated that they had never visited before both these attractions.

In the method of valuation of environmental services ecotourism Rest Area Sumberjaya, respondents were asked about the willingness to pay to enjoy the beauty of the region Rest Area. Respondents ecotourism come from different walks of life, but most of the students who want to enjoy the view. The days of the week Rest Areas visited on Saturday week. In addition, visitors come to the Rest Area on holidays and memorial religious holidays. Complete data availability and the total amount of willingness to pay can be seen in Table 4. Based on the table, the respondents were willing to pay the most are at par less than Rp 5.000, -. The reason respondents are willing to pay on the due in accordance with the nominal entry fee is charged and the fees charged.

Table 4. Analysis of the value of the economic benefits of ecotourism Rest Area based willingness to pay in Subzone Watershed Besai

No.	Classification	Number of visits (person/month)	Number of visits (person/year)	Total Willingness (Rp)
1	1.000-5.000	4694	56329	140.823.529
2	5.000-10.000	671	8047	60.352.941
3	10.000-15.000	335	4024	50.294.117
4	15.000-2.5000	0	0	0
5	Above 25.000	0	0	0
	Total	5700	68400	251470588

In the method of valuation of environmental services ecotourism hydroelectric Dam Intake Way Besai Subdistrict Sumberjaya, respondents were asked about the willingness to pay to enjoy the beauty of the region Way Besai hydropower. Complete data availability and the total amount of willingness to pay can be seen in Table 5.

Table 5. Analysis of economic benefits of ecotourism value Hydroelectric Dam Intake WayBesai based on the willingness to pay in Subzone Watershed Besai

No.	Classification	Number of visits (person/month)	Number of visits (person/year)	Total Willingness (Rp)
1	1.000-5.000	576	6912	17.280.000
2	5.000-10.000	24	288	2.160.000
3	10.000-15.000			
4	15.000-25.000			
5	Above 25.000			
	Total	600	7200	19.440.000

Based on Table 5, respondents were willing to pay the most are at par less than Rp 5.000, -. The reason respondents are willing to pay at the nominal paid in accordance with the respondent's willingness to not visit the ecotourism area. If the measurement ecotourism service notice objects that have regular visitors Besai sub watershed area, the economic value of ecotourism services is total travel economy Rest Area and Dam Intake Way Besai hydropower amounting to Rp 270. 910.588 per year. To measure the economic benefits of ecotourism, in addition to using the approach of willingness to pay, also carried out measurements of the travel costs incurred. Travel cost measurement results can be seen in Table 6.

Table 6. Costs Incurred by Ecotourism Visitors in Subzone Watershed Besai

No.	locations Ecotourism	Costs Incurred by Ecotourism Visitors (Rp)			
		Fuel	Entry fee	Other costs	Total
1	Rest Area	9.441	2.000		11.441
2	Intake PLTA Way Besai	8.357		6.250	14.607
3	Rafting (package)			600.000	600.000

Visitors Rest Area in Sub-district Sumberjaya can enjoy the leisure and panoramic scenery. Visitors can see the spread of coffee plantations and river liukan Way Besai long splitting mountains. If the economic benefits are measured on the costs incurred by the visitor's Rest Area average costs Rp. 11.441.- which consist of fuel for vehicles amounting to Rp 9441, - and entry fees for visitors and vehicles. In one month, the number of vehicles, visitors to the motorcycle as much as 200 pieces, while the car about 24 pieces.

Although visitors to the intake ecotourism Hydroelectric Dam Way Besai not charged in, but the costs incurred by visitors is greater than the Rest Area. This caused ecotourism destination in hydropower Way Besai for recreation and fishing around the intake dam so that the average visitor spends Rp 14 607, - consisting of Rp 8357, - for fuel vehicle (mostly motorcycles), and Rp 6,250, - for other costs (such as to purchase fishing bait).

Rafting is a challenging sport torrential streams that hit rock surface rock surface Way Besai forming rapids with rapids about 10 km track. Rafting in Sumber Jaya has rapids class II and class III. The starting point travel adventure rafting located in Sukajaya Village to finish in nurseries fish. Arum Jeram managed by the CBO P.A. Rakit. The fees charged by the service user with a system adventure packages ranging from Rp 400,000, - to Rp 600,000, - who used to rent inflatable boats and equipment, and transportation / vehicles from place finish adventure travel to the same place/ start. If the weather is nice and streamside supports rafting average user service about 4 times a month.

CONCLUSIONS AND RECOMMENDATIONS

The economic value of hydrological services in DAS Way Besai Rp 745 per m³, which means that the value of environmental services utilization hydrological Rp 745 for each use of water for 1 m³. If the measurement ecotourism service notice objects that have regular visitors Besai sub watershed area, the economic value of ecotourism services amounting to Rp 270.910.588 per year. The development of ecotourism in the environmental services DAS Besai done by improving the accessibility and infrastructure in order to improve public access to the beauty and other recreational services, and realtion with the program of tourism development areas of local government. Parties can conduct activities Watershed Authority and Program socialize the concept of environmental services to the public, so that people understand the importance of environmental services for the benefit of communities in forest management and watershed. Comprehension the community continued with the development of the potential of environmental services by the community, business, and government in order to create value for its utilization.

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VILLAGERS PERCEPTION ON INTERNET USE: CASE STUDY OF MALANG REGENCY

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ABSTRACT

Many studies express various advantages and influences of the internet use in rural areas, especially in term of how the internet contribute in economic development (Duncombe, 2007; Armstrong, et al., 2012). The Indonesian government had also committed to provide internet service in every corner of this country including rural areas (Indonesian Ministry of Communication and Informatic, 2015). A study about the internet use in rural areas in Europe, shows that ageing villagers rely on internet to live. But, by the young villagers show oppositely (Kilpelainen & Seppanen, 2014). This research aims to examine patterns of internet use and perceptions of villagers on internet use, which the result can provide useful data for consideration in implementing rural development programs through the internet. This research was undergone in Tumpukrenteng Village, Malang Regency. The research only focuses on a single variable which is what the people believe about the use of internet in improving their lives daily. The data was taken by doing interviews and distributing questionnaires to 294 people. Frequency distribution analysis was applied. The results shows every age group having patterns of using the internet and different kinds of perceptions of the internet. Most internet users are youth and they use internet for many different purposes such as playing game, school task and finding information. Based on the results of this study in term of the villagers' perceptions on the use of internet and their conditions, it is apparent that proper incentive programs are required to maximize the impact of internet use for village development.

Key words:- Internet, rural areas, villager perception

INTRODUCTION

The internet and its progress have affected economic development and reduce poverty even to the rural area by promoting the development of human resources and agriculture (Duncombe, 2007; Armstrong, Gandhi, & Lanjekar, 2012). The internet has grown more advanced reaching wider area and give impact on social life (Bargh & McKenna, 2004). The profile of internet users in Indonesia shows that most of Indonesian use the internet for various purposes. Internet infrastructure has been built since the 1980s and progressively developed until now so as to make one-third of the Indonesia's population (71.19 million) have access to internet service (Hardono, 1987; Indonesian Internet Service Provider Association, 2015). Indonesian government keeps trying to make internet facilities available to the whole Indonesia territory, including rural areas, border area, and the outermost islands (Indonesian Ministry of Communication and Information, 2015).

According to Kilpelainen & Seppanen (2014) there are different perceptions on internet and its use in any age group to villagers in Finland. Old age group mostly believe the internet can help and improve the quality of life in rural areas. While the youths are less certain if internet can really help to solve daily life problems. In addition there is a tendency among the younger villagers that internet is mainly used for entertainment, rather than be used in business activity or work. In this age, regional development efforts which engage public participations need to be considered seriously, since without the awareness and participations of the community, any top down programs introduced will be less

effective. Development in this age give an effort engage the public need to keep consideration, for the exclusion of public awareness top down programs can be less effective.

Accordingly, this study aims to examine the perceptions of the villagers on the internet which reflect their confidence and patterns in using internet, in different age groups. The result can show the profile of internet users in this rural area, which can be a useful input to the government to formulate effective internet programs for promoting rural development). The method used in this research is case study, taken in Village of Tumpukrenteng, in the District of Turen, within Malang Regency. Prior to the research, researchers had done preliminary observation on the field and found out that the people in the village already had the access to internet services. This was evident since almost all of the people in the village were using ICT device and at least one private telecommunication operator was available in the area. In addition to that, the people were also able to enjoy free wifi hotspot facilities provided by the government at the center of the village.

MATERIALS AND METHODS

A questionnaire was developed based on literature review. The research only focuses on a single variable which is what the people believe about the use of internet in improving their lives daily based on Kilpelainen & Seppanen (2014). Question about internet perceptions use likert scale from 1-5 with ranging from “definitely unimportant” to “definitely important”. The questionnaire forms were distributed to 300 household by simple random sampling. A total of 294 respondents who were internet users and nonusers were collected. Frequency distribution analysis was applied to analyze the data taken.

RESULT AND DISCUSSION

The data shows that largest internet users are young people 14-30 years old. It is showed on the table 1 on the age category which users less than 30 years of age reaches 68% on percentage, while the users on the 31 until 40 years of age is 31% on percentage and the rest of it, 1% of the total is on the category of 40 years old or more users. The teenagers and the 20s is the biggest user of the internet because they can easily accept new things, in this case is internet, and they can easily learn how the internet works. For the ageing villagers have less information and skills about internet.

Table 15 Profile of sample respondents

Profile category		User	Non users	N	Percentage
Gender	Male	93	67	160	54%
	Female	65	69	134	46%
Age	< 21	73	15	88	30%
	21-30	62	50	112	38%
	31-40	21	71	92	31%
	> 40	2	0	2	1%
Education level	No	0	0	0	0%
	Elementary	9	17	26	9%
	Junior High School	58	55	113	38%
	Senior High School	76	63	139	47%
	Under Graduate	15	1	16	5%
	Post Graduate	0	0	0	0%
Monthly household income level (US Dollar)	< 80	82	100	182	62%
	80 - 160	49	29	78	27%
	> 160	27	5	32	11%
Job	Public servant	0	0	0	0%

Private servant	45	15	60	20%
Farming	15	36	51	17%
Student	46	9	55	19%
Retirement	0	0	0	0%
Freelance	22	44	66	22%
Housewife	18	29	47	16%
Unemployed	12	3	15	5%
	158	136	294	

Tumpukrenteng Village population still has a few people that has had the undergraduate education. It is proved by the percentage of the population that has had the undergraduate education is 5%. The reasons that can affect the educational status are motivation, social condition, and economic condition of family, culture and accessibility. If those has been fulfilled than the educational status can be higher. Most of the internet users has better education than the one who not. And so does the household income rates that are still low on the average of US\$ 80 per month or US\$ 2.5 per day. Population that use internet mostly come from higher income rates population rather than the one which has lower income rates. Currently in the rural area, the Internet home subscription fee for fixed line internet service is 23 USD/month for internet speed of 1 Mbps and 38 USD per month for 2 Mbps excluding a 7.6 USD installment fee which is generally unaffordable for many rural populations (Iwana, et al., 2015).

Students and employees are the biggest group of job status that use internet. It is because students mainly know information and communication technology. Moreover, employees as the internet users can be referred as the online businessman so that they use internet to support their job. The youth use internet more various than the old one (more than 40 years old) which shows in table 2. The activity of age group less than 21 years old which are mostly students use internet for communicate, play games, do the school tasks, etc. Age group between 21-30 and between 31-40 has the same activity such as read news, seek job information, and communicate, etc., while the activity of age group more than 40 years old is for communicating only. Communicating activity like chatting by application or website is a common activity for everyone due to their needs, but they do not use it effectively nor efficiently.

Table 16 Types of activity using internet

Age group	Activity
< 21	Communication, playing games, school task, etc.
21-30	Reading news, job information, communication, etc.
31-40	Reading news, job information, communication, etc.
> 40	Communication

Table 17 Hindrance of non-users to use internet

Reason not to use the internet*	%
The cost of devices to access internet is too expensive	49
I don't need it	45
I don't know about internet	17
I cannot use internet	25

*respondents can choose more than a reason

In addition, nearly half of the villagers are not internet users because of various hindrances shown in table 3. The most hindrance faced by the people is the high expense to buy the devices for accessing internet such as PC and hand phone. The following reasons are the nonusers feel that they do not need to use the internet, they cannot use the internet, and also they do not know about internet. Mostly these reasons come from the ageing villagers and low educational status rates.

Nonusers think like that because they do not know the benefit of internet. They thought that internet using is just for communicate and play games. Besides of that, the internet has more benefit

and utilization (Duncombe, 2007; Armstrong, Gandhi, & Lanjekar, 2012). For example to develop their village on the farming section, the village farmers can handle their problems with the pest by browsing from internet that perhaps has been published from another area or another country. It also can be used by the crafters and local businessmen for marketing necessity by the social media or blog or website wherever they want so that they can shortened the spending time for marketing manually. It is also support for product developing by spreading the information.

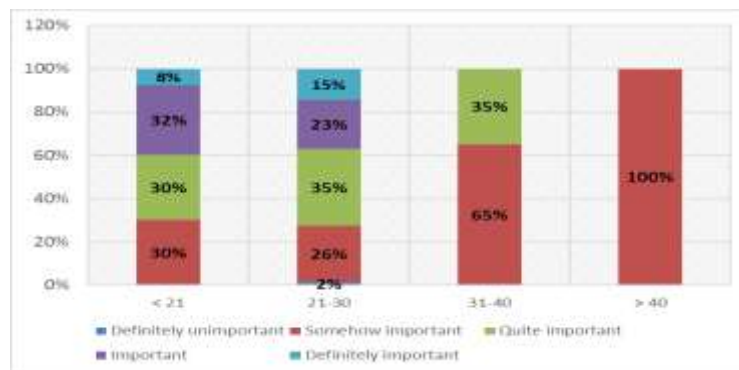


Figure 3 Villager's perception about internet

The youth shows the most confidence to the internet because they are more familiar to ICT devices since they are “digital natives” as described by Palfrey & Urs (2008), who therefore have more ability to use internet. On the other hand, ageing villagers consider internet and its effects as less important to their lives since they have lack of knowledge on the benefits of internet and how to work with internet. Villager perception about the internet use depends on the comprehension or meaning on internet information to the stimulus. Stimulus itself is a sensing process of objects, events or connection that continued to be processed by brain. William James said that perception made by the data that obtained from the environment by the senses and also obtained from memory cultivation that is reprocessing by the events that happen. Internet existence that has come up from 15 years ago insufficient to stimulate the population. Compared with elderly, young age has more confidence that internet can development the village. Using internet by young age is higher than elder because young age often using internet as described by Subiakto (2013). The existence of internet for young age can support learning that give students' skill like research in the network and search skills also can creates an environment of mutual information sharing and offers the opportunity to discuss student's ideas with others (Tasova, 2013).

Elements that affect perception can be seen from the internal and external factors. The internal factors among others are physiology, attention, interests, suitable necessity, experiences, memories and moods. While on the external factors among others are uniqueness, intensity, power, etc. The result of Widiatmaka's research in 2013 showed that citizen have more skill using internet get higher benefit and increase desire to learn. Otherwise that citizen have less skill using internet get lower benefit and decrease desire to learn internet. Compared both result showed there is similarity between Widiatmaka's research and this research. Based on the theory stated by Carney, et al. (1999), human resource development is needed to actualize countryside continuously. The existence and utilization of internet infrastructure that effective and efficient are so useful, not only for income enhancement but also for countryside continuous development. Even from the invention of Kilpelainen & Seppanen (2014) in Finland, internet also useful for better living in the village.

CONCLUSION

The research shows that the youth believe that internet is important for them. Otherwise they use internet for various activities, like browse school lessons, read news, and seek for job information and socialize. The youth have good perception of various way to use internet. It has to be optimized by the government for empower them and village development later. For the ageing villagers who assumed

that internet is not so important has different opinion with the one who live in Finland that rely on internet more than the youth one. It is because of the ageing villagers on Malang Regency is not used to use technology so they have reasons why they do not use internet. Effective and efficient internet utilization is not only useful for economical enhancement but also widely for continuous sustainable rural development and increase villagers' pleasant.

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RENEWABLE ENERGY POTENTIAL AND ENERGY INDEPENDENT VILLAGE: CASE STUDY OF DESA JAMBESARI, KABUPATEN MALANG, INDONESIA

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ABSTRACT

Implementation of the integrated cow system with biogas technology approach is one of efficient technology for cow waste treatment. The technology uses available natural microorganism to compose and process various organic matters on anaerobe condition. This will produce methane gas (CH₄) and carbon dioxide (CO₂) and qualified liquid and solid organic manure. The methane gas (CH₄) can be used as gas fuel (BBG). The research is aimed (1) to find out how much is the production of biogas from cow dirt from cattle raised in Desa Jambesari; (2) to find out the energy which required by the household in Desa Jambesari; and (3) to analyze the financial feasibility of biogas development as an alternative energy sources on farmer's individual and group basis in Desa Jambesari. The result of the research shows that the potentials of biogas energy each year able to produce 254.167,75 m³/ year year methane gas or equivalent to 381.251,625 Kwh / year. The demand of energy (for cooking and lighting) of Desa Jambesari household is 467.335,05 Kwh/Year. So that as much as 83,72% Desa Jambesari could fulfill its energy needs in other words, Desa Jambesari could categorize as an Energy Independent Village. Financial feasibility criteria for NPV individual biogas and 20 years project life are Rp6.945.456, B/C ratio (1,120) and IRR (62%). According to the calculation of switching value, the project is sensitive to variable cost and selling price changing in the revenue.

Key words: biogas, renewable energy, energy independent village

INTRODUCTION

Desa Jambesari is one of the villages located in the Malang Regency, Indonesia. This village has a potential to develop their own renewable energy source from cow waste treatment to produce biogas. The energy result from the biogas could be an energy source for cooking and lighting activity in the villages. In line with the Indonesian Government's project for energy called Energy Self-Sufficient Village (ESSV) in 2007, this village also has a potential to be established as one of the ESSV in Indonesia. On the other hand, there is no research that ever been conducted in the Desa Jambesari about biogas development as an alternative energy source or about ESSV. Thus, this research about the renewable energy potential of biogas to support Desa Jambesari as an energy independent village aims to fill the gap in the research of renewable energy in the village. The needs of the research is to show the potential of Desa Jambesari as one of the village in Indonesia that could be develop their own renewable energy source from biogas.

This research also aims to show (1) how much is the production of biogas from cow dirt from cattle raised in Desa Jambesari, (2) the energy which required by the household in Desa Jambesari and (3) financial feasibility analysis of biogas development as alternative energy source on farmer's individual and group basis in Desa Jambesari. The result of this research will describe about the potential of biogas energy in the kilowatt hour each year and demand of the energy (cooking and lighting) in the kilowatt hour each year to assess whether or not Desa Jambesari could categorize as an energy self-sufficient villages or energy independent village. The result of this research will also

describe about the financial feasibility that will be assessed based on the Net Present Value (NPV), Benefit Cost Ratio (BCR) and Internal Rate of Return (IRR) of the development of biogas.

MATERIALS AND METHODS

Biogas

Biogas typically refers to a mixture of different gases produced by anaerobic digestion with anaerobic organism which digest material inside a closed system or fermentation of biodegradable materials (Hopwood, 2011). Biogas is a form of renewable energy source and in many researches exerts a very small carbon footprint. Biogas primarily consists of three gases, methane (CH₄), carbon dioxide (CO₂) and hydrogen sulfide (H₂S). The gases of methane, carbon monoxide and hydrogen can be combusted or oxidized with oxygen. The energy release from the anaerobic digestion allows biogas to be used as a fuel that can be used for any heating purpose such as cooking. The energy can also be used in a gas engine to convert the energy in the gas into electricity and heat (Clarke Energy, 2016).

Biogas can be compressed the same way natural gas is compressed to Compressed Natural Gas (CNG) and used to power motor vehicles. In the UK, biogas is estimated to have the potential to replace around 17% of vehicle fuel (Dave, 2009). It qualifies for renewable energy subsidies in some parts of the world. Biogas can be cleaned and upgraded to natural gas standards when it becomes Bio-Methane. Biogas is considered to be a renewable energy resource because its production and use cycle is continuous and it also generates no net carbon dioxide. Organic material grows is converted and used and then regrows in a continuously repeating cycle. From a carbon perspective, as much carbon dioxide is absorbed from the atmosphere during the growth of the primary bio-resource as is released when the material is ultimately converted to energy.

The composition of biogas may vary depends on the process of the anaerobic digestion. In some cases, the composition of biogas contains siloxanes besides methane. They are formed from the anaerobic decomposition of materials commonly found in soaps and detergents. During combustion of biogas containing siloxanes, silicon is released and may combine with free oxygen or other elements in the combustion gas. Formed from deposit are contained mostly by silica (SiO₂) or silicate (Si₂O₃) and also can contain calcium, sulfur phosphorus and zinc. White mineral deposits accumulate to a surface thickness of several millimeters and must be removed by chemical or mechanical means (Tower et al, 2006).

Manure from biogas can produce high level of methane when stored under the anaerobic conditions. During storage and when manure has been applied to the land, nitrous oxide (N₂O) is 320 times more aggressive as a greenhouse gas than carbon dioxide and methane 25 times more than carbon dioxide (Environmental Protection Agency, 2010). United States in example, would be able to produce 100 billion kilowatt hours of electricity by converting cow manure into methane biogas via anaerobic digestion. The power is enough for millions of homes across the United States. In fact, one cow can produce enough manure in one day to generate 3 kilowatt hours of electricity. On the other hand, only 2.4 kilowatt hours of electricity are needed to power a single 100-watt light bulb for one day (State Energy Conservation Office, 2009). Furthermore, converting cattle manure into methane biogas instead of letting it decompose could reduce global warming gases by 99 million metric tons (Webber et al, 2008).

Energy Independent Village

Energy independent village or energy self-sufficient village is typically constructed in three typical regions. The first one is where society development and energy demand rely on import conventional expensive coal-based or other fossil fuels-based energy, the second one is where electricity or heat supply has much higher cost than in urban areas and the third one is remote communities which often have poor grid stability (Kang, 2014). In the last few decades, the cost of renewable energy has decreased and cost effectively has increased. Small grid with significant renewable energy management is an excellent application of smart grid technologies in order to support energy independent villages. Several energy self-sufficient village have been built, one of the example is in

the Feldheim. Feldheim is Germany's first and only energy self-sufficient village which is powered by electricity, wind turbines, solar farm, biogas plant and head woodchip fired plant.

There are few factors which involved in the establishment of energy self-sufficient village. Investment, technical supports of planned and implemented renewable energy system, policy and regulations and economic and ecological beneficial factors. Those factors could be ensured the establishment of energy self-sufficient village which not only economic benefits with low price of generating energy but also brings the ecological benefits and social benefits. For instance, increased local employment rate and decreased amount of GHG emissions generated from energy production are social and ecological benefits compared to conventional energy generation (Bonifazi et al, 2013).

The establishment of energy self-sufficient village in Indonesia is supported by the government effort to accelerate the utilization of the potential renewable energy sources of the country. The effort was shown by the Indonesian Government by launched a national program called the Energy Self-Sufficient Village (ESSV) in the 2007. The purpose of this program was to establish the spirit of self-help among the less develop rural areas with locally available renewable energy sources, namely bio-fuel, micro-hydro, solar, wind and biomass energy. By providing the need of energy access to around 68% of the rural population of the country, it was expected that economic growth can be accelerated in rural areas, creating new job opportunities and eventually improve the quality of village life. In the implementation of the program, the government have been persuading all stakeholders such as local government state enterprises including the private sectors. In the latter year of the implementation, the government has also begun to provide the ESSV with productive activities such as for coffee processing, production of bio-diesel and bio-ethanol, rice milling, cocoa processing, etc. It was intended that after three years the project will be handed over to local government to continue the central government initiative until sustainable conditions can be achieved (Abdullah, 2011).

Methods

This research is quantitative research. According to Cohen (1980), quantitative research is defined as Social research that employs empirical methods and empirical statements. He States that the empirical statement is defined as a descriptive statement about what "is" The Chase in The "real World" rather than what "ought" to be the Chase. This research using several method of analysis which consist of Supply and Demand Analysis to find out the fulfillment of Energy needs in Desa Jambesari and The feasibility Study analysis to find out whether The bio digester procurement project in Desa Jambesari is visible or not. The Population of The research is all the household in Desa Jambesari and all the dairy cows and Bee cattle in Desa Jambesari. To collect The data this research do The primer survey in Desa Jambesari Kabupaten Malang Indonesia.

RESULT AND DISCUSSIONS

The Overview of Desa Jambesari

Desa Jambesari has a large livestock population, which consists of dairy cows and beef cattle, this makes Desa Jambesari has the potential to become an energy independent village. The animal manure contains methane, which can form biogas. Desa Jambesari's cattle consisted of 186 beef cows and 337 dairy cows. Livestock rearing in Desa Jambesari is using non-litter system or do not have a fastening impurities such as chaff. In the non-litter system cow urine can also go into the container as a material biogas.

Energy Required By The Household in Desa Jambesari

Desa Jambesari has a population of 6.967 inhabitants in 2015 with a number of heads of household as much as in 1.742 household. Household energy needs are assumed include the need for home cooking and lighting. Standard cooking energy needs for one home per day as much as 0,57 Kwh, while the

energy requirements for home lighting as much as 0,165 kWh per day. Below are the calculation of the energy needs for cooking and lighting of every house in 2014.

$$\text{Energy Required By The Household} = [\text{Number of household} \times \text{standard cooking Energy needs (0,855 Kwh)} \times 365 \text{ days}] + [\text{Number of household} \times \text{standard lighting Energy (0,165 Kwh)} \times 365 \text{ days}]$$

Energy Required By The Household = (1742 x 0,855 Kwh x 365 days) + (1742 x 0,165 Kwh x 365 days)

$$\text{Energy Required By The Household} = 362.423,1 + 104.911,95 = 467.335,05 \text{ Kwh/Year}$$

Based on the analysis, it is known that the needs of household energy for cooking and lighting in 2014 reached 467.335,05 Kwh per year. The household energy needs each year has increased, followed by growth in the number of Population who lives in Desa Jambesari.

Production of Biogas

The calculation of the potential of alternative energy needs using biogas is supply analysis. Supply analysis is an analysis that serves to determine the amount of biogas that is resulted from cow manure. Hanif (2010) state that one cow produces 25 kg manure/feces. The total of cattle population in Desa Jambesari based on primary survey (2015) was as much as 733 tails. Below is the predictive calculation of cow manure per year in Desa Jambesari.

$$\text{Cow Manure Production [kg/Year]} = \text{The Number of Cows} \times 25 \text{ kg} \times 365 \text{ days}$$

$$\begin{aligned} &= 733 \times 25 \text{ kg/day} \times 365 \text{ days} \\ &= 6.688.625 \text{ kg/ year} \end{aligned}$$

Based on the calculation of livestock manure production in Desa Jambesari, it is known that animal manure in a year produces 6,688,625 kg of cow manure. The result of the calculation of animal manure is then converted into biogas energy. The assumptions used in the provision according to Wahyuni (2008) is for 1 kg of manure can produce biogas energy amounted to 0,038 m3 of methane. So that the energy of the biogas produced in Desa Jambesari are as follows.

$$\text{Biogas Energy [m3 / year]} = \text{Manure Production [kg / year]} \times 0.038$$

$$\begin{aligned} &= 6.688.625 \text{ kg / year} \times 0,038 \\ &= 254.167,75 \text{ m3/ year} \end{aligned}$$

Based on the calculation of biogas energy produced each year, the production of manure in Desa Jambesari able to produce 254,167.75 m3 / year of methane. Biogas energy generated by the production of animal manure can be used by the public as a fuel for cooking and lighting each day. The results of the calculation of the energy generated biogas can then be converted into electrical energy. The assumptions used under the terms of energy conversion according to Wahyuni (2008), which is 1 m3 of methane gas equivalent to 6 kWh with a coefficient of methane conversion efficiency is 0.25. So the electrical energy produced from biogas methane production is as follows.

$$\text{Electrical Energy [kWh / year]} = \text{Biogas Energy} \times 6 \times 0.25$$

$$\begin{aligned} &= 254.167,75 \times 6 \times 0,25 \\ &= 381.251,625 \text{ Kwh / year} \end{aligned}$$

Based on calculations of biogas energy supply, it is known that the availability of biogas energy supply in Desa Jambesari reached 381,251.625 Kwh / year.

Desa Jambesari as An Energy Independent Village

The calculation of biogas energy supply and energy demand, Renault in Desa Jambesari is used to measure the achievement of Desa Jambesari as The Energy Independent Village. The fulfillment of

the Energy Independent Village can be determined by comparing the amount of biogas energy supply produced and demand of energy for cooking and lighting. The following is a calculation of the fulfillment of the Energy Independent Village in Desa Jambesari 2015.

$$\text{The Fulfillment of Energy} = \frac{\text{Demmand Energy For Cooking and Lighting}}{\text{Biogas Energy Supply}} \times 100\%$$

$$\begin{aligned} \text{The Fulfillment of Energy} &= \frac{381.251,625 \text{ Kwh / year}}{467.335,05 \text{ Kwh/Year}} \times 100\% \\ &= 83,72\% \end{aligned}$$

Conceptually, the Energy Independent Village a government effort to build a village where people have the ability covered more than 60% of energy needs from renewable energy sources (Prasetyo & Hanifah, 2011). Based on the calculation above is shown that in 2014 the Fulfillment of energy in Desa Jambesari as Energy Independent Village amounted to 83.72% (> 60%), so it can be categorized that Desa Jambesari has reached the criteria of the Energy Independent Village.

Feasibility of Biogas Development

For the utilization of biogas energy using bio digesters, which is a technology that utilizes a biological process in which organic matter by anaerobic microorganisms decompose in the absence of dissolved oxygen (anaerobic conditions). The procurement of bio digester in Desa Jambesari is a project that conducted to save on energy costs. For the expenditure in the form of the cost of construction such as bricks, pvc pipe, cement, stoves, gas pipes, water drain, mixer, labor costs, and others. For this biogas project, will be held through the third period. For the period of First year will be on 2021-2025, 2026-2030 for the second year and 2031-2035 for the third year. For the first year or 2021 will be held 10 pieces bio digester and the following years are the same. Analysis of the financial impact of this bio digester project aims to determine whether the bio digester project is beneficial or detrimental. Below is the assumptions of procurement bio digester's calculation.

Table 18 Maintenance Costs Bio digester Procurement Project

Expenditure	2021	2026	2031	2035
Construction Cost				
Bio digester 6m3				
Brick	Rp1.601.600	Rp2.107.596	Rp2.465.590	Rp5.546.906
Cement	Rp1.456.000	Rp1.915.997	Rp2.241.445	Rp5.042.642
Sand	Rp1.716.260	Rp2.258.481	Rp2.642.103	Rp5.944.014
Iron	Rp208.000	Rp273.714	Rp320.206	Rp720.377
Ancillary equipment				
Gas Pipe	Rp312.000	Rp410.571	Rp480.310	Rp561.894
PVC Pipe	Rp374.400	Rp492.685	Rp576.372	Rp674.273
PVC Gas Pipe	Rp228.800	Rp301.085	Rp352.227	Rp412.056
Water drain	Rp26.000	Rp34.214	Rp40.026	Rp46.825
Stoves and Complementary	Rp520.000	Rp684.285	Rp800.516	Rp936.491
Manometer	Rp83.200	Rp109.486	Rp128.083	Rp149.838
Mixer	Rp208.000	Rp273.714	Rp320.206	Rp374.596
Labor	Rp2.496.000	Rp3.284.566	Rp3.842.477	Rp4.495.155
Total Cost	Rp9.230.260	Rp12.146.392	Rp14.209.561	Rp24.905.068
NET BENEFIT	-Rp323.451	Rp671.148	Rp1.938.587	Rp11.423.874

Net Present Value (NPV)

Table 19 Net Revenue and NPV Year 2016-2035

Year	Net Benefit	P/F 7%	NPV.P/F 7%
2015	Rp0	0,930232558	Rp0
2016	Rp0	0,865332612	Rp0
2017	Rp0	0,80496057	Rp0
2018	Rp0	0,74880053	Rp0
2019	-Rp323.451	0,696558632	-Rp225.303
2020	-Rp336.389	0,647961518	-Rp217.967
2021	-Rp349.845	0,602754901	-Rp210.871
2022	Rp21.506	0,560702233	Rp12.058
2023	Rp438.538	0,521583473	Rp228.734
2024	Rp456.079	0,485193928	Rp221.287
2025	Rp645.334	0,451343189	Rp291.267
2026	Rp671.148	0,419854129	Rp281.784
2027	Rp697.994	0,390561981	Rp272.610
2028	Rp1.792.333	0,363313471	Rp651.179
2029	Rp1.864.026	0,337966019	Rp629.977
2030	Rp1.938.587	0,314386995	Rp609.467
2031	Rp2.016.130	0,292453018	Rp589.623
2032	Rp2.096.776	0,272049319	Rp570.426
2033	Rp2.180.647	0,253069134	Rp551.854
2034	Rp11.423.874	0,235413148	Rp2.689.330
TOTAL			Rp6.945.456

The total of NPV value is greater than 0, which is Rp. 6.945.456, - this indicates that the bio digester procurement project in Desa Jambesari can create cash flow with a percentage greater than the opportunity cost of capital invested, so that the project is feasible

BCR

Table 20 Income and expenditure the Year 2016-2035

Year	Income	Expenditure	P/F 7%	Profits (BN)	Cost (CN)
2015	Rp0	Rp0	0,93	Rp0	Rp0
2016	Rp0	Rp0	0,87	Rp0	Rp0
2017	Rp0	Rp0	0,80	Rp0	Rp0
2018	Rp0	Rp0	0,75	Rp0	Rp0
2019	Rp8.906.809	Rp9.230.260	0,70	Rp8.285.404	Rp8.586.288
2020	Rp9.263.081	Rp9.599.470	0,65	Rp8.616.820	Rp8.929.740
2021	Rp9.633.604	Rp9.983.449	0,60	Rp8.961.493	Rp9.286.930
2022	Rp10.404.293	Rp10.382.787	0,56	Rp9.678.412	Rp9.658.407
2023	Rp11.236.636	Rp10.798.099	0,52	Rp10.452.685	Rp10.044.743
2024	Rp11.686.102	Rp11.230.023	0,49	Rp10.870.792	Rp10.446.533
2025	Rp12.324.558	Rp11.679.224	0,45	Rp11.464.705	Rp10.864.394
2026	Rp12.817.540	Rp12.146.392	0,42	Rp11.923.293	Rp11.298.970
2027	Rp13.330.242	Rp12.632.248	0,39	Rp12.400.225	Rp11.750.929
2028	Rp14.929.871	Rp13.137.538	0,36	Rp13.888.252	Rp12.220.966
2029	Rp15.527.066	Rp13.663.040	0,34	Rp14.443.782	Rp12.709.804
2030	Rp16.148.148	Rp14.209.561	0,31	Rp15.021.533	Rp13.218.196
2031	Rp16.794.074	Rp14.777.944	0,29	Rp15.622.395	Rp13.746.924
2032	Rp17.465.837	Rp15.369.061	0,27	Rp16.247.290	Rp14.296.801
2033	Rp18.164.471	Rp15.983.824	0,25	Rp16.897.182	Rp14.868.673
2034	Rp36.328.941	Rp24.905.068	0,24	Rp33.794.364	Rp23.167.505
TOTAL				Rp218.568.625	Rp195.095.802
BCR				1,120	

$$BCR = \frac{BN}{BC} = \frac{Rp218.568.625}{Rp195.095.802} = 1,120$$

The conclusion from the calculation that the bio digester procurement project in Desa Jambesari is a project that deserves to conduct as the result of $BCR > 1$ was 1,120.

$$IRR = i1 - \frac{NPV1 (i2-i1)}{NPV2-NPV1}$$

$$= 0,25 - \frac{(-35.154 - 429.112)}{429.112 (0,25-0,65)} = 0,619$$

From the results of calculations can be concluded that the biodigester procurement project in Desa Jambesari is a viable project as the result of $IRR > 0.1$ i.e. 0619.

CONCLUSIONS

The production of biogas from Cod diet in Desa Jambesari is 254.167,75 m³/ year year methane gas or equivalent to 381.251,625 Kwh / year. The Energy which required Bay The household in Desa Jambesari for cooking and lighting is 467.335,05 Kwh/Year. The Fulfillment of energy in Desa Jambesari as Energy Independent Village amounted to 83.72% (> 60%), so Desa Jambesari has reached the criteria of Energy Independent Village. Based on Financial feasibility of biogas Development as alternative Energy source or the bio digester procurement project in Desa Jambesari is visible because the total of NPV value is greater than 0, which is Rp. 6.945.456, The project that deserves to conduct as the result of $BCR > 1$ was 1,120 and The project is a viable project as the result of $IRR > 0.1$ i.e. 0619.

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SYSTEM AND IMPACT OF MICROFINANCE BY WOMEN ORGANIZATION

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ABSTRACT

In Indonesia, there are community institutions set up by the community consistent with the needs and it is a partner local governments to empower the community (Minister of Home Affairs Regulation Number 5 Years 2007). In Wonosari Village, each RT (neighborhood groups) having one women's organization that called PKK (Pemberdayaan dan Kesejahteraan Keluarga) including RT IV in Pesangrahan Hamlet. One function of the PKK RT IV is as microfinance formed Rotating Savings and Credit Association (RoSCA) and Credit Cooperative. In this study examines how microfinance system that is implemented by the PKK RT IV and how it impacts on the rural empowerment. To find out then used the technique in the form of review of documents, interview, and the questionnaire with random sampling methods. The data analysis processed by qualitative and quantitative methods. PKK members RT IV which totaled 60 members forming RoSCA with money and goods (sugar). Whereas, Credit Cooperative done by giving credit to its members with a 5% interest. Both were carried out every month with a rotating from house to house closest. Microfinance which is managed by PKK RT IV has impact on the members that are maintaining economic stability of household, improve the ability of household to do farming activities and other activities, enhance the role of women, and improving social capital. Microfinance managed by the women local organization is an alternative rural empowerment that can be maintained and improved.

Key words: microfinance, rosca, credit cooperative, women's organization

INTRODUCTION

Types of community institutions that can be formed is the Institute of Rural Community Empowerment (LPMD/ LPMK¹⁶) or designation other names; Indigenous Institute; PKK (Pemberdayaan Kesejahteraan Keluarga¹⁷); RT/RW¹⁸; Youth organization; and other community Institutions (Minister of Home Affairs Regulation, 2007). There are three roles in the formation of rural community institutions. The role are participatory development plan; implement, control, utilize, maintain and develop participatory development; mobilize and develop participation, gotong royong (mutual help), and community self-help; and promoting the dynamic conditions of the people in order to empower the community. One of the community institutions that have a role in empowering and improving the welfare of the family is PKK. Members of the PKK is a housewife from every household in each RT. Therefore, the PKK can be called by women's organization. There are 10 programs that are owned by the PKK. The programs are appreciation and Pancasila; gotong royong; foods; clothing; housing and household governance; education and skills; health; development of cooperatives life; environmental sustainability; and planning healthy (Minister of Home Affairs Regulation, 2013).

One of program in the PKK is development of cooperatives life which can be shaped microfinance financial services to members of the PKK. In 2014, Asian Development Bank defines that microfinance is the provision of a broad range of financial services such as deposits, loans,

¹⁶ LPMD/LPMK is acronym for Lembaga Pemberdayaan Masyarakat Desa (Institute of Rural Empowerment Society)/ Lembaga Ketahanan Masyarakat Desa (Institute of Rural Resilience Society)

¹⁷ Pemberdayaan Kesejahteraan Keluarga is Family's Welfare Empowerment

¹⁸ RT/RW is acronym for Rukun Tetangga/Rukun Warga

payment services, money transfers, and insurance to poor and low-income households and their microenterprises. Microfinance services are provided by three types of sources: (1) formal institutions, such as rural banks and cooperatives; semiformal institutions, such as nongovernment organizations; and informal sources such as money lenders and shopkeepers. Institutional microfinance is defined to include microfinance services provided by both formal and semiformal institutions (Marconatto, Barin Cruz, & Avila Pedrozo, 2016). The expansion of microfinance is based on the concept that poor households are affected by lack of access to and inadequate provision of financial services (Imai, Arun, & Annim, 2010). Moreover, microfinance is a popular poverty alleviation tools in developing country (Das, 2015). Many societies argue that microfinance can be a key strategy to solve the problem of poverty, especially in rural areas (Churk, 2015)

Majority of the poor households in Indonesia live in rural areas. In 2014, some 13,8% of the rural population was classified as poor, compared to 8,2% of the urban population. They mainly participate in low productivity jobs in agriculture and low-end service sectors (Aji, 2015). Many poor households in rural area need financial services for the sustainability of life and microfinance can be choices in these problems. Therefore, the PKK can be as microfinance for rural communities formed by women's organizations. Kebumen regency is one of regencies in Indonesia are mostly consists of rural areas. Kebumen located in southern part of Central Java province also has a women's organization, namely the PKK. One group PKK is located in Pesanggrahan Hamlet, Wonosari Village that is PKK RT IV. In this study, will take the case in PKK RT IV to examines how the implementation of existing microfinance and what the impact caused by the presence of microfinance for rural development.

MATERIALS AND METHODS

Kebumen Regency are located in the southern part of Central Java Province, which border Purworejo Regency at the east, the Hindia Ocean at the south, Cilacao and Banyumas Regency at the west and Wonosobo and Banjarnegara Regency at the north. Kebumen Regency administratively composed of 26 districts with a total area of 1.281,115 km² with the conditions of some areas f the coastal and hilly areas, while most of the lowlands. One of districs in Kebumen Regency is Kebumen District whict consist of 24 villages and 5 kelurahan. Wonosari Village is one of village that located in Kebumen District. Wonosari Village has 4 RWs and 24 RTs. Wonosari Village has women's organization that is PKK. There are the PKK in each RT in Wonosari Village (BPS Kebumen Regency, 2014).

The research uses a method of collecting primary data sourced directly from the respondents in the form of interview and questionnaire. Interview was conducted to PKK RT IV caretaker to find out the mechanisms of microfinance systems which do PKK RT IV. Whereas sampling questionnaires in this research using random sampling methods. Subjects in the population are sampled by a random process, using either a random number generator or a random number table, so that each person remaining in the population has the same probability of being selected for the sample (RR, 2008). Total population of PKK members RT IV is 60 members. Using the Solvin formula to determine sampling with an error rate of 16,5%, the sampling will be sought by 23 respondents. It also uses secondary data collection methods that is a review of documents. The data is processed by qualitative analysis and quantitative methods or mixed-methods approach. Qualitative methods approach are used to determine the microfinance system is implemented and explain the impact of rural development. While the data to the analysis with a quantitative methods approach is the descriptive statistical analysis techniques were used to determine the results of the questionnaire.

RESULTS AND DISCUSSIONS

Households Characteristics of PKK RT IV's Members

Based on Figure 4 it can be seen that the RT IV PKK members who come from farming families is 60.8% of both farmers who have fields/lands and farm worker (labors). It supports that the area is rural areas and most of the activity is agriculture. Based on Figure 5 can be seen that amounted to

73.9% households have an average income per month is \leq Rp1.500.000,00. With an average number per household is 4 people, income per capita is Rp375.000,00 per month. Many households that have difficulties in performing activities of life.

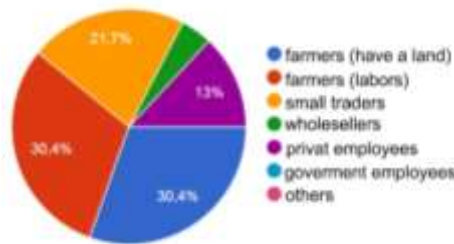


Figure 4. The Type of Households' Profession. Source: result of the questionnaires, 2016



Figure 5. Income of Households per Month. Source: result of the questionnaires, 2016

The Microfinance System PKK RT IV

Microfinance which managed by PKK RT IV consist of two type. There are arisan dan koperasi simpan pinjam. Arisan is another name for rotating saving and credit association (RoSCA). In general, RoSCA is one variety of traditional financial institutions conducted by a community group who meet regularly to collect savings and savings then were distributed at the end of each meeting to one of the participants (Brink & Chavas, 1997). Figure 6 is a chart of the microfinance system PKK RT IV. RoSCA activities held one a month at the current regular meeting of the PKK RT IV. Each member of the PKK RT IV who following RoSCA collect the saving in the form of money and sugar. The money which must be paid is Rp 10.000,00 by each participant. Each participant also collect ¼ kg sugar for RoSCA every month. At the end each meeting, collected money were distributed to two of the participants with the same amount of money. Likewise, the collected sugar were distributed to two of the participants. Activities are carried out each month until all members have been getting turn got the distribution of money and sugar. This year, every month RoSCA of PKK RT IV raises money for Rp 420.000,00 with 42 participants of PKK members RT IV while the accumulated sugar is 12 kg with 48 participants from PKK members RT IV. Not all members of the PKK RT IV follow the RoSCA. PKK RT IV provides to its members to follow the RoSCA or not.

There are three types of RoSCAs: simple or random RoSCA, the consumer durable RoSCA, and discounting or bidding RoSCA (Mallach, 2008). Included into simple or random Rosca due within the meaning of the Rosca type. In a simple or random RoSCA, the contributions are fixed, each participant contributes the same amount at each meeting and receives the same size pool when his turn arrives to collect (Mallach, 2008). Every participants in RoSCA'S PKK RT IV will have received, in lump sum, the total of their monthly contributions so that there is no net gain for any participant. Besides RoSCA, there is koperasi simpan pinjam that also called a credit cooperative activities that can save and borrow the money. Each regular meeting PKK members RT IV can save paid to the treasurer according to the ability of members. Members who want to borrow money can be borrowed when the regular meeting or personally met the treasurer of the credit cooperative. There is interest for borrowing the money. Interest at 5% is the interest established by consensus of all members of the PKK RT IV. So, when one of the members to borrow money amounting to Rp 100.000.00 then obliged to pay interest at Rp5.000,00 per month. Credit cooperative activities closed once a year. So, there will be a sharing of savings for PKK members along with the extra money is the

result of the average total interest earned money. Therefore, members who borrow money to have a refund period of a year (before closing). Both have terms that are easy to follow no such requirement in the finance other services. Microfinance is also implemented with the principle of kinship and trust. Thus, the existence of microfinance in PKK RT IV provides an opportunity for rural areas to empower.

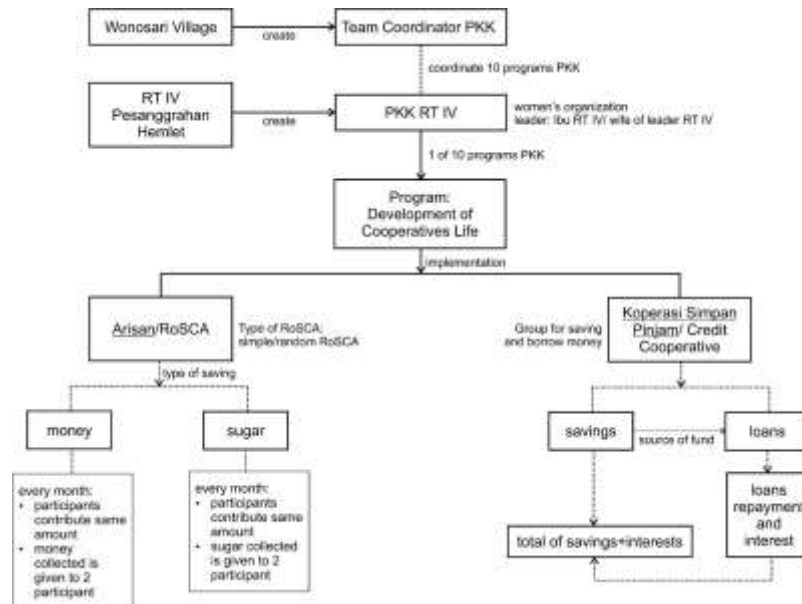


Figure 6 Scheme of Microfinance System PKK RT IV. Source: result of the interview, 2016

The Impacts of Microfinance on Rural Empowerment

Most of the area in Bangladesh, microfinance recipients increased empowerment. Both econometric estimations showed the reviews largest effects for family and social and political empowerment in recipients of governmental microfinance, while non-governmental microfinance recipients saw greater improvements in economic empowerment (Mazumder & Wencong, 2015). Microfinance which is managed by PKK RT IV has impacts on the members which increase rural empowerment. Maintaining economic stability of household and improve the ability of household to do farming activities and other activities. The presence microfinance provides household to obtain finance service without the need for complex requirements. This is because every member of the PKK RT IV can access if following the program. This is in accordance with Figure 7 that for 82.6% of households use the money from RosCA and Credit Cooperative to fulfill their daily needs such as food and children's education.

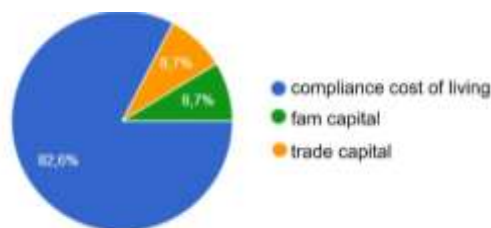


Figure 7. Diagram of the Use of RosCA and Credit Cooperative. Source: result of the questionnaires, 2016

Existence of cooperative credit provided by the PKK RT IV can be an alternative to doing household activities such as farming activities and other activities as capital. With the RoSCA and the cooperative credit of participants allows to receive funds. Average of the of participants who borrow loans in credit cooperative as much as <Rp 500,000, - with an average of 1-3 month repayment costs.

From this it can be seen that microfinance in PKK RT IV is provides finance service in a small scale to rural society in the scope RT.



Figure 8. Diagram of Loans from PKK RT IV Members. Source: result of the questionnaires, 2016

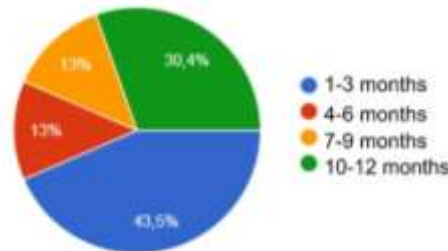


Figure 9. Diagram of Long Refund Loans from PKK RT IV Members. Source: result of the questionnaires, 2016

Enhance the role of women

The rural women is the center of rural development in terms of solving the problems of rural poverty by increasing economic growth and stability. Rural empowerment solely depends upon the rural development activities. The rural development is a comprehensive program of activities that aim to make the integration of existing resources and then use them optimally for rural development. One of rural empowerment these is through the women's empowerment (Pangannavar, 2015). Now, women empowerment has increased by being policy goal, both as an end to itself and as a means to achieving other development goals, and one which argue is in the terms is microfinance (Ashraf, Karlan, & Yin, 2010). With the RT IV PKK to be a forum for women to develop themselves, including the presence of microfinance programs (Rosca and credit cooperative). Participants can save the money by following RoSCA or credit cooperative in PKK RT IV. Participants can also get a loan from a credit cooperative to help the family finances. In addition, the presence of PKK RT IV is not just as microfinance for its members but rather drive the family welfare empowerment, then its members in terms of family welfare contained in 10 programs PKK.

As can be seen in Figure 10 that based on the results from questionnaires, between grades 6-10, most respondents give a value of 8 for the benefit of the credit cooperative, Rosca, and the PKK RT IV. Successive is 73.9%; 78.3%; and 78.3%. This may indicate that the majority of PKK members have been aware of the benefits. When members of the PKK had been aware of the role of women will be higher because it can give encouragement to continue pursuing such useful things. By doing so, the role of women more visible and women empowerment implemented so that the rural empowerment can be reached.

Improving social capital

Social capital indicates that the connection with the social network. The content of the networks in the social capital refers to norms of trust and reciprocity that are running on this structure. Social networks can also be considered as a powerful tool to encourage the dissemination of information and knowledge, lowering uncertainty and transaction costs. Enforceable trust at the level of the social network is a reasonably effective way to promote intra-group bonds and minimize risk. The basic idea is that social capital can be used as a tool to alleviate poverty and inequalities, due to its ability to foster collective action and to solve coordination failures (Bengal, 2012).

Microfinance through SHGs has facilitated the formation of social capital, where people learn to work together for a common purpose in a group or organization (Putnam, 2000). Same with SHGs

or Self Help Groups in India, microfinance through RoSCA and credit cooperative has facilitated the formation of social community. The existence of microfinance managed by PKK RT IV has the main purpose to help and ease the burden of household in RT IV. In addition, the RT IV PKK members who participated in the RoSCA and credit cooperative because it has a social capital as members of the PKK RT IV in accordance with the results of the questionnaire Figure 11 in that most women PKK IV has a sense of being part of the PKK RT IV.

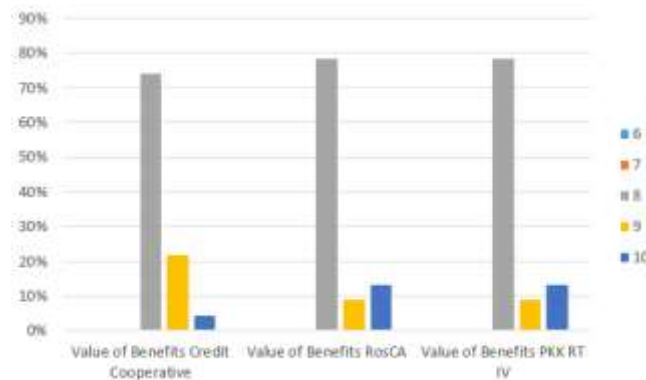


Figure 10. Values from Members PKK RT IV. Source: result of the questionnaires, 2016



Figure 11. The Reasons Following Credit Cooperative and RoSCA. Source: result of the questionnaires, 2016

CONCLUSION

Women's organization, namely the PKK RT IV is an important organization in implementing microfinance program. Microfinance managed by PKK RT IV has two forms there are arisen or RoSCA and koperasi simpan pinjam or credit cooperative. RoSCA performed using money and goods (sugar), conducted every month at the regular meeting PKK RT IV. Each meeting will be 2 of participants who received the same amount of money (collection results divided by 2) as well as sugar, divided 2 to 2 of participants. Credit cooperative receive services such as savings and loans. Participants who want to save their money serviced every month at the regular meeting of PKK RT IV while borrowing money can be made at any time to meet with the treasurer of the credit cooperative. In borrowing money, the borrower pays interest at 5% per month.

With the activities Rosca and credit cooperative that serves participant of members PKK RT IV has impacts for rural empowerment. Both of these activities provide an opportunity for the household who are not able to access the finance service that has a lot of requirements. Impact of the existence of these microfinance is maintaining economic stability of household and improve the ability of household to do farming activities and other activities, Enhance the role of women, and improving social capita. Microfinance managed by the women's organization is an alternative rural empowerment that can be maintained and improved. When microfinance is capable of providing superior service to the participants and when participants use the opportunity as well as possible the rural empowerment will be reached.

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TECHNOLOGY TRANSFER OF SEAWEED TISSUE CULTURE AND ITS RELEVANCE TO RURAL DEVELOPMENT OF COASTAL COMMUNITIES IN LAMPUNG, INDONESIA

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ABSTRACT

Technology transfer is defined as the movement (through a mechanism) of an idea, method or device from a source (like academic institution and public research) to a destination (like private companies and farmers in rural areas). For rural areas, technology transfer is essential for their rapid and all around development, for increasing the productivity of rural people, for developing agriculture, and for making optimal use of their natural resources. This paper presented how technology transfer of seaweed tissue culture can help the farmers to solve seaweed quality degradation and contribute for rural development of coastal communities in Ketapang, Lampung province, Indonesia. To provide further illustration of this case, this paper also tried to describe technology transfer process of seaweed tissue culture involving multiple actors, such as Southeast Asian Ministers of Education Organization - Southeast Asian Regional Center for Tropical Biology (SEAMEO-BIOTROP), a public research institution which has generated seaweed seed from tissue culture; Center for Mariculture Development of Lampung (CMD Lampung) which acts as an intermediary of technology transfer process; and seaweed farmers in Ketapang, Lampung which acts as a technology adopter. This study used case study method and also used rich pictures diagram, as defined by Peter Checkland, are a flexible graphical technique used to represent a situation, problem or concept. Data and information were obtained through document analysis, direct observations, literature study and in-depth interview with key informants.

Key words: technology transfer, rural development, seaweed tissue culture, rich picture diagram

INTRODUCTION

Technology transfer can be defined in various ways depending on the discipline and research purposes. Generally, technology transfer is defined as the movement (through a mechanism) of an idea, method or device from a source (original context and purpose) to a destination (new context and purpose) (Bauer and Flagg, 2010). Balachandra, et al. (2010) explained that the technology transfer is a process consisting of several stages, there are (1) the research phase including basic and applied research, (2) demonstration phase when the prototype was developed, and (3) the commercialization phase when the technology was introduced to the market or users. In line with Balachandra, et al. (2010), Bauer and Flagg (2010) developed technology transfer model that consists of three elements, there are events, activities and stakeholders. The model developed by Bauer and Flagg (2010) consist of three events: 1) the idea of which is generated in technology application activities (basic research activities), 2) prototype as the output of technology research and development (applied research activities), and 3) product as the output of product development activities (market analysis, design, and development). Those activities is conducted by several actors. Research activities is conducted by technology producers (university, public/private R&D institution), and product development activities is conducted by community and private sector technology as the user.

In technology transfer process, technology producers conducts concept proving which implies on “the marketability of a technology”, then generating new technology that could improve the life of

technology users (Dardak & Adham, 2014). Before the technology being applied, it should go through the process of demand articulation, network formation, and innovation process management under intermediary agent (Klerkx & Leeuwis, 2009). Technology transfer also involves mutual knowledge sharing among technology generator, intermediary, and adopter. Technology developers share their idea and technical knowhow to intermediary agent and technology users, while users provide technical feedback, evaluation, and information about market to developers through intermediary. The technology needs to be adapted to the local conditions (appropriate technology) and meets the needs of the people. It is also vital that the technology is accepted by the recipients in consideration of the risks of adopting and cultural acceptability. Technology is not only the equipment, but also the knowledge required to fund, manufacture, operate and maintain the equipment, while transfer is the process of converting the concept of the technology into a sustainable framework that is understandable to the local people (Wilkins 2002).

Process of technology transfer is the most challenging and critical in the development and diffusion of technology. The ultimate aim of this research is to explain how technology transfer of seaweed from tissue culture can help the farmers to solve seaweed quality degradation and contribute for rural development of coastal communities in Ketapang, Lampung province, Indonesia. For rural areas, technology transfer especially biotechnology transfer like seaweed tissue culture, is essential for their rapid and all around development, for increasing the productivity of rural people, for developing agriculture, and for making optimal use of their natural resources.

Seaweed farming is an alternative livelihood of coastal communities in Ketapang, Lampung. Availability of quality seeds is the main problem in the region. Seaweed seeds decreased genetic quality because the pattern of cultivation. To resolve this problem, the Center for Mariculture Development of Lampung (CMD Lampung) and the SEAMEO-BIOTROP to work together to improve the quality of seeds seaweed *Eucheuma cottonii* also called *Kappaphycus alvarezii* through tissue culture techniques. Seaweed produced through tissue culture techniques have advantages like being able to be cultivated in the murky waters, can grow in low salinity, and resistant to high rainfall. With this technology, the provision of seed quality problems can be solved. Seaweed farmers increase yields and may also improve socio-economic growth of coastal community where they live

This study uses case study methodology and rich picture diagram involving research institute, government organization and coastal community in Lampung, Indonesia. This research describe technology transfer process of seaweed tissue culture involving multiple actors, such as Southeast Asian Ministers of Education Organization - Southeast Asian Regional Center for Tropical Biology (SEAMEO-BIOTROP), a public research institution which has generated seaweed seed from tissue culture; Center for Mariculture Development of Lampung (CMD Lampung) which acts as an intermediary of technology transfer process; and seaweed farmers in Ketapang, Lampung which acts as a technology adopter

MATERIALS AND METHODS

Site Profile

This study was conducted in Lampung Province in the southern part of Sumatra, Indonesia. Ketapang. These area are representative of coastal communities on the South Lampung with active fishermen and seaweed farmer. This area was becoming one of the largest seaweed *Kappaphycus alvarezii* because it has a relatively calm waters and protected many small islands. Ketapang region has a strategic location because it is protected from large ocean waves. Small islands near the site of cultivation such as Seram Island and Legondi Island protect this area from the ocean waves coming from the Sunda strait (Noor, 2015)

Data Collection and Analysis

This study is based on two data sources which including the primary and secondary data collected by the authors in 2015. Primary data was obtained through a series of interviews which was used to collect data verbally and through direct and participant observation which was used to collect data

related with the behavior of transfer technology process of seaweed tissue culture development and Rural Development of Coastal Communities in Lampung.

The interview process used was semi-structured interviews in order to make it more interactive and to provide more truthful information. According to Yin (2003), the interview is the most important source of information. The interview can be defined as a purposeful communication and interaction between two or more people involved in a conversation related to several topics which is agreed. By using the snowball effect, this study is possible to do interviews with 10 people who have a relationship with transfer technology process of seaweed tissue culture development and Rural Development of Coastal Communities in Lampung and are derived from a variety of fields relevant to this study such as government institutions, research institute, and seaweed farmers. Secondary data was obtained from various heterogeneous sources, including policy documents, research reports, scientific journals, minutes and slides from meetings.

The study in this paper uses the case study method. Case studies can be used to understand a complex problem using a variety of evidence from various sources of information. The case study approach has been regarded as an important research strategy and is popularly used in various fields of study allowing investigators to retain the holistic and meaningful characteristics of real-life events (Yin, 2003). In parallel with this, rich picture diagrams were developed for case study based on analysing the interview transcripts. The development of the rich picture diagrams in this research represented the evolutionary nature of the research methodology. Rich pictures diagram is a flexible graphical technique to understand and represent the situation, problem or concept. Rich picture is selective picture to describe the issues, conflicts, and problematic situations. Analysis of rich picture based on the identification of actors, roles and activities of each actor, as well as the analysis of social, economic and political context of the organization or the territory that became the object of analysis (Checkland & Scholes, 1990).

RESULTS AND DISCUSSIONS

Seaweed Farming in Ketapang, Lampung

In coastal area, Government promote the development of economic activities through seaweed farming. The program is expected to stimulate economic growth in the region by increasing the income of local communities. In Indonesia, the development of seaweed farming began in the 1980s as an attempt to change the habits of coastal residents in natural resource exploitation towards seaweed farming. Seaweed farming can increase the income of farmers and community, and can be used to maintain a coastal environmental sustainability. Seaweed farming in Ketapang, Lampung was cultivated as a group and also individually. Technically, seaweed is a commodity that has great potential to be developed by the coastal communities. Community empowerment through seaweed cultivation is considered more appropriate for coastal communities because production costs are relatively cheap and easy to cultivate. In the region of Ketapang, Lampung, seaweed farming was started in 1990. Seaweed cultivation was managed by businessmen from China. However, this effort did not survive in the long term because of the financial crisis and finally stopped operating in 1999.

In 2008, the seaweed cultivation in the area active again after the arrival of Surabaya people who are looking for seaweed to their region. Because of the large demand of seaweed, some fishermen in the region decided to change professions to cultivate seaweed. This activities was supported by the Department of Marine and Fisheries of South Lampung regency. Type of seaweed which used for the cultivation is *Eucheuma cottonii* also called *Kappaphycus alvarezii*. 60% of the coastal population is seaweed farmers. However, since 2011 until 2012, seaweed farming activities in the region has decreased. In that period, the number of seaweed farmers in Ketapang declined until 50%. Quality and quantity of seeds become one of the main factors the declining number of seaweed farmers in the region. In Ketapang, seaweed was cultivated using a long line made of poly propylene size of 0.2 inches with a length of 40 meters and tied with a rope anchor along the 100 meters. Seaweed cultivation in this area grow again after introduced tissue culture technology by SEAMEO-BIOTROP and CMD Lampung in 2012. Seed problems that had been faced by farmers can be solved. With its advantages, seaweed from tissue culture was able to boost the production of local and

national seaweed. The growth of seaweed from tissue culture was also faster than the usual seaweed. Weight of seaweed from tissue culture increased seed production more than 10 times.

Technology Transfer of Seaweed Tissue Culture in Ketapang, Lampung

Seaweed tissue culture technology grew in the middle of declining seaweed quality in Indonesia. The cause of the declining seaweed quality was affected by the water quality and the quality of seaweed seeds itself. Seaweed production developed through vegetative propagation since decades ago. Vegetative techniques was relatively easy and low cost. Vegetative propagation seeds were made repeatedly caused declining growth rate, decreasing carrageenan yield and gel strength and increasing susceptibility to disease (Sulistiani & Yani, 2014). In simple way, we can describe the technology transfer of seaweed tissue culture and it's relevance for rural community development in Ketapang, Lampung in Figure 1 below.

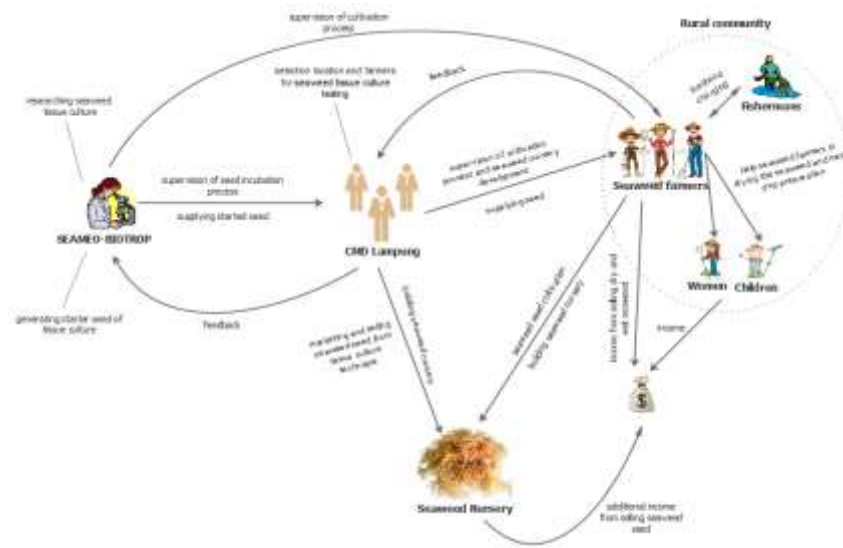


Figure 1 Technology Transfer of Seaweed Tissue Culture in Ketapang, Lampung

Figure 1 describe that technology transfer seaweed tissue culture research in Ketapang, Lampung involved 3 actors: 1). SEAMEO-BIOTROP, a public research institution which has generated seaweed seed from tissue culture; 2) Center for Mariculture Development of Lampung (CMD Lampung), a government technical implementation unit which acts as an intermediary between BIOTROP and seaweed farmers; and 3) seaweed farmers in Ketapang, Lampung province as technology recipient. In 2012, the seaweed tissue culture research was conducted by researchers from SEAMEO-BIOTROP had entered the test phase. SEAMEO-BIOTROP cooperate with CMD Lampung tested first generation of seaweed tissue culture. One of the reasons why CMD Lampung cooperated with SEAMEO-BIOTROP waere the problems faced by seaweed farmers in Lampung, particularly related problems seaweed seed where CMD Lampung operate. Seaweed farmer complained yields continued to decline. As one of the government agencies that support the development of marine aquaculture area, the need to develop seaweed from tissue culture was the chances for CMD Lampung to participate in the development of seaweed farming area in Lampung and others.

Technology transfer process basically started on multi-location trials seaweed from tissue culture in Lampung. CMD Lampung staff assisted researchers from SEAMEO-BIOTROP to conducted testing and also learned how tissue culture propagation. The CMD Lampung staff were directed by researchers from SEAMEO-BIOTROP to monitor the development of seaweed from tissue culture in the location of trial. Furthermore, the staff learnt how to perform the incubation of seaweed from tissue culture seeds developed by researchers from SEAMEO-BIOTROP. However, until now they have not been able to do tissue culture techniques of seaweed sires into seaweed seeds. They can incubated of seaweed seeds from tissue culture until ready cultivated. SEAMEO-BIOTROP

researcher supervised CMD Lampung staffs to perform tissue culture including providing guidance on how to build a comprehensive infrastructure for tissue culture techniques. It was intended that CMD Lampung could perform independently of tissue culture technique from the earliest stages to be cultivated.

Researchers from SEAMEO-BIOTROP regularly every six months or upon request sent the seaweed seed from SEAMEO-BIOTROP to CMD Lampung. At this stage, all shipping costs and the seeds borne by CMD Lampung. The CMD Lampung Staff incubated the seeds in CMD Lampung laboratory for the acclimatization process. After that, the seeds were stored in a green house until the seeds were ready to be cultivated. This process takes quite a long time about 11 months starting from seed ready incubated until the seeds were ready to plant. During these stages, the CMD Lampung staf actively reported on the development of seed to SEAMEO-BIOTROP researchers. Information received from CMD Lampung used as a repair material for seaweed tissue culture techniques that are being developed. After the incubation process was done, the next stage is to cultivate seaweed from tissue culture in nursery garden initiated by CMD Lampung and seaweed farmers in Ketapang. The nursery was located in Ketapang district, South Lampung. Ketapang area was chosen as a pilot site because of this location geographically high supports the growth of seaweed from tissue culture. CMD Lampung seaweed nursery was managed closely by CMD Lampung staf because if left untreated cannot produce seaweed seeds as expected. CMD Lampung also supervised seaweed farmer to develop their own nursery garden. As we known, it was not easy to manage seaweed nursery garden, particularly seaweed from tissue culture technique

Through these nurseries, CMD Lampung have the seed supply quite a lot. In the early stages, CMD Lampung spread seaweed seeds to the two groups of farmers in Ketapang area, Lampung, then the number of the group growth into five groups. CMD Lampung provide technical assistance and knowledge about the cultivation of seaweed from tissue culture to seaweed farmers in thi area. After learning of CMD Lampung, one group of farmers tried to create their own nurseries. In the process of making these nurseries, Seaweed farmers group follow the pattern that has been taught by CMD Lampung like to harvest the seeds after the age of 30-35 days and always records the progress of seed planted. Generally, seaweed farmers and coastal communities in Ketapang openly accepted the seaweed from tissue culture introduced by CMD Lampung and SEAMEO-BIOTROP. They saw the seaweed from tissue culture as one of the solutions in seaweed cultivation in their areas which has been steadily declining production. Therefore, they were enthusiastic whe CMD Lampung introduce seaweed from tissue culture and they were willing to make their location as a pilot sites. They enthusiastically give feedback to CMD Lampung regarding advantages and disadvantages of seaweed from tissue culture they use for cultivation. The feedback from seaweed farmers in Ketapang was forwarded by CMD Lampung to SEAMEO-BIOTROP researchers as an evaluation of their research in seaweed tissue culture technique. In summary, the process of technology transfer from SEAMEO-BIOTROP to seaweed farmers is described in Table .

Table 1. Activities in Technology Transfer Process

No	Actors	Activities
1	SEAMEO-BIOTROP	Generating idea, Experiment Lab-scale test Producing starter seeds Field test Monitoring and supervision
2	CMD Lampung	Field test Select location and seaweed farmers Training for farmers Production on small industry scale Monitoring and supervision feedback
3	Seaweed farmers	Production of seaweed seed from tissue culture Production of dry and wet seaweed from tissue culture

Technology Transfer of Seaweed Tissue Culture and Rural Development of Coastal Communities in Ketapang, Lampung

Before knowing seaweed tissue culture technology, seaweed farmers and coastal community in the Ketapang area, Lampung has embraced the traditional seaweed technology. They used seaweed seed derived from nature or other region and used vegetative technique in cultivation. With the knowledge of the previous cultivation, seaweed farmers in Ketapang, Lampung more easily accepted and adopted the new technology developed by SEAMEO-BIOTROP and CMD Lampung. Basically, there are no differences in the cultivation of seaweed from tissue culture and non-seaweed from tissue culture. Before and after used seaweed from tissue culture, seaweed farmers in Ketapang, Lampung used a long line made of poly propylene size of 0.2 inches with a length of 40 meters and tied with a rope anchor along the 100 meters for seaweed cultivation. Technology transfer of seaweed tissue culture conducted by CMD Lampung and SEAMEO-BIOTROP provided a significant impact to the coastal community in Ketapang, Lampung. Cultivation of seaweed from tissue culture emphasized the economic benefit that shown by the increasing socio-economic conditions of coastal communities that have adopted the cultivation of seaweed from tissue culture as their main livelihood. With the quality of seeds, seaweed farmers got certainty and confidence to cultivate seaweed for their livelihood. As previously described above, poor quality seeds become the main problem of seaweed farming in this area. This problem caused reduction in the number of seaweed farmers. With the seaweed tissue culture technology, the availability of seeds in quantity and quality guarantee seaweed farmers for seaweed cultivation. They were not too haunted by the risk of crop failure or not getting seeds for cultivation. Seaweed from tissue culture has the advantage of which is able to be cultivated in murky waters, survive in low salinity and resistant to high rainfall. With the advantages of seaweed from tissue culture, the growth of seaweed from tissue culture is also faster than the natural seaweeds. Natural seaweed seeds increased until 12 times, whereas in seaweed seeds from tissue culture seaweed increased to 15 times.

Generally, technology transfer of seaweed tissue culture provide a significant impact on social and economic aspects of rural community in the area of Ketapang, Lampung. Seaweed from tissue culture made enthusiasms again of seaweed farming in this area. Seaweed cultivation, whether tissue culture or not, basically improve the economic standard of living of fishermen and coastal communities and also reduce excessive fishing effort. With the seaweed seeds from tissue culture, the motivation of seaweed farmers and coastal community can be increased again, even fishermen who had changed professions into seaweed farmers. They assess that the seaweed from tissue culture can guarantee their survival. Some farmers stated that the decision to change the profession of fishermen into seaweed farming is a positive thing for their family and community. They assess that seaweed farming is simple to cultivate, requires low initial capital investment and provides a rapid and high return on investment. Seaweed from tissue culture become an attractive instrument for rural people in Ketapang area in the selling price fluctuation problems. Fluctuation of seaweed selling price put pressure on seaweed farmers in cultivation activities. Through seaweed from tissue culture, economically seaweed farming can still more profit than seaweed farming from natural seeds. Total production of seaweed from tissue culture more than seaweed developed through vegetative propagation. At least, seaweed farmer can still get a bit of profit when the price of seaweed are in a low rates. However, the presence of seaweed from tissue culture does not guarantee seaweed farmer will be devoted to the seaweed cultivation forever. Price and other technical problems made several seaweed farmer in Ketapang, Lampung still works as a part-time fishers. When the price of seaweed was low, some of them leaving the seaweed cultivation and moved to another job that is considered more profitable.

Seaweed cultivation involved not only men but also women and children. Women and children were involved in the process of drying the seaweed and preparation of new pathways and propagule for the next crop. Women also involved to harvest seaweed in coastal areas. Tissue culture technology enhances the activity of seaweed cultivation and also have an impact on increasing the involvement of women and children in seaweed cultivation. The increasing involvement of women and children will increase their income. The revenue could be used to help the economy of their families. Women can help their husbands in fulfilling family needs. In addition to economic benefits,

there are problems faced by the women who are involved in seaweed cultivation. With the increased activity of seaweed farming made some women less attention to their children and housework. Technology transfer of seaweed tissue culture not only made Ketapang area as a producer of dried seaweed and wet seaweed but also a center for the production of *Euchema cottonii* seaweed seed. Seaweed farmers in Ketapang areas have some seaweed nursery. Seaweed farmers in this area had learnt from CMD Lampung in building nursery for seaweed from tissue culture. CMD Lampung supervised seaweed farmers the things that must considered when establishing a seaweed nursery. After the s nursery had been built, CMD Lampung supervised seaweed farmers in the breeding process. CMD Lampung set the seeds standard that produced by seaweed farmers in Ketapang with the aim of maintaining the quality of the seaweed seeds so that seaweed farmer's get a good price. Besides that, CMD Lampung not only helped the farmers to make the nursery garden but also helped the seaweed farmers in Ketapang to market the seeds. Seaweed seeds that produced seaweed farmer in Ketapang was sold to other areas such as Ambon, Belitung, Aceh, etc. Of course, this activity can increase the income of seaweed farmers in Ketapang, Lampung.

CONCLUSION

Technology transfer is a long and dynamic process, from the generation of the idea until the sale of the product. In this case, CMD Lampung become an important actor in bridging the technology transfer process from SEAMEO-BIOTROP as producer seaweed tissue culture technology and seaweed farmers in Ketapang, Lampung as a technology user. Existence CMD Lampung as an intermediary agent facilitated communication both parties in the technology transfer process of seaweed tissue culture. Technology transfer from research institute to the rural community provides significant benefits for rural development. For the rural community, technology transfer provides economic benefits that could improve the social and economic aspects in rural coastal community. The presence of seaweed tissue culture technology provided new hope for rural community in Ketapang, Lampung to improve their social-economic life The presence of these technologies make them enthusiastic to cultivate seaweed without having to worry about the problems of the quality and quantity of seaweed seeds. Through high quality seeds, seaweed farmers increase income levels and the implications for the increasing level of coastal communities.

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DESIGN AND SIMULATION OF OPEN SOURCE AND SELF-DEVELOPED QUADCOPTER CONTROLLER BASED ON PROPOTIONAL INTEGRATIAL DERIVATIVE (PID) CONTROLLER

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ABSTRACT

Drone technology has been growing and drive an immense attention among the technology user and researcher, particularly for supporting the rural area. Remote rural areas around the world have very limited resources in term of health care, agriculture mapping etc. A drone is one of the most suitable system to provide service for supporting the distribution of resources for the rural area. Several works and research are carried out regarding drone, specifically quadcopter technology. Some open source and low cost hardware and software platform are available for development process suitable for any necessity and purpose. Despite its lack of stability, self-developed Quadcopter play an important role especially for educational purpose to increase student's acquaintance regarding the Quadcopter development. This paper presents the simulation, design and implementation of quadrotor based on arduino and open source flight controller. Both arduino based and open source controller employ PID (Proportional Integration Derivative) Controller algorithm for controlling and stabilizing the Quadcopter. We use Open pilot flight controller for open source implementation. The simulation result show that the comparison of the both scheme performance and the implementation testing result also discussed.

Key words: Quadcopter, PID Controller Arduino

INTRODUCTION

The emergent attention in a drone or Unmanned Aircraft System (UAS), sometimes called a drone, has been indicated clearly in these recent years. The development of drone or UAV was mainly driven from the necessity to supervise and clear up some areas without endangering a human resource especially in military system. For a couple of years the development for UAS penetrates the civil sector alongside the military sector. It is expected that the civil market is about to overrun the military market. In the civil sector, UAVs are used as a service and surveillance systems. The categories of the UAV's application is stated below:

- Observation and monitoring
- Inspection and maintenance
- Communication and broadcasting

There are a number of constructions for UAV implementation, for example helicopters (with one rotor), fixed wing planes, tricopter, quadcopter, hexacopter, octocopter etc. There are some pros and cons for each of the structures. We choose quadcopter architecture due to its high maneuverability, simple mechanical design, low dimension and weight and high payload. [1] To attain better stabilization, the control algorithm selection with quadcopter system modelling and simulation need to be carried out carefully. The realization of the quadcopter platform can be done by creating a system of interconnecting device using microprocessor/microcomputer as a main flight controller [2,4] or by using open source flight controller, i.e. KKMulticopter, ArduCopter, OpenPilot, MultiWii etc. [3,5]. Open source based development is relatively easy to implement and has high probability to achieve good stabilization. However, the self-developed quadcopter has an advantage in term of education

requirement. The Interfacing System course in third year bachelor student is carried out by developing this microcomputer based quadcopter using Arduino. The course objectives mainly is to build a microcomputer system, interface the microcomputer to advanced sensor and actuator and understand the wireless communication of microprocessor with other device.

This paper discussed about quadcopter design and development that achieve educational objectives are achieved by constructing the quadcopter that simply controlled by Xbee communication. For achieving research objection we evaluate performance comparison by also developing open source quadcopter system using Open Pilot and simulate the system using MATLAB. This paper firstly present introduction, then mathematical model of quadcopter as a basic theory of the research, Open source Quadcopter and System Implementation is followed by simulation and evaluation. Conclusion and future work is discussed lastly.

MATHEMATICAL MODEL OF QUADCOPTER

Dynamic Model of Quadcopter

In this section, we will discuss about the important basic and the mathematical model of a quadcopter. The mathematical model of quadcopter usually employ two different coordinate system. First, it use a space-fixed coordinate system, which is also known as inertial system.

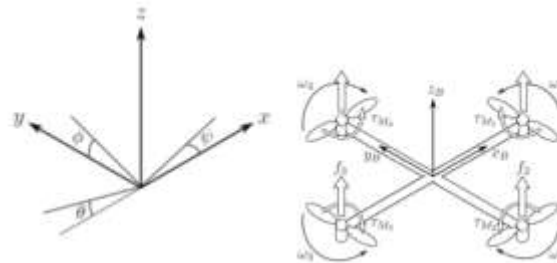


Figure 1.a. Inertial System, b. Body Frame

On the other hand, there is a coordinate system where the quadcopter's center of gravity is located (b). This system, also known as the main axis system or body frame, rotates and shifts with the quadcopter.

In inertial system, the position is defined as $s = (x \ y \ z)^T$ and the speed is $v = (v_x \ v_y \ v_z)^T$ and the so-called Euler angles of the flying objects $\eta = (\phi \ \theta \ \psi)^T$ that each is called roll angle, pitch angle and yaw angle respectively. Note that there are various Euler conventions. One xyz convention that is mainly used is defined as following.

$$R = \begin{bmatrix} \cos\phi\cos\psi - \cos\theta\sin\phi\sin\psi & -\cos\phi\sin\psi - \cos\theta\sin\phi\cos\psi & \sin\theta\sin\psi \\ \cos\theta\cos\psi\sin\phi + \cos\theta\sin\psi & \cos\theta\cos\psi\cos\phi - \sin\theta\sin\psi & -\cos\psi\sin\theta \\ \sin\phi\sin\theta & \cos\phi\sin\theta & \cos\theta \end{bmatrix} \quad (1)$$

Where R is a rotation matrix that goes from the body frame to the inertial frame. For a vector \bar{v} in the body frame, there is a corresponding vector $R\bar{v}$ in the inertial system.

Control Technique

Control technique is used to stabilize the quadcopter. There are many methods of the modelling and position control of quadcopter, mostly is the dynamic behavior of quadcopter using differential equations. The basic structure is relatively similar in all methods. However, they differ in term of complexity. Some controller approaches that widely used is PID controller, LQ controller, back stepping controller, nonlinear controller, etc. In this paper we only discuss about PID controller as the most widely used and less complex approach so it is easy to implement.

PID controllers are one of the analog or continuous controllers. In this controller, the computed variable can take each value within a setting range. PID controller can be used to control the position and the height examined by the sensors in the quadcopter. It can be implemented by hardware using operational amplifier as well as by software using following mathematical formula [6].

$$e(t) = x_d(t) - x(t),$$

$$u(t) = K_p e(t) + K_i \int_0^t e(\tau) d\tau + K_D \frac{de(t)}{dt} \quad (2)$$

Where $u(t)$ is the control input, $e(t)$ is the difference between the desired position $x_d(t)$ and the present position $x(t)$. K_P , K_I and K_D are the parameters for the proportional, integral and derivative elements of the PID controller. The following equation is the digital control algorithm of a PID controller

$$u(kT) = k_R e(kT) + k_I \sum_{i=1}^k e(iT) + k_D (e(kT) - e((k-1)T)) \quad (3)$$

Open Source QC

In this research we use OpenPilot as a open source flight controller for our open source based quadcopter. OpenPilot contain two component parts i.e. the on-board firmware and the ground control station. The hardware of the OpenPilot consist of two boards: microcontroller board and sensor board. The OpenPilot sensor board (AHRS) contains MEMS gyroscopes, accelerometers and a 3 direction magnetometer. The microcontroller is Cortex M3 and receive the orientation data and inertial measurements from AHRS board using SPI Interface. We use CC3D Flight controller that has receiver port for connecting the board with radio receiver (RX) . There are six pin of receiver port for roll, pitch, throttle, rudder, gear and Aux.

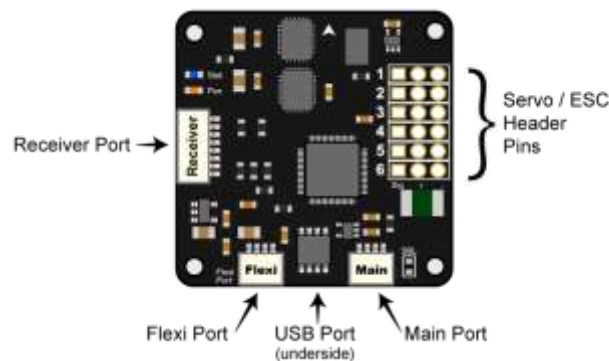


Figure 2. CC3D OpenPilot Flight Controller Board[7]

Implementation and Overall System Architecture

In this section, the implementation of open source and self-developed quadcopter and its components is discussed.

- Hardware and Software Implementation
- Hardware Implementation

The design of the self-defined quadcopter system is characterized by its modular design which build it. The system is equipped with the flight controller, communication module, speed controller, gyroscope sensor, frame and propeller

Flight Controller

The main component of the UAS is the avionics or flight controller. The avionics' task is to read and prepare the sensor signals, calculate new correcting values base on sensor signals and then carry over the calculated value to the motors. We use Arduino UNO board as flight controller.

Communication Module (Xbee)

To send control command to quadcopter we use Xbee wireless communication module. Xbee use a network protocol for IEEE 802.15.4 for point to multipoint or peer to peer network. Xbee is designed for high throughput applications that require predictable communication.

Speed Controller

Electronics Speed Controller (ESC) plays an important role in controlling the speed and spin direction of the brushless motors. ESC selection depends on the maximum current value of brushless motor. We choose 25 Ampere programmable ESC.

Inertia Measurement Unit (IMU) Sensor

IMU sensor determine the orientation of the object attached to the sensor in three dimensional space. IMU sensor consist of gyroscope and accelerometer for determining the current orientation of quadcopter. We choose MPU 6050 sensor and attach it to Arduino flight controller. MPU 6050 output are yaw, pitch and roll angle values that will be computed by flight controller to update the motor's speed.

Brushless Motor

Brushless Motor has a permanent magnet in the rotor and electromagnet in the stator. By using simple computer system in flight controller we can change the current at the electromagnet part and change the speed and spin direction of the rotor.

Software Implementation

To carry out the controlling task, Arduino based flight controller must be programmed using Arduino IDE as a programming tool. The software can be divided in two main parts. The first part is pins and parameter configurations and initializations to set the right value for peripherals, values and commands for computation process in flight controller. The second is main control loop that carry out all the important computation in quadcopter system. Main loop program is at the waiting mode until IMU sensors finish sending data. After the pitch, roll and yaw angle values is obtained from IMU sensor, the flight controller will compute PID, calculate new velocities and update the motor to stabilize the quadcopter. For control command transmission from PC to the flight controller, we attach five type of interrupts from Xbee communication at serial port of Arduino.

Overall System Architecture

The avionics system consist of controller board for sensor processing , responsible for flight controller and also has the function of navigation and manage communication with remote controller. In this project, we use Arduino Uno board as a flight control and management board. Figure below shows a block diagram represent the developed avionics system.

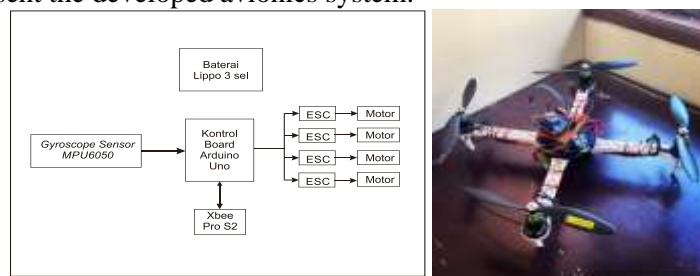


Figure 3 Architecture System (a) and Implementation [b]

Simulation and Testing Result

Simulation Result

In this section we describe the open source and self-developed quadcopter simulation. We use MATLAB to simulate the dynamic modelling and controller of the quadcopter. The overall simulation

system composed of two main function i.e, dynamics part and control part. The dynamics part that correspond to the quadcopter physics and the quantities of the quadcopter's position, velocity and acceleration is modelled by the Euler's method to resolve differential equation that progress the system state. To simulate the control of quadcopter system, i.e., PID Controller, the mathematical model of a quadcopter is obtained based on a function of controller state that is updated by the value of the sensor inputs and current state.

Eq PID.

This mathematical model is derived to support the building of quadcopter controller. The choice of the gain parameter value in equation (..) highly affect the performance of the PID controller. Base on the simulation the best performance is achieved by the parameter value of : $K_d = 4$, $K_p = 3$ and $K_i = 5,5$.

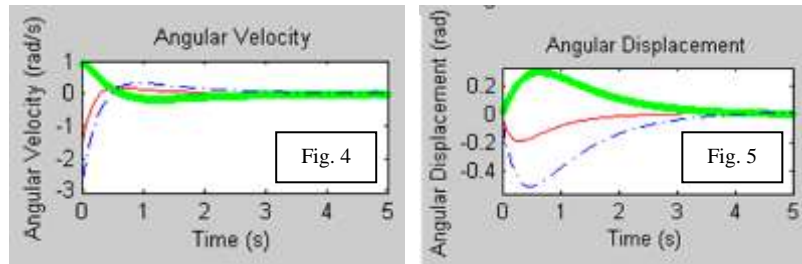


Figure 4. Angular Speed Simulation for PID Controller in Quadcopter
 Figure 5 Angular Shift Simulation for PID Controller in Quadcopter

To observe the performance of PID controller, the simulation will display roll, pitch and yaw angles ($\square\square\square$ and $\square\square$ that are coded with thin line, bold line and sparse line respectively) and the corresponding angular speed. From the simulation, we can observe that the PID controller force the angular shifts (roll, pitch, yaw angle and angular speed to 0 for stability. The angular speed is driven to 0 in approximately 0,5 seconds and the angular shifts reach 0 in 3 seconds.

Evaluation of Quadcopter Control Stability and Drivability during Testing

This section examines the evaluation of how the control process during flight testing based on visual observation and pilot point of view. The quadcopter test is performed in free-flying model due to the fact that no test rack is available for quadcopter. The test objective is to observe how well the PID algorithm that implemented in self defined and open source quadcopter flight controller can set all four rotors for the lift and flight stabilization. The advantage of the free flight test is that the real disturbance is considerably incorporated. However, the major disadvantage of this test method is there is no simple set point changes that can be made to assess the control dynamics on the real system. Particularly it is difficult to center its horizontal orientation from moving away because of occurring wind. Corrective control must be measured by the pilot to keep the permanent control for the quadcopter. Based on this circumstance, the test scenarios and reference services must be carried out manually by the pilot.

Control of Lifting Ability (Floatation)

Control of lifting works on both self-defined and open source flight controller quadcopter is very good. It is found that it has a very good speed ignition for all four rotors which are responsible for the lifting process. The observed difference is that the first system conveys the speed ignition significantly. The overshoot condition is sometimes occurred in the self-defined quadcopter. Moreover one of the rotor is sometime suddenly stop spinning. On the other hand, the second system (open source quadcopter) has small deviation in the lifting ability.

Compensation of Disturbance Factor

During the flight, it can be seen that the open source based Quadcopter has better disturbance compensated as it is capable of controlled by Remote Control using radio communication. This

system also need less adjustments for hovering maneuver that allow the pilot to fly and control the quadcopter easier.

Control of Pitch and Roll

It is also observed in the open source based Quadcopter that the control of pitch and roll works fine. It can be concluded that the better disturbance compensation is, the better control of pitch and roll. On the other hand for the self-defined quadcopter that has low disturbance compensation and control of pitch and roll, the pilot find it difficult to send command to control quadcopter.

Control of Yaw

Both in the open source and self-defined based quadcopter system, there is a problem that the set point values of yaw has a big influence on the pitch and roll and a sudden error setting in yaw can cause uncontrollably flight and make the quadcopter crash if the pilot don't have fast respond to overcome the error manually.

CONCLUSION AND FUTURE WORK

In this paper we have presented the design, development and evaluation of arduino based flight controller that is implemented to the self-defined quadcopter and open source (OpenPilot) flight controller based quadcopter. From the flight test evaluation, we can conclude that the quadcopter that using open source flight controller has a better performance. It can be mainly justified by the evaluation result that the system achieve an acceptable flight behavior in term of lifting ability, controllability and flight stability. The flight performance of open source system show itself as smoother lifting process and better respond to the control command compare to the self-defined system. However the open source system lacks of educational experience for student to learn about the implementation of interfacing system and microcomputer system in Quadcopter system that can achieved by self-defined system. Base on some interview with the student, they prefer self-defined system for studying purpose but choose the open source system for further development for next research projects. To improve the flight performance we plan a minor improvements in the disturbance compensation and better parameterization by taking more valid flight data. For further development we plan to implement our quadcopter system for improving agriculture problem in the rural area by monitoring the farmers' plant field to determine the distribution of plant type and variety that must be planted to avoid overload harvest on one commodity that cause the price fall and farmer's loss.

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RENEWABLE ENERGY BASED ON CATTLE FARMERS ABILITY TO PAY: CASE STUDY OF PUJON KIDUL, KABUPATEN MALANG

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ABSTRACT

Fossil fuels, especially oil, coal, and natural gas which are the main energy resources are non-renewable energy (Elias, 2009). Therefore, Indonesian government set the urge to develop alternative energy resources. Indonesian rural area holds great (Electricity act, 2007). The development of alternative energy can be applied by any community, especially cattle farmers in the village which can be seen from the potential of Indonesian farmers that reached 16.019 million head of livestock (Department of Agriculture, 2015). Cattle farmers are able to apply rural bioenergy program in the form of processing the cattle manure into alternative energy by themselves. Cattle farmers are facing difficulties to establish individual reactor. Therefore, communal reactor is preferable (Sulistiowati, 2001). Pujon Kidul is located in the district of Malang. There are 453 farmers and of 1,390 cattle in this village. It means, unmanageable manure waste will damage the environment. The problem of this village is lack of public awareness for the manure management and the cost of bio digester construction although they have ability to build it. The results of this study is expected to assist the government in providing counseling to farmers who have high ability and assistance for farmers who have low ability. This study is using analysis of ability to pay and willingness to pay from the perception of farmers. The purpose of this study is the farmers can have their own alternative energy resources for daily life.

Key words: renewable energy, ability to pay, farmers

INTRODUCTION

The increasing need of energy and the depletion of crude oil reserves requires humans to find alternative energy sources. Electrical power source by PT. PLN has been utilizing fossil energy, especially oil, coal, and natural gas as the main energy resources. Those energy sources are considered as non-renewable energies (Elias, 2009). This case caused the government set the development of alternative energy resources and local potential according to the characteristics of rural (Electricity Act, 2007). The development of alternative energy can be applied by any community, especially by cattle farmers. Cattle farmers can conduct the program of Rural Bio-Energy in the form of independent energy fulfillments by society, foremost rural community. In the development of independent energy fulfillments, the implementation is required a cost by the community (Susilowati, 2001). The expenditure should be adjusted to the ability to pay of the community. Ability to pay is ability of a person to pay for services received under the income from which considered as ideal (Rianti et al, 2012). Ability to pay is an important factor for developing the construction of bio digesters, as it will affect the purchasing power of the product.

The purpose of this research is to look on the ability to pay of the cattle farmers in Krajan Pujon Kidul village, Malang districts for the construction of individual bio digester. Pujon Kidul village has great potential in livestock manure utilization. It has 453 farmers with livestock numbers as many as 1,390 cattle, but only 20% of farmers who utilize livestock manure. This is due to the lack of public awareness for manure management and construction cost of bio digester even though they have ability to build it. Hence it is necessary to identify the ability to pay of the cattle farmers.

METHODOLOGY

Research type used by the researcher are quantitative research. This research is conducted in a population of cattle farmers in Krajan Pujon Kidul village, Malang districts with total population of 221 breeders. The sampling method used in this research is saturation sampling, where all members of the population used as sample. Data collection method used in this research were interviews to respondents using a questionnaire in order to obtain data on household income, expenditure, number of families and the number of livestock. This research is using the analysis of ability to pay by Steven Russell (1996) as the data analysis, which help the writer to evaluate the wide range of income and expenditure for the conversion of daily needs. Thus, it produced the residual income by the farmer on the ability to build a bio digester. The equation model of ability to pay as follows:

$$A - B = C \quad (1)$$

Legend:

A = monthly income from livestock

B = public expenditure

C = the ability to pay

RESULTS AND DISCUSSIONS

According Trisnantoro (2009), determine the ability to pay, willingness to pay, and unit cost may increase the equalization efforts, by the way of regulating subsidies and targets that would be subsidized. In this research, the grouping stage has been done by where increased income can be used for cross-subsidies the needy groups. According to Tamin (1999), ability to pay (ATP) is ability of a person to pay for services received based on income which is considered as ideal. In this research, please note the ability to pay and willingness to pay used to determine the applicable rates on the utility services. Often found there is a clash between the ability and willingness on the tariff determination. ATP is a function of ability to pay, which in determining tariffs, tariff rates imposed cannot exceed the value of the ATP target group. The determined tariff rate is placed between value of the ability and willingness to pay. If the proposed tariff is below the prevailing rates but above capabilities, the difference can be considered as the subsidy burden that must be borne. On the other hand, if rates are far below the ability and willingness, then the application can be submitted as chances of cross-subsidies.

In a study conducted by Irawan (2009), the ability of individuals in consuming goods is influenced by income. ATP is the signal from consumers about how much money is spent from the income to fulfill their consumption. In the study of variables that affect ATP is a formal education, the total number of family members, and the total income of family. By knowing the ability to pay, then it can be improved even distribution of energy development. In addition, it can improve the efforts of equity by way of subsidy arrangements with right place and appropriate to their needs. In this research, the income and expenditure are used to see the ability to pay of the cattle farmers. Livelihoods of farmers can affect the income of farmers. The livelihoods of the cattle farmers are farmers, agricultural laborers, traders, and pure farmers. The following table is Pujon Kidul village farmer income:

Table 1 the farmers' income

Income grade (Rp)	Total households
600.000 – 1.433.000	30
1.433.0000 – 2.266.000	78
2.266.000 – 3.099.000	73
3.099.000 – 3.932.000	24
3.932.000 – 4.765.000	6
>4.765.000	10
total	221

Based on table 1, obtained the highest income grade which is Rp 1.433.000- Rp 2.266.000 with the total of 78 farmers. The income grade with the fewest livestock are Rp 3.932.000- Rp 4.765.000 with the total of 6 breeders. Expenditure in this study is a farmer's expenditure for a month. Such expenditures from the cost is spent on fulfil their basic needs. The following is a table of farmer's expenditure.

Table 2 farmer's expenditure.

Income grade (Rp)	Farmer's expenditure (Rp)	Holds
600.000 – 1.433.000	600.000- 900.000	30
1.433.0000 – 2.266.000	1.000.000- 1.700.000	78
2.266.000 – 3.099.000	1.550.000-2.300.000	73
3.099.000 – 3.932.000	2.100.000-2.750.000	24
3.932.000 – 4.765.000	3.250.000-3.900.000	6
>4.765.000	4.300.000-15.500.000	10
total		221

Table 2 shows the greater the income grade, the greater the expenditure of livestock. The largest farmer's expenditure is on income grade > Rp 4.765.000 by spending Rp 4.300.000 - Rp. 15.500.000. In Malang district, there are financial support for the construction of biodigester given by KopSae Pujon with Rp 2,000,000 per unit biodigester to the farmers, so that the costs incurred by cattle farmers to build 4m³ sized biogas reduced to Rp 3,700,000 - Rp 4,000,000.

Table 3 the farmer's Ability to Pay

Income grade (Rp)	Farmer's expenditure (Rp)	Farmer's ATP (Rp)	Total Households	Biogas price (4m ³) - subsidy (Rp)*
600.000 – 1.433.000	600.000- 900.000	0-525.000	30	
1.433.0000 – 2.266.000	1.000.000- 1.700.000	150.000- 1.100.000	78	
2.266.000 – 3.099.000	1.550.000-2.300.000	200.000- 1.200.000	73	
3.099.000 – 3.932.000	2.100.000-2.750.000	200.000- 1.500.000	24	3.700.000
3.932.000 – 4.765.000	3.250.000-3.900.000	450.000- 1.000.000	6	
>4.765.000	4.300.000-15.500.000	500.000- 1.600.000	10	
total			221	

*Biogas Price : Rp 5.700.000 / Subsidy : RP 2.000.000

Based on Table 3, obtained the data of farmers which have residual income totaling Rp 0 -Rp 1,600,000. Residual income is owned by farmers with the highest income grade > Rp 4,765,000 and the rest of the lowest income grade owned by farmers with revenue of Rp 600,000-Rp 1.433.000. The greater the expenditure farmers, then the rest of farmer's income would be lower. If farmers want to build a bio digester, then the residual income can be used to build individual bio digester.

Based on the residual income, about 100% farmers has ATP that not sufficient to build a bio digester. In addition to financial assistance amounting Rp 2,000,000 in Malang, there is ease of payment in installments for 24 months from the money generated through the sale of milk. The sales price of milk in KopSae is 5.000 / liter. Exchange sales of milk will be taken every 15 days and it will be reduced by the installments.

Table 4 Expenditure for Biodigester

Price (Rp)	Income group (Rp)	ATP of farmers (Rp)	Payment gap (Rp)	Expenditure (15days)
	600.000 – 1.433.000	0-525.000	3.175.000- 3.700.000	66.200-77.000
3.700.000	1.433.0000	–	150.000-1.100.000	54.200- 74.000
	2.266.000		2.600.000-3.550.000	
	2.266.000 – 3.099.000	200.000-1.200.000	2.500.000-3.500.000	52.100-73.000

Price (Rp)	Income group (Rp)	ATP of farmers (Rp)	Payment gap (Rp)	Expenditure (15days)
	3.099.000 – 3.932.000	200.000-1.500.000	2.200.000-3.500.000	45.900-73.000
	3.932.000 – 4.765.000	450.000-1.000.000	2.700.000-3.250.000	56.300-67.700
	>4.765.000	500.000-1.600.000	2.100.000-3.200.000	43.800-66.700

Based on table 4 with ATP Rp 0 -Rp 535,000, the farmer should pay Rp 66,200-Rp 77,000. The farmer with ATP> Rp4.765.000 should pay Rp. 43000- Rp. 66700 every 15 days. The fee is taken from the deposited amount of milk by the cattle farmers. With 1 adult cattle which produce 7-10 litres of milk per day, then the farmer can fulfil the construction cost of the bio digester. Based on these results, farmers have insufficient capability to build a bio digester. In building a bio digester, farmers are given the ease in the form of financial support and the assistance payment by the form of instalments. The assistance provided can alleviate farmers in building a bio digester. With the development of bio digester in a rural location, farmers earn the ease of development of alternative renewable energy based on ability and potential, according to the program which has been implemented. Based on the results and discussion, this research could help people in building bio digesters according to the preference ability of farmers. In addition, this research can be a reference for the government to deliver development assistance of bio digester to meet the energy needs of the farmers.

CONCLUSION

Based on the results of the discussion of the ability of farmers, obtained the following conclusions:

- Based on the calculation of income and expenditure farmers, 100% farmers cannot afford to pay for the manufacture of individual bio digester. Based on the assistance to be provided, farmers have the ease to build a bio digester in instalments so that farmers can pay bio digester with Rp 43,800-Rp 77,000 from which will be deducted automatically from the dairy milk which are deposited ever y 15 days to KopSae.

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SUSTAINABLE DEVELOPMENT IN RURAL AREAS: MOBILIZING APPROPRIATE TECHNOLOGIES TO GRASSROOTS INNOVATION ECOSYSTEM

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ABSTRACT

The concept of sustainable development is ecology and economics must be more fully integrated (Eco-Economy). As known, since the 1950s, the role played by the rural agricultural sector in society has considerably changed due to of mechanization, globalization and new social needs. In many ways. The concept of Appropriate Technologies (AT) hence endeavors to eliminate the adverse effects of this modern technology. To parse these issues, we can learn from any existing experiences. The main government institution (formal organization) working on AT in Indonesia is The Center for Appropriate Technology Development (CATDev). Besides government institution, Indonesia have Non-Government Organization i.e. Yayasan Dian Desa (YDD) that have more than thirty years of experience. YDD has become accustomed to identifying technological solutions to rural poverty. The empirical exercise is the AT movement has shown a shifting trend. It has transformed itself slowly into an alternate technology movement based on Grassroots Innovations. Grassroots development is a process of intentional social change that privileges local organizing, visioning and decision making. It is an alternative approaches to local development in poor communities.

Key words: appropriate technology, grassroots innovation, rural areas, sustainable development

INTRODUCTION

The first rural development decade (1960-70) achieved extraordinary success in promoting economic growth, not only in the newly industrialized countries (NICs) of East and South East Asia, but also in many Latin American and some African countries [1]. For agricultural policy, the main lesson from this period was the key role of technological change in agriculture. Following World War II, technological developments in agriculture have been particularly influential in driving change in the farm sector. Technological developments (mechanization and availability of chemical inputs) occurred at an extraordinarily rapid growth in average farm size, accompanied by an equally rapid decline in the number of farms and rural populations [2]. The core instrument was the technology of the Green Revolution, seen as the missing piece in the failed community development movement of the 1950-65 period.

The second rural development decade (1980-90) was marked by a slowdown in growth (oil and food crises, increasingly evident failures of growth to reduce poverty and inequality) this quest took the form of Integrated Rural Development (IRD) projects. When the term was first used by donor agencies in the 1960s, IRD referred to particular types of project designed to meet the requirements outlined above of comprehensive action. In Addition, IRD meant not only comprehensive action, but also integrated action (Co-ordination, Planning, Areas and Decentralization) [3]. Although, IRD has looked far less convincing in practices, particularly where the administrative implications of integrating all aspects of government services related to the rural sector have not been fully considered.

Those are some examples of how rural development or rural policy paradigm and approach evolved over time, as can be summarized and described in Table 1.

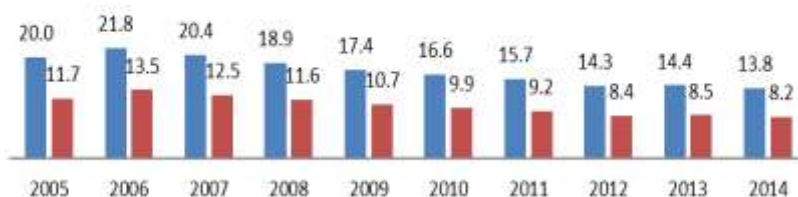
Table 1: Different Lenses Studying “Rural Development” [1][4]

1950-1960	: Community Development. Modernisation dual economy model ‘backward’ agric. community development, lazy peasants
1970-1980	: Small-farm growth. Transformation approach, technology transfer, mechanization, agricultural extension growth role of agric. green revolution (start), rational peasants
1980-1990	: Integrated rural development. Redistribution with growth, basic needs, integrated rural devt. State agric. Policies state-led credit, urban bias, induced innovation green revolution (cont.) rural growth linkages
1990-2000	: Market liberalisation. Structural adjustment, free markets, ‘getting prices right’, retreat of the state, rise of NGOs rapid rural appraisal (RRA), farming systems research (FSR), food security & famine analysis, RD as process not product, women in devt (WID) , poverty alleviation
2000-2010	: Process, participation, empowerment and actor approaches. Microcredit, participatory rural appraisal (PRA), actor-oriented RD, stakeholder analysis, rural safety nets, gender & devt (GAD), environment & sustainability, poverty reduction
2010-later	: Sustainable livelihoods, good governance, decentralisation, critique of participation, sector-wide approaches social protection, poverty eradication, “Eco-Economy”, “Rural web”, “Sustainable Consumption”, “SDGs”

Besides the issue on different lenses of rural policy, contemporary issues as rising population growth and rapid urbanization are Food, Energy, and Water (FEW) security. Food security remains one of the three major challenges of humanity in addition to energy security and climate change [5]. According to the World Economic Forum (WEF) in 2011, the human population is now vulnerable in the availability of food, energy, and water [6]. This crisis predicted to continues to spread if there is no global action to address it. As an illustration, the water crisis in the region, not only threatens the availability of drinking water, but also have an impact on irrigation for agriculture that will impact the greater cost of physical and social [7].

Global hotspots food insecurity are South Asia and Sub-Saharan Africa [8]. However, crises have different natures and degrees of severity, and therefore require different interventions, a poor definition of crisis goes beyond being merely a semantic issue. For example, FAO-GIEWS (Global Information and Early Warning System on Food and Agriculture) does not have a formal definition for food crisis either, but establishes three conditions that categorize a region as in a food crisis: (i) lack of food availability; (ii) limited access to food; and (iii) severe but localized problems. Rural poverty can also create serious negative externalities i.e. Rapid migratory flows crowd out urban residents on non-farm labor markets and displace rural poverty to the urban slums, adding to urban welfare budgets. And environmental abuse associated with the pressures of rural poverty contributes to national and global externalities under the form of siltage, exhaustion of underground water reserves, desertification, deforestation, loss of biodiversity, and climate change [1].

Figure 1. Rural and Urban Poverty Trends in Indonesia (% living below rural/urban poverty line)



Source: World Bank and Statistics Indonesia 2015

REVIEW

This paper tries to elaborate and review the experiences of AT’s development and implementation, especially in rural Indonesia, both conceptually and practically. The profile and experiences drawn from government agencies and non-governmental which established since 1970 to the present. Analysis of the paradigms and methods of applying this AT will demonstrate the importance of creating the ecosystem for the development of innovative grassroots so that sustainability in rural development can be accomplished.

RESULT AND DISCUSSION

Appropriate Technologies (AT): Concept and Movement in Rural Indonesia

In many ways. The concept of Appropriate Technologies (AT) hence endeavors to eliminate the adverse effects of modern technology by devising the same to retain its organic link between man and nature and to sustain growth by making units as small as possible. The concept of AT is also closer to the operation of small scale industries. The concept of Appropriate Technology was first synthesized by the British economist E. F. Schumacher, drawing upon important foundations laid by Gandhi and others. An appropriate technology is defined here as a technology tailored to fit the psychosocial and biophysical context prevailing in a particular location and period. Schumacher encapsulated the philosophy of AT in his book, *Small Is Beautiful* (1973) where he described the central doctrine of AT as (a) simple, (b) small scale, (c) low cost, and (d) non-violent [9]. The most important of these characteristics are: (a) significant improvements in productivity over existing, indigenous technologies, (b) preference for labor intensity rather than capital intensity in technology selection and (3) simplicity of technology and consequent ease of local adoption [10]. This definition does not completely embrace the viewpoints but is comprehensive enough to incorporate most of the definitions which have appeared in the literature, and it accords closely with the original ideas of Schumacher [11].

Table 2. Definition of Appropriate Technology [9], [11], [12]

Thormann, 1979	[a] In terms of available resources, AT are intensive in the use of the abundant factors, labor, economical in the use of scarce factors, capital and highly trained personnel, and intensive in the use of domestically produced inputs. [b] In terms of small production units, AT are small-scale but efficient, replicable in numerous units, readily operated, maintained and repaired, low-cost and accessible to low-income persons. [c] In terms of the people who use or benefit from them, AT seek to be compatible with local cultural and social environments
Harrison (1980)	AT means simply any technology that makes the most economical use of a country's natural resources and its relative proportions of capital, labor and skills, and that furthers national and social goals. Fostering AT means consciously encouraging the right choice of technology, not simply letting businessmen make the decision for you
Betz et al. (1984)	AT equated with providing technical solutions that are appropriate to the economic structure of those influenced: to their ability to finance the activity, to their ability to operate and maintain the facility, to the environmental conditions involved, and to the management capabilities of the population.
Willoughby (1990:44)	Artefacts which have been tailored to function as relatively efficient means and to fit the psychosocial and biophysical context prevailing in a particular location and period (i.e., technology which is compatible with its context).
Todaro (1997)	technology that is appropriate for existing factor endowments. For example, a technology employing a higher proportion of labor relative to other factors in a labor-abundant economy is usually more appropriate than one that uses smaller labor proportions relative to other factors
Robert C. Wicklein (2001)	Appropriate Technology seeks to aid and support the human ability to understand, operate, and sustain technological systems to the benefit of humans while having the least negative societal and environmental impact on communities and the planet.

Centre for Appropriate Technology Development (CATDev)

The main government institution or formal organization working on AT in Indonesia is The Centre for Appropriate Technology Development (CATDev). It was initially designated as the division of Appropriate Technology Development (DATD) in 1986, a unit within the R & D Centre for Applied Physics, Indonesian Institute of Sciences (IIS). Located in Subang, West Java Province, CATDev is a manifestation of IIS concern to fulfill the community need for appropriate technology, was supported by the local Government of Subang District and UNDP [13]. Parallel with the dynamics of national socio-economic situation, CATDev broaden their scope of activity including small and medium enterprise's development addition to its focus i.e. community development.

CATDev vision is to become a national reference in development and implementation of AT toward sustainable development, with the mission is to cater the necessity of government, community and small and medium scale enterprises for AT. As a technology provider, CATDev support community and small medium enterprises in need of technology innovation in the area of food,

agriculture, energy and implementing the technology. The approach of program implementation is not only designated to create employment opportunities, but also to support government policies in applying regional development strategies.

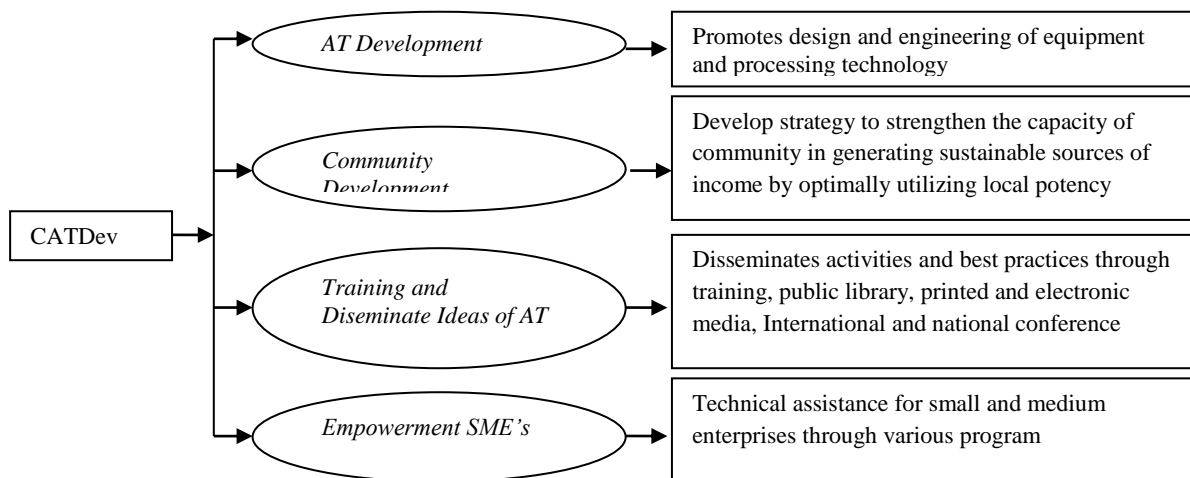


Figure 2. The Main Activity of Centre for Appropriate Technology Development

CATDev is supported by 126 personnel consisting 55 experts, 22 technicians, and 55 supporting staff. They have infrastructures and facilities as follows [14]. Building for Education and Training, Meeting rooms with capacity 80-100 people, Guest House with capacity 30-50 people, Laboratory Food/Post Harvest Processing, Laboratory for food and animal feed testing, Warehouse of Metal Mechanic, Warehouse of Woods, Pilot Plant for Fruit and Vegetable Processing, Pilot Plant for Flours and Derivatives, Pilot Plant for Fish and Avian Food and Clean Water Production.

AT implementation by CATDev facilitates the transformation of values in the community. Though change is certain, an unplanned change will result in long term damage. It is understood that innovation will not be accepted immediately by a community if the values entailed in innovation still need some adjustments with local values. Experiences in implementing appropriate technology in four different areas, i.e. rural farm community in Alor (East Nusa Tenggara), horticulture farm community in Selengan (West Lombok), fish culture community in Subang (West Java), and agroforestry community in Tanete (South Sulawesi) indicate resistances that if left unaddressed, will rule out the opportunity for targeted community to gain optimal benefit. The field findings also shaped an understanding that a success in inducting innovation is determined by its compatibility with the needs of local people. Only minimal resistance was found in the case of micro hydropower technology installation in the village of Tanete – Sulawesi, because such technology was the primary need of the community, i.e. electricity for lighting [15].

AT was interpreted as several integrated efforts in a product design or innovation development which include social and cultural aspects, and also called as a complete approach to do a self-adaptive development in dynamic conditions. In short, researchers who believe on AT approach concluded that the phenomena of AT emerge together with the specific conditions in a local area that need a technology. On the other hand, the presence of AT also faced some critics from other researchers. The critics had same intention to state that appropriate technology may not be sufficient or good-enough from engineering perspective. Although from different eras, they similarly stated that it is conceited and naive to define any technological effort that improves capability to satisfy local community aspirations and goals [16].

Yayasan Dian Desa (YDD): Appropriate Technology Group

Dian Desa Foundation (YDD) is a local Indonesian NGO that has been operating on national, regional, and local levels since its inception in 1972. YDD started as a small, informal group consisting of three activist technical students who expressed an interest in the development and application of appropriate technology for rural development. The foundation's goes back to 1969, when Anton Sudjarwo (YDD's Founder) and four students from Gadjah Mada's Engineering School conducted some "hands-on" volunteer work on the slopes of Java's mount Merapi. This single project (a gravity supply water

system) eventually led to the birth of YDD [17]. Until 1972 YDD's were still in the form of an informal organization. In 1972, that group was registered as a formal organization and became known as YDD.

The general goal of YDD is to assist low-income communities in improving their living standards through the utilization of appropriate technology and participatory & self-help processes. "Dian Desa" has come to mean a better quality of life, which is not only the improvement of living conditions, but also a sense of empowerment. YDD's working principle is to spread the use of appropriate technology to provide sustainable solutions for development throughout Indonesia. Working as a catalyst, YDD introduces new ideas to communities which are then refined, maintained, and spread by the villagers themselves.

YDD seeks a balance: to keep the concerns and traditions of the people as the top priority, while also being critical of unsustainable practices. Using a 'self-help' approach to build the capability and capacity of people, all projects draw upon local resources and expertise, and give individuals and community's ownership and responsibility for the projects. Programs and projects at YDD have evolved over the years, based on the changing needs of the communities it serves. Past programs include: (1) Coastal Area Development / Aquaculture, (2) Sustainable Agriculture (3) Community Involvement in Urban Development. Due to Dian Desa's experience with ground-level project implementation, it has become a hub for international aid groups and local partners to put their plans into action. With more than thirty years of experience, Dian Desa has become accustomed to identifying technological solutions to poverty. Inventing appropriate technologies has been its greatest contribution to rural communities in Indonesia [18].

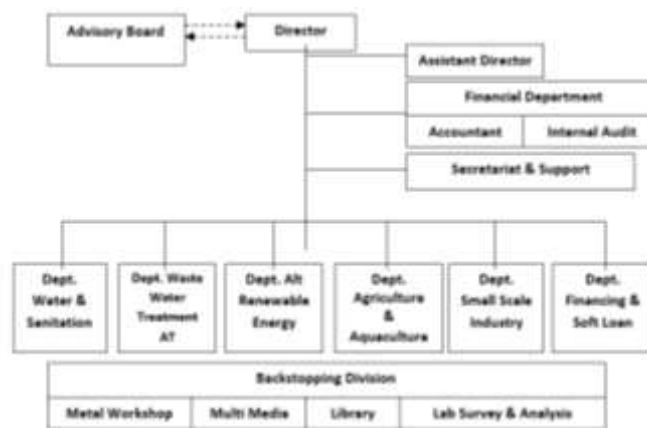


Figure 3. Organization and Activities of Yayasan Dian Desa – Appropriate Technology Group

Grassroots Innovation (GRI) for Rural Sustainable Development

Innovation and community action are two important strands for rural sustainable development. The principle of sustainable development was adopted at the 1992 Earth Summit in Rio de Janeiro [19]. The concept of sustainable development, according to Zaccai (2002) brought forward to promote a new perspective of development and progress in response to increasing environmental risks and global development crisis. Ecology and economics must be more fully integrated if either is to deal adequately with man's use of natural resource [20].

Grassroots Innovation are the innovation made by the people at the grassroots, such as small farmers, mechanics, artisans and self-employed entrepreneurs [21]. Grassroots innovators are less formally educated and receive little outside support for their innovations. They are the innovations by the poor and for the poor, contributing largely to poverty alleviation. China introduced grassroots innovation in the 1980s which is interpreted as the general public with neither authority nor knowledge in social economics. Similarly, GRIs can be defined as the innovative activities of improving Products, techniques and crafts in a random and extensive way by the grassroots people who have grasped the corresponding techniques and skills [22]. Grassroots Innovation Movement is a global movement that is trying to change the old paradigm that the public has only considered as users and consumers of technology into a new paradigm that society is a technology provider. That is, the people are the source of innovation. The success of grassroots innovation movement has been proved by Latin America, India and China. In Latin America the movement known as "technologies for social

inclusion" which was pioneered by local communities, public institutions, laboratories, universities and NGOs. Start of networking innovators built in Brazil, "cooperative movement" in Uruguay, until the "R & D Extension Unit" in Argentina characterizes of grassroots innovation movements in Latin America [23].

Grassroots movement in India innovation which was pioneered by the Honey Bee Network, SRISTI (Society for Research and Initiatives for Sustainable Technologies and Institutions) and NIF (National Innovation Foundation) are categorized in the "collaborative innovation activities" [24]. This movement provides important lessons for Indonesia, which also has a wealth of mega-biodiversity and abundant cultural diversity to optimize the potential of the knowledge society in order to have a better competitiveness [25].

Table 1. The Comparison between GRIs and Innovations in Formal Sector [21]

Factors	Grassroots Innovators	Research Institute	Enterprise
Innovation Environment	Little access to research materials, facilities, information, outside support, etc; usually located on the village or towns	City and lab; far from the market, access to the research materials, facilities, outside support, information, etc	Access to research materials, facilities, information, outside support, etc : close to the market, in the town and city
Government Support	Get little government support, especially financial support	Mainly depend on government support	Receive government support for product delivering public goods
Innovators	Large in number but scattered, poor, less educated, mainly work individually	Small in number, higher education, work in a team	The number is less than the grassroots innovators but more than researchers in the research institutes, work in a team, most are highly educated
Motivations	Diverse Motivations	Project-Driven	Profit-Driven
Trigger	By chance, Diverse stimuli, Obvious	Intellectual Challenge	Opportunity
Process	Crossing the river by feeling the stones	Organized and planned around scientific outputs	Organized and planned around market
Innovation	Suitable to the local conditions, simple in technology and low cost, meet the missed demands	Suitable for research publication and patent application	Facing mass market
Diffusion	Many in public domain, their diffusion is spontaneous, unordered and slow, less commercialized	Not much attention given to diffusion	Diffusion through a commercial way
Impact	Benefit the poor	Provide base for further research	Benefit the consumers



Figure 4. Grassroots innovation from rural India (Ahmedabad, 2015, photo taken by Author)

- | |
|--|
| <p>1. Low cost wind mill / 2. Latest vertical wind mill / 3. Natural water cooler / 4. Cow dung pot making machine / 5. Bicycle hoe / 6. The Coconut tree climber / 7. Tree climber / 8. The bicycle operated pump</p> |
|--|

Unfortunately, the movement of grassroots innovation in Indonesia has not developed as in India and China. Although many programs and institutional innovations that have been established in Indonesia such as the National Innovation Committee (KIN), Regional Innovation Systems (SIDa), Unit of Technology Services (Posyantek), Appropriate Technology Exhibition, and so forth, it seems not yet optimal able to lift local innovators to do more in the development of technology in Indonesia. The majority are "state-driven" with the old paradigm: community are user of technology, not a source of innovation. Even grassroots innovators - including SMEs - often drowned because of the lack of

guidance, validation and commercialization of their product innovation. From a policy perspective, it shows the weakness of the interconnections between elements of the innovation system in Indonesia [26]. Hence do not be surprised if the patents produced in Indonesia is losing much of India and China (Figures 5 & 6).

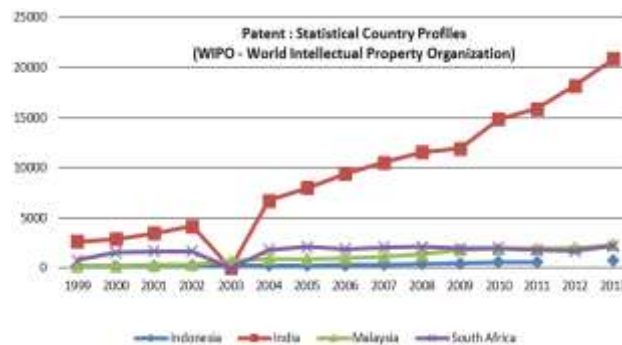


Figure 5. Comparison of Patents between Indonesia, India, Malaysia and South Africa (1999-2013) [27]

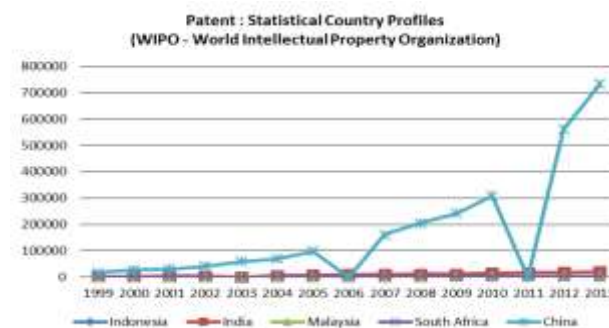


Figure 6. Comparison of Patents between Indonesia, India, Malaysia, South Africa and China (1999-2013) [27]

One reason is the perception that anyone who could produce patents are those derived from formal research institutions and highly educated. Whereas the number of formal scientific institutions is very small when compared with the community itself. Hence to push the number of patents, necessary a national innovation movement involving non-formal innovators (grassroots innovators) to jointly conduct patenting the results of their innovation. National innovation System understood as a complex interaction between actors, institutions, networks, partnerships and productive processes that affect the performance of the technology (direction and speed of the development and diffusion of innovation and learning process) [28]. Concept of the National Innovation System in Indonesia know the three main users of technology: industry, individuals and communities as well as government institutions [29]. Thus the actual innovation system includes base of science and technology (including educational activities, activities of research, development, and engineering), the production base (including value-added activities to meet the needs of business and non-business as well as the general public), and utilization and diffusion in the community - particularly in rural areas - as well as growing the learning process.

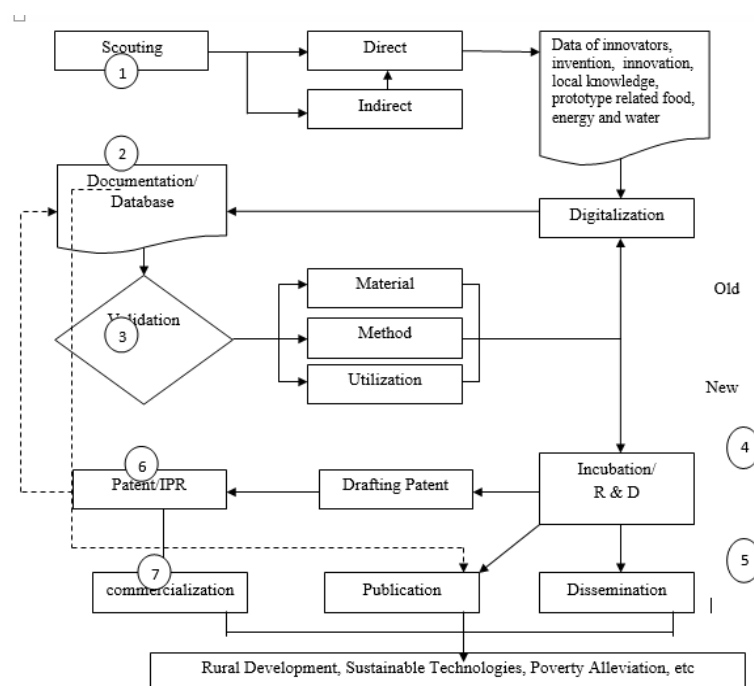


Figure 7. Flow of Grassroots Innovation Ecosystem for Rural's Sustainable Development

CONCLUSION

Paradigm of appropriate technology (AT) development and implementation in Indonesia should be changed from interventionist and formalistic way of thinking. AT institution, both government (CATdev) or non government (YDD), must see the society not only as a user or consumer of technology but also as a source of innovation or technology (and knowledge provider). Thus, AT will develop into a more "appropriate" by the creation of ecosystem for inclusive innovation. Inclusive innovation or grassroots development is a process of intentional social change that privileges the local organizing, visioning and decision making. It is an alternative to trickle-down approaches to local development in poor communities. When ecosystem of the grassroots innovations appear, then we will be able making sustainable solutions for low income communities. Automatically, its also created the open and democratic access to knowledge for grassroots. Government and academics has a role to making policy support for innovation to increasing patent and generating economic activities based on innovation at the grassroots. Some do - learn from grassroots innovation movement in India - are blending of formal and Informal science, Linking Academic, Government, Enterprise and Communities, at the same time also building innovators network for Giving voice to the grassroots Innovators. In the end, with such efforts, the sustainable development of rural-based technology will have expectations to grow and spread

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DETERMINATION OF METABOLIC SYNDROME (MetS) AMONG TRANSITIONAL COMMUNITY- COMPARISON BETWEEN ORANG ASLI AND MALAY RURAL AREA IN PERAK

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INTRODUCTION

Metabolic syndrome (MetS), which is also known as “Syndrome X,” was first described by Reaven in his 1988 Banting Lecture (1). The metabolic syndrome is a constellation of interrelated risk factors of metabolic origin. Metabolic risk factors that appear to directly promote the development of atherosclerotic cardiovascular disease (ASCVD) (2). The most widely recognized of the metabolic risk factors are dyslipidemia including elevated serum triglyceride, increased LDL, reduced level of HDL cholesterol (HDL-C), elevated blood pressure, and elevated plasma glucose due to insulin resistance, glucose intolerance and obesity (3) Many studies indicated the strong relationship between ethnic and genetic factors differences with the genesis of insulin resistance (4).

Transition community

Transition is process or period of changing from one condition to another (5), transitional community when the community is moving to urbanization from rural setting. It was about 25-26% Malaysian population living in rural areas as defined by national statistical offices in 2011-2015 (6,15). Since independence, the government of Malaysia has embarked on an inclusive development programme in efforts to develop the Orang Asli and rural community, these development has impacts on the rural and Orang Asli community(7), for example, there are about 869 Orang Asli villages throughout the country, 2% are located at the vicinity of existing townships, 61% in the outskirts of existing rural villages and 37 % are in the remote areas (8).

Metabolic Syndrome Definitions

The first definition for MetS was introduced by the World Health Organization (WHO) in 1998 (9) followed by the National Cholesterol Education Program Expert Panel (NCEP-ATP III) in 2001 was defined MetS according to 3 sets of criteria (2), International Diabetes Federation (IDF) in 2005 (10), and by joint interim statement of The International Diabetes Federation Task Force on Epidemiology and Prevention; National Heart, Lung, and Blood Institute; American Heart Association; World Heart Federation; International Atherosclerosis Society; and International Association for the Study of Obesity developed to JIS 2009 (10). The new JIS “harmonized” definition is expected to have the advantage of identifying a larger number of MetS cases in a population, MetS criteria in the modified NCEP-ATP III 2005 are very similar to those in JIS 2009 as shown in table 1(11).

Problem statement and rationale of study.

Malaysia is going to be a developed country by the year of 2020. With the rapid development in infrastructure, economy and social aspect, it will effect peoples’ lifestyle. The rural population will also affected with the rapid development. Some of them have been provided with and enjoyed modern facilities through the application of various development projects such as village resettlement programmes, rural roads, provision of electricity and water supply, social amenities, as well as access to education. (12) As a result of modernization, urbanization and rapid development, this group has to adopt to changes that occur around them. The major changes are in the lifestyle of the people such as dietary intake, physical activity, smoking and increase stress level which effect to their health such as developing Metabolic Syndrome. It is known now that persons with the metabolic syndrome are at essentially twice the risk for cardiovascular disease compared to those without the syndrome. There

was a study on prevalence of Metabolic Syndrome in Malaysia on major ethnic groups like Chinese, Malay and Indian subjects (13). A study by Osman et al 1993, found that the prevalence of Impaired Glucose Tolerance (IGT) and Diabetes Mellitus was 0.3% and 4.4% among the aborigines and 4.7% and 11.3% among the Malays respectively(14) is consider a baseline data. There was no study on Malaysian aborigines such as Orang Asli which consist less than 1% of Malaysian population. It is about 30% of Malay community are in the rural area and yet study on metabolic syndrome for this group. This study would be beneficial to recognize the status of Metabolic Syndrome in this special community for disease prevention and early intervention.

OBJECTIVES

To explore the magnitude of metabolic syndrome among aborigines and to compare with close Malay community.

METHODOLOGY

Study design and population.

A cross sectional study among Orang Asli community and Malay rural was done. Subject were selected in three-stages sampling process, selecting the district, then village and then followed by individuals within households. Firstly, identifying the transitional community of Orang Asli and Malay in the rural area. Two district in Perak state were chosen which were Batang Padang (rural) and Hulu Perak (remote rural) as the district has a biggest number of Orang Asli and more than 50% of their area were considered rural. Convenient sampling method was done in selecting the Orang Asli and Malay villages from each district. One Orang Asli village and one nearby comparable Malay village were identified from both district as a study population. The set of villages were in common in term of infrastructure and economic set up. The sample size was based on MetS prevalence of 32% among adult population (13) at least 273 adults sample were required. Thus about 50-70 adult subjects were selected in each cluster. Later, universal sampling of all adults who were fasting on data collection day. A standardized method of recruitment was adopted, in which announcements and invitations were made through local community leaders and distribution of an information leaflets regarding the study. All household members aged ≥ 18 years residing in each locality were invited to attend a screening session at their local community centre through verbal invitation. At the screening centre, subjects were screened for eligibility such as age and whether they were fasting more than 8 hours. The subjects were given information regarding the purpose of the study again and written informed consent were obtained.

Variables

Sociodemographic variables such as age, gender, ethnic, locality, marital status, occupation and education level were obtained. MetS variables including waist circumference, blood pressure, and blood for serum triglycerides, HDL cholesterol and fasting blood sugar were taken and sent to the laboratory. The NCEP ATP III criteria were used to determine the MetS. Subjects with at least 3 criteria were categorized as MetS table 1(11).

Table 1: Diagnostic criteria for metabolic syndrome (2,11)

Risk factors (RF)	Modified NCEP-ATP III (2005)	JIS (2009)
Waist circumference (WC)	M ≥ 90 cm F ≥ 80 cm (Asian)	M ≥ 90 cm F ≥ 80 cm(SEA)
Blood pressure (BP)	Systolic ≥ 130 and/or diastolic ≥ 85 mmHg or on treatment	Systolic ≥ 130 and/or diastolic ≥ 85 mmHg or on treatment
Fasting plasma glucose (FPG)	≥ 5.6 mmol/L or on treatment	≥ 5.6 mmol/L or on treatment
Triglycerides (TG)	≥ 1.7 mmol/L or on treatment	≥ 1.7 mmol/L or on treatment
High Density Lipoprotein Cholesterol (HDL-C)	M < 1.03 mmol/L F < 1.29 mmol/L or on treatment	M < 1.0 mmol/L F < 1.3 mmol/L or on treatment
Metabolic syndrome	At least 3 RF	At least 3 RF

Study protocol

The study protocol was approved by the institutional ethics committee and entry approval from related department such as Orang Asli development department and local leaders.

Data Collection

All interviewers and investigators were trained regarding the study procedures prior to the conduct of the study to minimize variability in the method of data collection. Standardized, interviewer-based questionnaires were used to collect information regarding age, gender, ethnic, locality, occupation and education level. WC was measured to the nearest 0.1 cm by using non-stretchable measuring tape with the subjects standing in a relaxed position and arms at the side. The measurement was taken at the midpoint between the lower rib margin (12th rib) and the iliac crest. BP were taken after the subjects were made to rest for at least 15 minutes on the right arm supported at heart level in sitting upright position. BP was measured twice, 2 minutes apart, using Omron automatic digital blood pressure monitor (Omron MX3). The average of the first and second measurements was used as the BP value for individual subjects. If the measurements differ by 5 mmHg of either systolic or diastolic readings, subsequent measurements were taken at 5–10 minutes apart. The process was repeated until two BP values which did not differ by more than 5 mmHg of either systolic or diastolic readings were obtained. The average of these two BP readings was used as the BP value for that particular subject.

Fasting venous blood samples were collected for plasma glucose and serum lipid profile (total cholesterol (TC), triglycerides (TG), low-density lipoprotein cholesterol (LDL-C), and high-density lipoprotein cholesterol (HDL-C) and were sent to identified accredited laboratory using Siemen RXL max HM analyser undergone scheduled planned preventive maintenance (PPM).

Statistical Analysis

All data were entered and analysed using SPSS version 17.0 and Epi Info 3.5.4. Categorical variables were described with frequency and percentage. The prevalence of MetS were computed. Odds ratio will presented with 95% Confidence Interval. Significance level was set at *P* value of <0.05.

RESULTS

A total of 294 respondents comprises of 135(46%) Orang Asli and 159(54%) Rural Malays. Mean age for Orang Asli was 36.7 years \pm 14.7 and 46.7 \pm 14.2 for Malay. The Orang Asli group were younger than Malay where 9.6% of the group \geq 60 years old, 20.7% in Malay. The age range for Orang Asli was 18 to 79 years old and 18 to 83 for Malay. Majority Orang Asli were female (69.6%) and 30.4% were male. In both group, majority of our respondents were married, the ethnic specific rate was 84.4% and 92.5% respectively. Orang Asli has lower education level compared to Malay, about 30% of Orang Asli had no formal education and 57% of Malay had received secondary education. As a housewife or unemployed were the common occupation category in both group, 54.1 and 44.3% respectively.

There were 4.1% have no MetS criteria, 23.1% with 1 criteria, 38.4% with 2 criteria, 25.5% with 3 criteria, 7.5% with 4 criteria and 1.4% with 5 criteria. It was different significantly between the 2 groups. Low HDL-C was the common criteria in both group, followed by elevated blood pressure and abdominal obesity. It was 44.9% of subjects were abdominal obesity and more prevalent among Malay compare with Orang Asli and the different was significant. The least common criteria was high fasting blood sugar (8.5%). There were significant difference between Orang Asli and Malay for all criteria except high HDL-C. Total of 101 (34.4%) of respondents were having MetS. There were 101(34.4%) subjects were detected to have MetS 69(43.4) Malay and 32(23.7) Orang Asli. It was significantly difference between the two groups ($p < 0.00$) (Table 2). The odd ratio of getting MetS between Malay and Orang Asli was 2.4677 with 95% CI (1.488-4.092) and *p* value 0.0005 (Table 3).

Table 2: Metabolic Syndrome Criteria

Criteria		Orang Asli No (% within category, %within Orang Asli)	Rural Malay No (%within category, %within Malay)	All No (%)
Waist circumference (WC)	M ≥ 90 cm, F ≥ 80 cm	50(37.0)	82(41.6)	132(44.9%)
		P= 0.013		
Systolic blood pressure or Diastolic blood pressure	SBP ≥ 130, DBP≥85	47(34.8)	94(59.1)	141(48.0%)
		P=0.000		
Fasting blood glucose	≥5.6 mmol/L or on treatment for elevated glucose	6(4.4)	19(11.9)	25(8.5%)
		P=0.021		
Triglyceride	≥1.7 mmol/L or on treatment for TG	30(22.2)	58(36.5)	88(29.9%)
		P=0.008		
HDL cholesterol	M < 1.03 mmol/L F < 1.29 mmol/L or on treatment for HDL-C	117(86.7)	123(77.4)	148(50.3%)
		P=0.246		
Number of risks factor	0	9(6.7)	3(1.9)	12(4.1)
	1	39(28.9)	29(18.2)	68(23.1)
	2	53(39.3)	60(37.7)	113(38.4)
	3	30(22.2)	45(28.3)	75(25.5)
	4	4(3)	18(11.3)	22(7.5)
	5	0(0)	4(2.5)	4(1.4)
		P = 0.002		
Total		135	159	294

n = 294

Table 3: Odds ratio

	Malay	Orang Asli	Total	P value
Metabolic Syndrome	69(43.4)	32(23.7)	101(34.4)	P=0.0000
Odds ratio	2.4677	95% CI (1.488-4.092)		P=0.0005

n=294, significance value ≤ 0.05

DISCUSSION

In this study transitional community was not spared from developing MetS. The prevalence (34.4) was at the higher level compare to Malaysia general population which was in the range of 8.3 to 34.9 % (13). The transitional community were also had high prevalence of abdominal obesity (44.9%) which indicate that either they were inactive or sedentary lifestyle and high calorie diet. The inactive lifestyle also reflected by low HDL-C level which were common MetS criteria (50.3%) in this study. The prevalence of impaired fasting blood sugar was higher 4.4% (Orang Asli) and 11.9(Malay) than the previous study 0.3% (Orang Asli and 4.7(Malay)(14). There were 38.4% of potential subjects who have 2 criteria which may become MetS in the future. There were significant number of subjects having 4 and 5 criteria and may already have cardiovascular disease. The odds ratio showed the Malay was 2.5 more likely to have MetS compare to Orang Asli.

CONCLUSION

Metabolic syndrome is an alarming level in transitional community with the prevalence was higher prevalence compare to Malaysia general population and results showed this community were also have higher risk to develop cardiovascular disease. Health promotion activity on cardiovascular disease prevention need to initiate in this community.

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ENERGY CONSUMPTIONS AND CARBON EMISSIONS IN FELDA TAIB ANDAK COMMUNITY, KULAJAYA, JOHOR

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ABSTRACT

Rapid economic growth has caused an increase in rural community energy consumption and carbon emission structure. In some developed country, energy consumption in rural area has exceeded the energy consumption for industrial sector. But less study have been done on rural community energy consumption and carbon emission. Therefore this paper focused on the level of energy consumption and carbon emission in Malaysian rural area by using FelDa Taib Andak community as a case study. Carbon emission of FelDa Taib Andak community involved household, non-household and palm oil elements. Then the household and non-household element were divided into a few sector based on energy consumption. The sectors are electricity, domestic water supply, LPG, transportation, and solid waste. While for palm oil elements it only divided into oil palm plantation and production of crude palm oil (CPO). For household element, energy consumption data were obtained from questionnaire survey that involved 220 houses which done in November 2015. Non-household element involved 15 shops and 14 office and public facility building, palm oil mill and palm oil plantation. Carbon emissions were calculated by using emission factor approach technique and were analyzed using descriptive analysis in order to show the carbon emission total and percentage by each element. From the analysis we found out that the total annual carbon emission for FelDa Taib Andak community is 21,519.10 tCO₂eq and 80.26% of the total carbon emission contributed from palm oil elements, followed by household (17.33%) and non-household (2.40%). Then by using correlation analysis we determined the factors that influenced household and non-household energy consumption. The result of this study is expected reveal the current situation of carbon emission in Malaysian rural area. This study also provided guidelines to calculate carbon emission in Malaysian rural area especially in FelDa settlement scheme.

Key words: Energy consumption, carbon emission, emission factor approach

INTRODUCTION

In this globalization era the level of energy consumption all over the world shown a significant and alarming increase (Yao et al. 2012). The main source to generate energy for entire world is from non renewable source which is fossil fuel consists of coal, petroleum and natural gasses. (IPCC 2007). The consumption of energy especially generated from fossil fuel has become one of the main factors of carbon dioxide emission. Carbon dioxide is known as the main and largest component among green house gases. The statement that fossil fuel burning is the main contributor to carbon emission is supported by Gregg JS et al. 2008. They stated that fossil fuel burning represented 80% of overall carbon emission that caused by energy consumption in order to meet human daily activity.

Carbon emission is identified as one of the main contributor to the global warming issue which getting worse since 20th century (EPA 2014). The most crucial effect of global warming is climate change that surge entire world. The world climates became extreme, unpredictable and give negative impact to human life all over the world. Climate change phenomena also caused water supply shortage, drop in crops production and also threatening biodiversity and wild life (Kerr 2007). This situation then caused a chaos among mankind and all living things in entire world. The link between human daily activities and carbon emission also stated in the report published by Intergovernmental Panel on Climate Change (IPCC) on 2007. According to this report, carbon dioxide is the main green house gasses that produced and emitted from human activities. Uncontrolled energy consumption in

carrying out human activities for sure will increase more carbon emission. Malaysia also shared the same situation with most of the human daily activities is generated by fossil fuel (KeTTHA 2011). The main source to generate electricity in Malaysia is from coal burning while the main source for vehicle are petroleum and diesel and natural gasses are the main energy sources for cooking. To meet all this human daily activities for sure a mass amount of energy need to be generated and indirectly this will also increased carbon emission amount.

The increase of energy consumption has getting serious and these situations not only occur in urban area but also in rural area. In China, carbon emission has increased significantly from 152.22 million tan in year 2001 to 283.58 million tan in year 2008 (Yao et al. 2012). This statistic is caused by the increase of energy consumption by rural community in China. This situation not only occurred in China but also spread to a global scale includes Malaysia. Residential is one of the main land use components in rural area. In some developed countries, energy consumption for household has exceeded the energy consumption for industrial sector and recorded as the majority of overall energy consumption proportion (Wang & Yang 2014). This statement proved that energy consumption among household includes rural household also increased by exceeding the level of energy consumption for industrial sector, a sector that surely need a greater amount of energy. Household energy consumption usually divided into consumption of electricity, domestic water supply, cooking gas and also use of vehicle to fulfill all household activities. However study on energy consumption and carbon emission were mostly done in urban area and very limited study on this topic were done in rural area (Eluwa & Ho 2012). Due to the increase of energy consumption level also involving rural area, so it is fair for us to carry out this study in Malaysian rural area. Therefore this paper will evaluate and study on current energy consumption among rural household in Malaysia. The objective is to have a clear view on current energy consumption and also identify what are the factors that influence the level of rural household energy consumption in Malaysia.

Study Area

The study area is known as Felda Taib Andak and it is located in Senai sub district, Kulaijaya District, Johor Darul Takzim. Felda is a Federal Land Development Authority, a Malaysian government agency initially founded to manage and resettlement of rural poor community into newly developed areas and into newly developed and planned areas. It also responsible to organize smallholders farms planting and growing commercial crops. Felda was formed on 1 July 1956 and then was launched in 1957. The main crops were rubber but after then were change into palm oil in 1961 after the world price of rubber were to drop precipitously. Felda Taib Andak is the first Felda scheme in Johor State and officially launched on 1960. It is located near to main development centre like Johor Bahru City Centre, Senai Airport and Kulaijaya City Centre. It just about 9 kilometers from Kulaijaya City Center and 17 kilometers from Senai Airport. Felda Taib Andak is categorized as rural area and now there are about 620 families the population of 3,224 local residents. Total area for this settlement is 3,202 hectares includes crop and village area. Apart from residential and plantation, this community also equipped with a number of facilities like primary schools, clinic, shops, police station, mosque and community hall. Felda Taib Andak was choosed by Johor Baharu Felda Regional office and Iskandar Regional Development Authority (IRDA) as a low carbon village. Felda community is a rural community with a mix land use and large population in Malaysia which possibly lead to high household energy consumption. The selection of Felda community as a study area for this paper is due to this reasons.

Scope of the Study

This study involved household and non-household energy consumption and carbon emission among Felda Taib Andak community. Energy consumption considered in this study consist of the consumption of electricity, LPG, domestic water and transportation, production of solid waste, production of palm oil mill and palm oil plantation. The relationship between energy consumption level and some relevant household characteristics were also tested in this study.

LITERATURE REVIEW

To ensure this study clear a number of elements related to household's energy consumption need to be explained and understand first. The explanation will cover the concept of carbon emission and energy consumption, energy consumption indicators, and also factors that influence household's energy consumption.

Definition of Carbon Emission

According to Ecolife dictionary, carbon emission can be defines as the emission of carbon into the atmosphere. Another definition is the emission of greenhouse gasses (GHG) in a certain area and period (OECD, 2005). Carbon emission is closely related with the emission of GHG which is one of the main contributors of global warming phenomenal. GHG emission were always accounted and standardized into the carbon equivalent unit. Therefore the term carbon emission is used when discussing about global warming and effect of GHG emission. From all the above definitions, carbon emission can be conclude as the emission of carbon dioxide and other dioxide gasses into the atmosphere which later will be standardized into carbon equivalent unit.

Concept of Energy Consumption

The concept of energy consumption is a subset for ecological footprint concept introduced by Wackernagel and Ress in 1966 (Pandey et al. 2010). This concept has been used since a few decades ago but known differently as life cycle impact category indicator global warming potential. Then this concept was improved from time to time based on recent research. According to Bin and Dowlatabadi (2005), consumers use energy directly and they also need to buy and use certain products to meet their basic needs. The production and processing of these commodities can lead to extensive energy consumption.

Therefore, energy consumption can be divided into direct and indirect energy consumption. Direct energy consumption refers to the energy consumed to meet residents direct energy demands, such as the energy used for lighting and heating. While indirect energy consumption refers to the energy used in the production process of various goods and services, such as clothing, food, and housing and travel (Wang & 2014). If a consumer's activity results in energy uses and CO₂ emissions while consuming products or services, it is called direct influences; and where energy uses and CO₂ emissions occur in the production of a product or service is known as indirect influences. For example, driving a car leads to direct influences, as gasoline is used. However, there are indirect impacts related to the manufacturing of cars, as well as to their maintenance. According to existing literature, the indirect energy consumption is much higher than direct energy consumption (Reinders et al., 2003; Wei et al., 2007; Park and Heo, 2007; Feng et al., 2011). In the current context of rapid economic growth and energy consumption, therefore, it is critical to analyze the household changes in indirect energy consumption and the underlying reasons for these changes.

Table 1: List of energy consumption

Direct energy consumption	Indirect energy consumption
Lighting, cooling and heating, cooking, entertainment, transportation and cleaning.	Food, clothing, household facilities and services, medicine and medical services, transport and communication services, residences, educational-cultural-recreational services.

Source: Wang & Yang 2014

Energy Consumption Indicators

Study on energy consumption can be done by using energy expenditure (or the dollar amount spent on energy) and unified metrics to measure energy consumption. From the energy expenditure we can convert it into specific energy units. Measuring energy consumption from expenditures can provide inadequate measures. Surveys frequently ask respondents to recall the expenditure spent on utilities at a particular point in time. Measuring energy consumption in this manner can provide inadequate measures of actual consumption because of recall or reporting biases and demonstrate modest correlations between perceived and actual energy use (Gatersleben et al., 2002). Most studies have

used specific energy units, such as BTUs, kilowatt hours, “giga joules,” as indicators of energy consumption. The energy units may vary depends on country and for Malaysia the energy units used is kilowatt hours for electricity and m³ for domestic water supply

Households Energy Consumption Factors

A previous study has identified the factors that influence household’s energy consumption. According to Sirichotpundit et al 2013, there are three factors that can significantly affect the consumption of household’s energy in Bangkok Metropolitan area. The factors are physical and structural, social and cultural, economic, communication and information and lastly psychological factors.

Table 2: Households energy consumption factors

Physical and Structural	Types of house, house area, location, household size and household appliances.
Social and Cultural	Education level and income
Economical	Household expenditure
Communication and Information	Industry source, government source, profesional, interpersonal, rules and regulation, and public information.
Psychological	Attitudes, knowledge.

Source: Sirichotpundit et al. 2013

All of these listed factors will influence the household’s energy consumption in order to fulfill all the household needs. In another study by Zheng et al. 2014, they have identified 6 factors that influence household energy consumption. The factors were household demographics, dwelling characteristics, household appliances, space heating and cooling, patterns of private transportation, and electricity billing, metering, and pricing options as the factors of household energy consumption in China. Table 3 describes in detail each identified factor from this study.

Table 3: Households energy consumption factors

Household demographics	Household size, household education level, household average annual income and household average annual expenditure.
Dwelling characteristics	Types of house, house average gross area and net area, number of living rooms and bedrooms
Kitchen and home appliances	Number and type of home appliances, type of cooking devices
Space heating and cooling	Types and system of heating and cooling use by household.
Residential transportation	Types of transportation, average daily travel frequency, and types of vehicle owned by household.
Electricity billing, metering, and pricing options	Electricity payment method, meter location, selection of time pricing, rules and regulation, and public information

Source: Zheng et al. 2014

There were factors that listed from both of the studies. The factors are types of house, household size, household educational level, household income and expenditure, home appliances, rules and regulation and public information.

DATA AND METHODOLOGY

Data

In most developing countries, data availability of rural energy system is an inherent problem because data collection is mainly recalled-based (Malhotra et al., 2002). The same situation occurred in Malaysia where the availability on rural energy consumption is very low. For this study the required primary data is household characteristic, consumption of electricity, consumption of domestic water supply and ownership and consumption of transportation. Household characteristics data included household size, household income and educational level. The data for electricity, LPG and domestic water supply consumption were collected from expenditure for three months in order to get the monthly average consumption. Production of solid waste data was collected by identifying total weight produced by type per month. While for transportation the collected data included average daily travel for weekdays and weekends and also the type of vehicle. The monthly average travel is

estimated from the average daily travel from both household and non-household elements. Then the annual travel distance were estimated based on the monthly travel data. The data collection is done through random survey from house to house by using questionnaire on 2015. A number of 220 houses from total 620 houses were involved in this study which is equivalent to a 35.48 percent sampling ratio. Data collection process was assisted by four trained research assistants.

Methodology

The main purpose of this study is to indicate the level of energy consumption and carbon emission and also to determine factor that influence the household energy utilization among Felda Taib Andak community. Therefore the data of energy consumption and carbon emission were analyzed by using a simple but clear method. We used descriptive analysis in order to show the frequency and percentage for each data. The data also divided into suitable scale so that the data display will be more systematic and simplify. There are a few establish approach and technique that can be used to calculate carbon emission. . The calculation of carbon emission is based on Emission Factor Approach as recommended by GHG-WRI (2011). To determine the factors that influence household energy utilization, this research apply correlation analysis. From the literature review we have identified some factors that might affect the household energy consumption level. By using correlation analysis we were able to identify significant factors that influence household energy consumption in this community.

RESULT

There are several findings of the research. Among the findings is (1) energy consumption, transportation mode and distance travel by Felda Taib Andak community, (2) total and percentage of carbon emission by elements and components, (3) factors that influence energy utilization in Felda Taib settlement scheme.

Carbon Emission by Elements

Energy utilization and carbon emission data will be display by elements and components in order to determine the elements and components that should be focus in the stage of forming mitigation measures. For household, office, facility and shop element, data are display based on the carbon emission from the utilization of electricity, domestic water, LPG, transportation and also from the solid waste generated. While for palm oil plantation and palm oil factory production, we only display the overall amount of carbon emission. This is due to the emission factor that we used already sum up all the carbon emission from the beginning till the end of process.

Household

There are 620 houses in Felda Taib Andak and with the population of 3,224 local residents. Based on Table 8.0, component that generated the most carbon is electricity utilization with 1,945.12 tco2 eq (52.12 %) per year. Based on the survey data, monthly electricity utilization per household is 350 kWh. The second component is transportation utilization with total emission of 1,542.10 (41.35 %) per year. Mitigation measures for household should focus on both of these components as both of it recorded the highest carbon emission.

Table 4.: Annual Household Energy Consumption and Carbon Emission

	Annual Energy Utilization	Annual Carbon Emission (tco2 eq)	Percentage
Electricity	2,603,974.96 kWh	1,945.12	52.71
Domestic Water	294,918.97 m ³	123.75	3.35
LPG	97,530.06 kg	20.97	0.57
Transportation	9,781,288.36 km	1,542.10	41.79
Solid Waste	58,226.45 kg	58.23	1.58
Total		3,690.17	100.00

(Source: Process from Primary Data, 2015)

From the household survey we also able to identified transportation mode and distance travelled by the community. From 220 household, a number of 679 trips were generated monthly and the main transportation mode is motorcycle with 342 trips monthly. Then follow by car with 322 trips, van n bus (7 trips), and lorry and bicycle with only 1 trip per month. However car recorded the monthly highest travel distance with 53,577.81 km. Motorcycle recorded the second highest travel distance with 46,717.71 km per month. Detail transportation mode and distance travelled by each mode can be referred on Table 9.0 below.

Table 5: Monthly Transportation Mode and Travel Distance

Mode	Trip Generated	%	Travel Distance	%
Motorcycle	342	50.29	46,717.71	45.42
Car	322	47.35	53,399.74	51.91
Van	7	1.03	1135.50	1.10
Lorry	7	1.03	450	0.93
Bus	1	0.15	960	0.44
Bicycle	1	0.15	200	0.19
Total	680	100.00	102,863.84	100.00

(Source: Process from Primary Data, 2015)

From 680 trips generated per month, only 1 trip is by bicycle. The rest 679 were by motorized vehicle that emit carbon.

i. Non-Household (Office, facility and shop)

Annual carbon emission for non-household elements in Felda Taib Andak is 516.24 tco2 eq. For non-household element, electricity recorded the highest carbon emission with 407.36 tco2 eq per year which are 78.91% from total annual emission. Second component that recorded the highest emission is transportation. Transportation recorded 57.15 tco2 eq which is 11.07 % from total emission. The lowest emission is recorded by LPG utilization with 3.32 tco2 eq per year. Same like household element, the mitigation measures to reduce carbon emission in non-household elements should also focus on electricity and transportation components.

Table 6: Annual Non-Household Energy Consumption and Carbon Emission

	Annual Energy Utilization	Annual Carbon Emission (tco ² eq)	Percentage
Electricity	545324.98 kWh	407.36	78.64
Domestic Water	64223.94 m ³	26.91	5.19
LPG	15440.95 kg	3.32	0.64
Transportation	228928 km	58.90	11.37
Solid Waste	19536.98 kg	21.5	4.15
Total		517.99	100.00

(Source: Process from Primary Data, 2015)

ii. Palm Oil Sector

Energy utilization in palm oil sector consists of energy utilization in the palm oil plantation process and also in the crude palm oil (CPO) production process in palm oil mill. Carbon emission for both of this process is calculated based on the total production of fresh fruit bunches in palm oil plantation and also based on the total production of CPO. Annual carbon emission from palm oil mill is 14,561.96 tco2 eq. CPO production recorded the highest emission with 14,561.96 tco2 eq which is 84.31% from total palm oil sector annual emission. While process and activities in palm oil plantation contribute 15.69% from total emission with the amount of 2,709.87 tco2 eq per year.

Table 7: Annual Palm Oil Sector Carbon Emission

	Annual Production	Annual Carbon Emission (tco ² eq)	Percentage
Palm Oil Plantation	22,272.00 t FFB	2,709.87	15.69
Palm Oil Mill	64,223.94 t CPO	14,561.96	84.31
Total		17,271.83	100.00

(Source: Process from Primary Data, 2015)

iii. Total Carbon Emission

The total amount of Felda Taib Andak annual carbon emission is 21,517.35 t co₂ eq. Table 12.0 below show the total amount of all three elements involved in this research and the highest carbon emission is recorded from palm oil sector, follow by household and non-household element. Palm oil sector recorded 17,271.83 tco₂ eq per year which represent 80.27% from total carbon emission.

Table 8: Overall Carbon Emission

Element	Annual Carbon Emission (tco ₂ eq)	Percentage
Household	3,690.17	17.18
Non-Household	517.99	2.41
Palm Oil Sector	17,271.83	80.41
Total	21,479.99	100.00

(Source: Process from Primary Data, 2015)

Factors That Influence Energy Utilization

Analysis to determine the factors that influence energy utilization only done for household and non-household element because only this two elements can be break into a detail component e.g. electricity, domestic water, LPG, transportation and solid waste.

i. Household Element

Factor that might influence household energy utilization is divided into two categories which are household profile and household appliances. From correlation analysis we have identified eight factors that influenced household energy utilization.

Table 9: Relationship between household profile and energy utilization

Factors		Electricity Utilization	Domestic Utilization	Water LPG Utilization
Number Of Household	Pearson Correlation	.422**	.548**	.531**
	Sig. (2-tailed)	.000	.000	.000
	N	210	210	210
Size Of House	Pearson Correlation	.138*	.143*	.067
	Sig. (2-tailed)	.045	.039	.333
	N	210	210	210
Number Of Bedroom	Pearson Correlation	.398**	.326**	.105
	Sig. (2-tailed)	.000	.000	.130
	N	210	210	210
Number Of Floor	Pearson Correlation	-.059	-.180**	-.194**
	Sig. (2-tailed)	.398	.009	.005
	N	210	210	210
Household Total Income	Pearson Correlation	.452**	.323**	.208**
	Sig. (2-tailed)	.000	.000	.002
	N	220	220	220
Age	Pearson Correlation	-.135*	-.069	-.051
	Sig. (2-tailed)	.045	.305	.451
	N	220	220	220
Household Educational Status	Pearson Correlation	.133*	.020	.021
	Sig. (2-tailed)	.049	.773	.762
	N	220	220	220

*. Correlation is significant at the 0.05 level (2-tailed).

** . Correlation is significant at the 0.01 level (2-tailed).

All seven factors have a positive relationship with the energy utilization but only a medium and weak relationship. Only correlation above than .710 is considered strong correlation, while correlation at .51 - .70 is considered medium and below .5 is considered low correlation. Household appliances factor that influenced energy utilization is shown in Table 15 below.

Table 10: Relationship between electrical appliances and energy utilization

Factors		Electricity Utilization	Domestic Utilization	Water LPG Utilization
Fan	Pearson Correlation	.270**	.121	.120
	Sig. (2-tailed)	.000	.095	.075
	N	220	220	220
Air Conditioner	Pearson Correlation	.379**	.105	-.028
	Sig. (2-tailed)	.000	.341	.800
	N	84	84	84
Oven	Pearson Correlation	.227*	.191*	.196*
	Sig. (2-tailed)	.012	.035	.030
	N	123	123	123
Gadget	Pearson Correlation	.522**	.274*	.089
	Sig. (2-tailed)	.000	.026	.477
	N	66	66	66
Laptop	Pearson Correlation	.383**	.235	.182
	Sig. (2-tailed)	.000	.101	.043
	N	124	124	124
Washing Machine	Pearson Correlation	.117	.230**	-.024
	Sig. (2-tailed)	.085	.001	.728
	N	219	219	219

*. Correlation is significant at the 0.05 level (2-tailed).

** . Correlation is significant at the 0.01 level (2-tailed).

From the analysis we have identified five home appliances that influenced electrical utilization and four home appliances influenced domestic water consumption in a positive relationship. All this home appliances only recorded a medium and low correlation with the household energy utilization.

CONCLUSION

Based on the research finding, palm oil sector is identified as the largest contributor of carbon emission in FELDA Taib Andak community and accounted for 80.41% of total annual carbon emission. Mitigation measures should focused on palm oil sector in order to reduce carbon emission in this community. While for household element, more focus should be put on identified factors that influenced energy consumption so that efficient mitigation measures among household energy consumption can be plan well. This research aims to investigate the current situation of energy utilization and carbon emission in Malaysian rural area. This is due to most of the previous research stated that rural area also recorded an alarming increasing. Therefore it is highly recommended that this research is widened and also involved traditional village in Malaysia. The land use pattern in Felda settlement and traditional village is different. Therefore the energy utilization of traditional village might be different with Felda settlement. By also involving traditional village, it will be able to give a clearer and comprehensive view on rural energy utilization and carbon emission in Malaysia. The scope of this research also can be widen more as this research cover carbon emission of scope 1, scope 2 and only part of scope 3.

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FACTORS INFLUENCING THE ACCEPTANCE OF SOLAR ENERGY IN SOUTH HUVADHOO ATOLL, MALDIVES

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ABSTRACT

Energy has become an essential part of our livelihood but the sources we are using are depleting and non-renewable. To procure a better future the need for cleaner and reliable resources for energy is essential. In case of Maldives, the energy is not cheap, due to non-availability of energy resources and needs for imported fossil fuel. The characteristics of atoll islands requires each island to have a power plant using fossil fuel and the fuel storage availability is limited, making the electricity in these islands unstable and costly. To overcome this problem, the government has introduced solar energy. Despite the high government subsidy and the effort by government, the usage of solar energy is uncommon. The study aimed to study the factors influencing acceptance of the solar energy. From South Huvadho atoll 119 samples were collected via electronic survey. The data obtained from questionnaires were analyzed using SPSS program. The test shows that majority of respondents were willing to go for solar energy source for electrification due to the current high electricity bills. The favorable attitude toward solar energy was positive but weak correlated with level of knowledge that people have. A binary logistic regression analysis was performed to predict the factors for acceptance of solar energy. The result shows that out of all variables tested, people's attitudes, income, occupation and electricity bill are significantly influential on the acceptance of solar energy. The presumptions for policy makers are increase the knowledge and awareness of the people to elevate a positive attitude and involve private sector to increase competition and utility in the field.

Key words: Solar energy, South Huvadho Atoll, Maldives, Electrification.

INTRODUCTION

Energy is an indicator and a key factor to the development and progress of a nation. However, the use of fossil fuel in order to produce energy is hindering the development of the nations. The resources used are not replaceable and limited. Further, the increases in population and technology improvement have led to accelerate demand for energy. The excessive use of fossil fuel has also caused global warming and health problem of the world population. The climate change effect on the earth due to increasing pollution and CO₂ are impeding the development of the emerging nation and destroying the developed nations. Therefore, many countries are now seeking for alternative energy such as solar and wind which is unlimited and renewable in order to substitute for the harmful energy generating resources.

The clean sources of energy help minimize pollution and zero emission. It ensures the stability of energy prices and once installed the production costs are less. Moreover, it gives domestic energy security through reduction in dependency on imported fuel sources. Maldives is a coral island country consist of 1,190 islands which are scattered around an area of 298 km² separated by sea. The country does not have any conventional energy sources and a main source of energy is petroleum. The power systems rely on imported fossil fuel. Maldives electricity supply is inefficient and unreliable. The limited capacity of oil storage facilities interfere with the bulk purchasing of oil when the price is low.

The country spends almost 30% of its GDP on import of petroleum. The share of petroleum products in total imports rose to 29% in 2014, from only 16% in 1990. The Maldives spent \$572 million for imported fuel 33% or roughly 19% of the country's GDP in 2014 (MMA May 2015). In order to make electricity affordable to all, the government has to give subsidies. However, subsidies are increasing year by year and it has become a big burden of Government budget. Total cost of subsidies in 2010, was around US\$ 5 million and in 2015, government spend US\$46 million as

subsidies. (energy, 2014) Maldives is among the highest cost of electricity generation in South Asia-30-40 US\$ cents per kWh in the larger islands, and even higher in the remote small islands. (plan, 2014). In Maldives, three companies provide electricity for whole country. The State electric company private limited provide electricity to 13 islands (these 13 islands are named as Greater male' regions) and FENAKA cooperation provide electricity to 149 islands around the country and Maldives water sewerage company provide electricity to 1 island , its mostly renewable energy. Remaining islands get electricity from local powerhouse managed by the island council. There is an increase in the energy consumption (MWh) of the greater male and other atolls from the year 2010, 2011 to 2012. It shows an increase in growth rate of specific electricity consumption (kwh/capital) in greater male regions from 4.13% in 2011 to 6.09% in 2012. In addition, there is an increase in the estimated electricity consumption in other atolls during 2010 to 2012. Annual growth rate of consumption of electricity is 21%. (Energy demand and supply report of 2011 to 2012, 2014)

For Maldives, going for renewable energy is just not the matter of protecting environment but also for physical and economic conditions of the country. It is essential that the country must have stable electricity without depending on other country. To prevent complete black down of the country and having a stable economy the government is working on different policies and strategies. According to Government policy 2015, country gives important on providing reliable and sustainable electricity service and it aims to achieve 30 percent of daytime peak load of electricity in all inhabited islands from renewable energy sources by 2020. In order to achieve these targets, the country is implementing different solar energy projects in different islands. The resorts are revolving in to clean energy sources for its production. Under different projects, 7 islands have installed solar Photovoltaic system. They are DH Kudahuvadhoo, G DH Thiandhoo, villi male', Hulhumale, V Rakeedhoo and A DH Dhidhoo. In addition to this, resorts named Gas finolhu is a 100% clean energy resort and there are other resorts that produce some percentage electricity using clean energy

The project named Maldives climate change trust fund, which is supported by ADB (Asian development bank) a clean energy for climate mitigation project was implemented in G DH (South Huvadhoo) Thinadhoo Island, where 558wp solar PV system was installed. The project produced electricity supply of 300MWh annually from renewable energy and carbon emissions avoided of about 180 tCO₂. (Abu Amara, van der Veen, & Rienk Bloembergen, 2011). However to become completely independent in solar energy for electricity production and to reduce the cost of electricity production, the country need the participation of the population. It is essential to adopt solar energy at household level in order to reduce the burden of electricity cost. In order to promote the RE, the government has launched a Net Metering regulation where privately produced electricity or RE can be connected to the utility power grids. In addition to this Maldives bank introduces Green fund for clean energy initiatives. Being a tropical country, out of all RE resources solar energy is easily applicable. Solar energy means Energy created by using the sun radiation. Solar electricity / power is produced by converting sunlight in to electricity directly or indirectly using photovoltaics (PV) and concentrated solar power (CSP) . Despite the high government subsidy and the effort by government, the usage of solar energy is still uncommon. Therefore, it is necessary to know people's attitude toward solar energy and investigate factors that influencing people's acceptances of the solar energy sources.

MATERIAL AND METHODS

This study was conducted in south Huvadhoo atoll, where there are 9 uninhabited islands with a population of 11587 (Census 2014) and Number of households are 2186 (Census 2014). The survey questionnaire consisting dichotomous and Likert scale type questions was used. The dichotomous type of question is where respondents have only two choices (Yes or No) (Opeyemi Akinwale, Olalekan Ogundari, Eniola Illevbare, & Oluwaseun Adepoju, 2014) to determine whether they agree or disagree on certain statement. The Likert scale questions were formulated as three scale questions. The study aims to find the perception of the respondent, not the degree on their perception. The questionnaire was constructed in google form and was distributed to the islands through internet. The data was collected through interview and online survey in a period of 2 month. As a results, there were 119 respondents participated in the electronic survey.

Measurements

The knowledge of solar energy is tested by using 26 questions. The score computed by adding all the “yes” answers given by the respondents. Up on that again the sample was categorized to two classes named high level of knowledge and low level of knowledge. The respondents, who scored more than 13 (13/26) was categorized as having high level of knowledge and vice versa. The attitude question was scaled with 3 scale with is whether the respondent agrees with the matter, the score is given (2) or disagree (0) or neutral (1). A Score was computed by adding the score of each represents. The highest score can be obtained is 14 from 7 questions. The respondents that scored more than 7 are classified as respondents with high level of attitude and vice versa.

The questionnaire was send to many people through internet but at the end only 119 respondents showed up. Once the data was collected, the statistic package SPSS 20.0 was used to conduct descriptive statistics, Chi square test and binary logistic regression in order to examine the factors influencing the acceptance of solar energy. The chi-square test is a test for association, if *p*-value is less than 0.1 the null hypothesis is rejected and the variable have an association between each other in social science. It should be mentioned that although many different demographic and socioeconomic factors were examined, in the following analysis only statistically significant results (*p*-value = 0.1) are taken in to the regression model.

RESULTS

Descriptive statistics

All together 119 people participated in the online questionnaire survey from 9 islands with 52.1% of the respondents being women. Average age of the respondents is 37.11 years (median: 34, min: 20 max: 76). Regarding educational level, the majority of the respondents held Certificate or Diploma (32.8%). As for occupation, 39.5% of the respondents were government officers. As for the income 26.1% of respondents gets a salary higher than 12000MVR (Maldives Rufiyaa) followed by 25.2% of respondents earn income between 6001 to 9000MVR. On an average the income earned by respondents are between 6001-9000MRV per month. As per the question of whether the respondent is environment concern person or not 60.5% of people stated that they are concerned about the environment (Table 1). Household electricity situation shows that 46.2 % of household are sharing the electricity bill, but the average household electricity condition is one house having more than one meter in the house. In term of electricity bill 45.4% of household have a bill above 1001MVR. Average of respondent household is 1359.15MRV (median: 1000, min: 50, max: 15000). While 71.4 % respondents states that their electricity is stable and 84.9% of respondents are not satisfied with the electricity prices or electricity tariff. Out of 119 respondents, 95% people prefer to have renewable source of energy for electrification (Table1).

Table1: The General characteristics of the sample

General characters	Mean	Categories	Will you use solar Energy?		Asymp. Sig. (2-sided)
			No	Yes	
Age	37.11	35 below	7 (10.3%)	61(89.7%)	^a 0.730
		36-45	2 (10.5%)	17 (89.5%)	
		56 or above	5(15.6%)	27 (84.4%)	
Sex	Female	Male	6 (10.5%)	51(89.5%)	^a 0.688
		Female	8 (12.9%)	54 (87.1%)	
Education	Certificate / diploma	Primary	3(15.0%)	17(85.0%)	^a 0.513
		Secondary	5(15.2%)	28(84.8%)	
		Certificate / diploma	5(12.8%)	34(87.2%)	
		Bachelor degree and above	1(3.7%)	26(96.3%)	
Occupation	Government Officers	non	3(16.7%)	15(83.3%)	^c 0.121
		Government Officer	2(4.3%)	45(95.7%)	
		Fisherman	0(0.0%)	4(100.0%)	
		Farmer	1(25.0%)	3(75.0%)	
		JOB	6(23.1%)	20(76.9%)	
Income	6001 – 9000 MVR	Own business	2(10.0%)	18(90.0%)	^c 0.145
		below 3000	6(20.7%)	23(79.3%)	

		6001 - 9000	2(6.7%)	28(93.3%)	
		9000 -12000	3(13.6%)	19(86.4%)	
		12000 above	1(3.2%)	30(96.8%)	
Status of marriage	Married	Married	9(10.3%)	78(89.7%)	c 0.400
		Divorced	1(14.3%)	6(85.7%)	
		Widow	1(33.3%)	2(66.7%)	
		Single	3(13.6%)	19(86.4%)	
Person concern of Environment	An environment concern person	No/not much concern	6(12.8%)	41(87.2%)	b 1
		One meter (Bill sharing)	7(12.7%)	48(87.3%)	
		2 or more meters in one house	1(4.0%)	24(96.0%)	
Electricity Conditions	2 or more meters in one house	One meter (Bill not sharing)	6(15.4%)	33(84.6%)	c 0.432
		below 500	5(23.8%)	16(76.2%)	
Electricity bill	1000 MVR	501 - 1000	6(13.6%)	38(86.4%)	a 0.079*
		above 1001	3(5.6%)	51(94.4%)	
Electricity stability	Stable	NO	2(5.9%)	32(94.1%)	b 0.208
		Yes	12(14.1%)	73(85.9%)	
Satisfaction of ELCT Price	Not Satisfied	No	11(10.9%)	90(89.1%)	b 0.484
		Yes	3(16.7%)	15(83.3%)	
Prefer renewable source of energy	Prefer	No	2(33.3%)	4(66.7%)	a 0.092*
		Yes	12(10.6%)	101(89.4%)	
Total Score for Knowledge	16.5	Low level of knowledge	6(15.8%)	32(84.2%)	a 0.351
		high level of knowledge	8(9.9%)	73(90.1%)	
Total Score for attitude	7.16	low level attitude	11(22.9%)	37(77.1%)	a 0.002***
		high level attitude	3(4.2%)	68(95.8%)	

^a Asymp. Sig. (2-sided) Pearson Chi-Square

^b Asymp. Sig. (2-sided) Continuity Correction^b

^c Exact Sig. (2-sided) Fisher's Exact Test

*significant at 90 % (0.1)

**Significant at 95% (1.05)

***Significant at 99% (o0.01)

A set of question to examine the level of knowledge was included in the questionnaire. The question were categorized in to 5 section testing on the environment and economic benefit of the solar energy, promotion carried out by the government, household gain and national level benefits of solar energy. The questions were asked in dichotomous scale (yes /no). Computing up all the answers given by respondents a total score was created , which indicated that the average score of the respondents are 16.5 (median:17, min:6, max:26) (table2). Furthermore respondents who have scored more than 13 are categorized as High level of knowledge and others low level of knowledge, based on this classification , 68.1% of respondents have high knowledge about the solar energy(Table1). The attitude section of the questionnaire, dealt with Government goals, Solar for electricity, government promotion and financial, technical and social difficulties. Based on 3 scale , a sum-up score was calculated, which indicated that the average score of the respondent was 7.16 (median:7, min:2, max:14). In addition to this, 59.7% and 40.3% are classified as attitude level high attitude level low respondents respectively (Table1). The correlation of the attitude and Knowledge shows a weak and low relationship ($0.21 < |r| \leq 0.40$). (Table2)

Table 2: Correlations between knowledge and attitude

		Attitude score	Knowledge score
Attitude score	Pearson Correlation	1	.231*
	Sig. (2-tailed)		.012
	N	119	119
Knowledge score	Pearson Correlation	.231*	1
	Sig. (2-tailed)	.012	
	N	119	119

*. Correlation is significant at the 0.05 level (2-tailed).

According to respondents' 88.2 % are ready to accept the solar energy and 11.8% are not interested in solar energy. High percentage of people representing the South Huvadho atoll in the study specifies that they accept solar energy.

Factor influencing peoples' acceptances on solar energy

In order to identify the factors that influence the acceptance of solar energy chi-square tests (table 1) and binary logistic regression models were used. (Table3) Variables being examined were Age, gender, education, occupation, income level, status marriage, person of concern, electricity condition, electricity bill, electricity stability, satisfaction of electricity price, prefer renewable energy, attitude score and education score. Out of these 14 variables, only 4 variables showed significance, they are Occupation, income, electricity bill and attitude score. Even though chi-square test showed significance and there is an association between preference to renewable energy and acceptance of solar energy, in the logistic regression model it was not significance. The classification table shows that over all accuracy ratios is 88.2%. The Omnibus Tests of Model Coefficients, Chi square is significant ($\chi^2 (4) = 23.848, p = 0.001$). In the model summary table -2 log likelihood is 62.358, Cox & Snell R Square is 0.182 and Nagelkerke R Square is 0.352, indicating that the model or predictors exploring variations about 18.2 to 35.2%. The other classification table shows accuracy of 85.7%. These indicate that the model is a good fit for the prediction.

Table 3: Factors influencing the acceptance of Solar energy using binary regression

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
							Lower	Upper
Attitude score	.543	.199	7.457	1	.006	1.721	1.166	2.540
Income	.639	.274	5.439	1	.020	1.895	1.107	3.243
Occupation	-.376	.207	3.291	1	.070	.686	.457	1.031
Electricity bill	.001	.001	3.589	1	.058	1.001	1.000	1.002
Constant	-3.178	1.522	4.358	1	.037	.042		

a. Variable(s) entered on step 1: Attitude score, Income, Occupation, Electricity bill.

A binary logistic regression analysis was performed to predict the factors for acceptance of solar energy. The outcome variable was coded 0= No (not accept) and 1= yes (accept). Four-predictor variable of 119 data cases was included in this analysis. The table 3 summaries the raw score binary logistic regression coefficient, Wald statistics and estimated changes in odd of acceptance along with 95% CI. The Wald ratio for the coefficient associated with attitude score, income, occupation and electricity bill were statistically significant at 90%, $\chi^2 (1) = 7.454, P < 0.006$, $\chi^2 (1) = 5.439, P = 0.02$, $\chi^2 (1) = 3.291, P = 0.07$ and $\chi^2 (1) = 3.589, P = 0.058$ respectively.

The regression analysis indicates that there is a positive relationship between attitude score and acceptance of solar energy. A respondent having a high score in attitude is about 0.721 times more likely to accept solar energy. In other words, controlling for all other variables in the model one mark increase in the attitude score increases the odd of accepting solar by 72.1%. The 75% CI for Exp(B) ranged from 1.166 to 2.540. Likewise, income also has a positive relationship with the acceptance of solar energy. A person with high income is more likely to accept the solar energy about 0.895 times. Controlling for all other variables in the model an increase in a 1 MVR will increase the odd of accepting solar by 89.5% (95 % CI = 1.107 to 3.243) In contrast to these variable, occupation have inverse or negative relationship. The occupation variable was coded as 0= no occupation, 1=government officer, 2=fisherman, 3=farmer, 4= employed and 5=own business. This indicated that the score increase in the occupation; have a likelihood of decreasing in the acceptance of solar energy. In other words controlling for all other variables in the model an increase in a unite of occupation, the odd are changing by factor 0.686 (95 % CI = 0.4457 to 1.031). Nevertheless, electricity bill has a positive relationship with acceptance rate. An increase in the electricity bill, have a likelihood of increase in the acceptance of solar energy. A 1 MVR increase in the electricity bill, while controlling all other variable in the model will increase the odd of accepting solar by a factor of 1.001. (95 % CI = 1.000 to 1.002)

DISCUSSIONS

The result of the logistic regression analysis shows that 4 factors are influencing the acceptance of solar energy. First of all the study indicated that the attitude score has an influence on the acceptance of solar energy. The attitude score was calculated through the series of question. If the respondent feels that the government of Maldives will achieve the 30% of energy from renewable energy by 2020 and solar energy can be used to produce electricity, he/she is more likely to accept the solar energy. On the contrary, if the respondent does not feel that government is promoting solar energy and it is not good for producing electricity, he /she would more likely not accept solar energy. Likewise, if the respondent feels it is difficult to get the financial, technical and social support to invest in solar energy, the attitude towards solar energy usage will be negative. He or She is more likely to reject the solar energy. From the correlation test, it was expressed that there is a correlation between the knowledge and attitude but it is weak and low. The study(Baharoon, Rahman, & Fadhl, 2016) shows that pupils of urban and rural area have high positive attitude towards the renewable energy while the level of knowledge is moderate. Even though the relationship is weak, the conclusions can be made that if the respondents know more about solar energy and its promotion activities done in the country they will be more willing to accept solar energy. A study done in Korea (Jho, Yoon, & Kim, 2014) concludes that attitude having some degree of connection to decision making while science knowledge was not significant to decision making. The result can be interpreted that even though they have knowledge they are reluctant to have a positive attitude. This may be due to the government policies and the trust they have on the government projects. The country is in a domestic political hazard, in order to get the participation of the public, there have to be a stable political condition. The people participation in the development projects is also low in Maldives.

Secondly the income level of the respondents have a significant influence on the acceptance of solar energy, it has the highest influence rate from all other 3 factors. Higher the income more likely the respondents are to accept solar energy. Income and normal good have a direct relation. When income increases demand for that good increases. Investing in solar energy does need a high initial investment but the prices are falling due to improvement in the solar Photovoltaic systems. There for, the questionnaire was framed in a way that people to not to consider the price of it while deciding for using solar or not. Over the past 3 years, the solar PV system's cost decreased by 60%. (Cucchiella & D'Adamo, 2015). This study implies that in future there is a chance for average income earners to invest in solar. The sample data identified that the average income is between 400 to 600 USD per month.

Thirdly, based on the respondent occupation there is an effect on the respondent's acceptance of solar energy. It is identified that if the respondent is doing own business, it is unlikely that he would consider using solar energy. The business owners in islands are very busy and the turnover is not that good due to the limitation of the population and aging people present in the island. Therefore, this category people would not have time to look for alternative source of energy. Another category of occupation is employed people. The reason for them having unlikely attitude towards solar energy is that they have low income and mostly they have to work out of island in a resort. Therefore for them to invest in solar energy is challenging. Apart from the employees, another category is farmers and fisherman. The sample had few respondents as farmers and fisherman. The most accurate category will be government officers. It was the mean of the sample. The government officers have an influencing power for acceptance of solar energy. On one hand, government officers are bound to accept the government promotion polices and solar energy is a huge project of government. On the other hand, they have more knowledge and they tend to have positive attitude towards solar energy.

Fourthly, the Electricity bill of the household. The study shows that average electricity bill of respondent household is 1359.15MRV (90.61USD).The influence, electricity bill have on the decision to accept is very low. The electricity bill depends on the usage of electricity. If the respondent use less electricity the bill price will be less. Nonetheless, there is a certain degree of effect. Once the household employs electricity, consuming equipment's to the house it will increase the bill, thereof, for such person going for solar energy will be appropriate.

CONCLUSION

The main objective of the study is to discover factors influencing the acceptance of solar energy. The analysis was based on current geo-social factors, knowledge and attitude. From the data received through electronic survey, it can be implied that South Huvadhu atoll can be classified as young, educated and working class people. Since the average age of respondent is 37 years with an average of certificate or diploma, level of education and most of them work as government officer. The logistic regression model run on this sample exposed that income, attitude level, occupation and electricity bill are significantly influencing the people's decision to accept solar energy. Among these, the most effective factor is income followed by attitude. The least effective factor is electricity bill and occupation. The result on income implies that if the income is high they are more likely to spend on solar energy. There are beliefs that if the person is rich, they would not mind spending money on electricity bill, but in this case when people get high income they like to go for solar energy to get cheaper electricity. Then again, it is people's nature and normal good nature.

Similarly, Attitude displays a vital role in solar energy acceptance. Habitually attitude and knowledge has a good positive relationship. If the person had knowledge in certain subject, he/she would have a positive attitude towards the subject matter keeping other factors aside. However, in this case relationship and attitude have a low association. The reason this would be affected by other factors, like trust for government and culture and habits of islander of Maldives. The participation from people is low in Maldives. The mentality of the people is that government should provide everything to improve the wellbeing of the people. An analysis done over the period of 2012-2014 in Italy demonstrated that decrease in intensive has high effect than the cost solar PV system. (Cucchiella & D'Adamo, 2015) Furthermore, study directed that electricity bill having a minor degree of effect on acceptance on solar energy by the respondents. Just as occupation.

The result of the study can be applied to provide guide for policy makers, particularly government. There is a need to include solar energy lessons to the school curriculum. According to other study done on knowledge, attitude and decision, (O'Brien, 2007) and (Zyadin, Puhakka, Ahponen, Cronberg, & Pelkonen, 2012) it is important. It is essential for improve the knowledge of the people and school curriculum to accommodate the lessons of environment literature and renewable energy. Meanwhile Initiation and participation from private sector and general public is important. In order to increase the participation in solar the private sector have to be involved and investment scheme system have to be introduced. This would increase competition in the solar market. It would be beneficial rather than monopolizing energy or electricity sector. Beside that the correct and easy accessible information system need to be built. To minimize the difficulties of finding technical experts in the solar energy area, human development program should be framed. Maldives have reform more lenient its legislation and regulations. Last but not least a careful assessment of societal needs in the areas where solar energy projects are envisioned to be established.

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APPLICATION OF GEOSPATIAL TECHNOLOGY IN LANDSLIDE DISASTER RISK REDUCTION IN RURAL REGIONS OF THE NILGIRIS DISTRICT, WESTERN GHATS, INDIA

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ABSTRACT

Landslide disasters are the common most problem in most of the hilly regions in the world when it coupled with built-up areas and infrastructures. The rural regions of Nilgiris in the Western Ghats of India is frequently affected by landslides in the past history time to time. Geospatial tools are incredibly useful particularly in disaster studies. The use of these technology is very important in pre, during and post disaster situations. Understanding the spatial impact of these landslide through geospatial technology will help in disaster risk in the rural regions of the Nilgiris District. Out of the total population the district has 40% of the rural population ie. 0.3 Million. In the rural population 67% are illiterates. From the history of the landslides it is understood that some of the villages are frequently affected by landslides. A simplified map was generated to assess the landslide hazard in the district to understand the landslide proneness. Major parts of the villages falls under high to severe landslide prone areas in The Nilgiris District. The present study helps planners and researchers to make use of the geospatial technology for developmental planning particularly in rural areas.

Key words: Disaster, Geospatial, Landslide, Risk Reduction, and Rural Areas

INTRODUCTION

The application of geospatial technology plays a major role in Disaster Management System particularly in the risk reduction part. It is a very useful and effective tool particularly for the spatial assessment of risk for disaster prone areas. The risk reduction through identification of Hazard and Vulnerable locations will help the society in disaster preparedness. The geospatial technology is the useful tool for identification hazard and vulnerability particularly for landslide risk prone areas. Most of the populations in the rural hilly areas get worsely affected by landslide because of the lack of awareness on landslide preparedness. The Nilgiris District of Western Ghats of India is one among the severe landslide prone area of India. With this background a study is carried out with help of geospatial technology to understand the landslide hazard and vulnerability in rural areas of Nilgiris district for risk assessment studies.

MATERIALS AND METHODS

Study Area

The study is Nilgiris District of Tamil Nadu, in part of Western Ghats, south India. The district has divided in to 6 taluks, 4 blocks and 44 revenue villages. The district covers an area of 2,557 Sq.km with a total population of 7,62,141 out of this 3,07,532 is rural population which consist of 40% and 42 % of households in rural areas of the district (Figure 1) . Landslides are common problem in hill areas places like Nilgiris. The district has 200 years known history of landslides and it's Impact. Even though there is no much loss of lives due to landslides, however the landslide prone areas are under indirect lossess. The district is classified under High to Severe landslide hazard based on Building Technology Promotion Council Report (BMTPC 2002). The rural population in the district are more exposed to landslide hazard in Nilgiris.

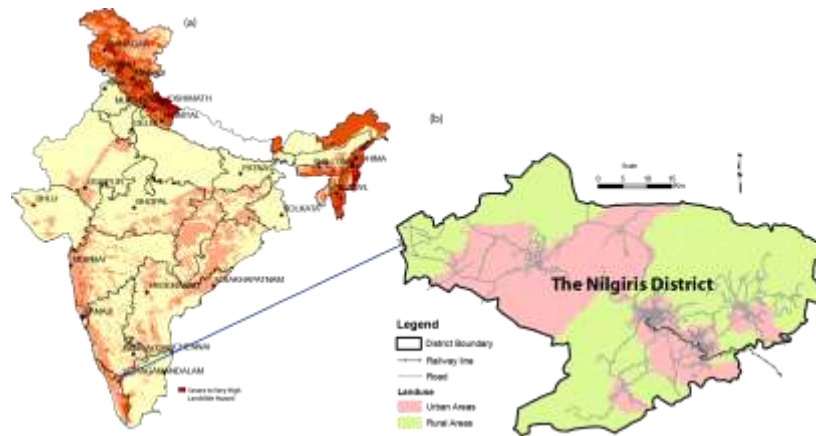


Figure 1. a) Location of the study area in the Landslide Hazard Zonation Map of India, b) Urban and Rural areas of The Nilgiris District.

Approach

Landslide Risk reduction is nothing but understanding the hazard and vulnerability in landslide prone areas. The landslide hazard can be assessed based on integrating different thematic layers. The history of past landslides also will give an idea on how frequently the area is affected by landslides. Hazard analysis is carried out based on Analytical Hierarchy Process (AHP). Vulnerability can be assessed in two ways i) Physical Vulnerability ii) Societal vulnerability. Generally the Physical Vulnerability is 1 almost in most of the cases in rural areas due to the construction practices which is semi permanent houses. These houses can't withstand the landslide and its easily collapse during landslides. The people residing in these houses in the down slope land slide areas are more under risk to life.

RESULTS AND DISCUSSION

Regional Landslide Hazard

Many researchers carried out landslide hazard studies in The Nilgiris District (Seshagiri et al. 1982; Ramakrishnan et al. 2002; Rajarathnam and Ganapathy 2006; Rajkumar et al. 2007; Vasanthakumar and Bhagavanalu 2007; Thanavelu and Chandrasekaran 2008; Ganapathy and Jothimani 2009; Jaiswal et al. 2009, 2012, 2013; Naveen Raj et al. 2011; Antony Ravindran et al. 2012; Ganapathy and Hada 2012; Manimaran et al. 2012; Prabu and Ramakrishnan 2012; Pradeep Kishore et al, 2012; Vaani and Sekar 2012; Gurugnanam et al. 2013; Sunandana Reddy and Lakshmikanta Reddy 2013; Gomathi et al. 2013; Chandrasekaran et al. 2012; Bairavi et al. 2014; Nalina et al. 2014; Ganapathy and Rajawat 2015). To assess the regional landslide hazard methodology proposed by the Building Materials Technology Promotion Council (BMTPC), Government of India published small scale landslide hazard map of India at 1:6 million scale is used. To understand the district level severity of landslide hazard, a study has been carried out using various thematic maps viz. Geology (3) – 12 %, Slope (10) – 40 %, Landuse (9) – 36 %, Rainfall (3) – 12 % using Analytical Hierarchy process. Using this landslide hazard zonation map was prepared and the hazard wise landslide severity is calculated and presented in Figure 2.

The landslide hazard in the district categorised in to four categories areas unlikely, low to moderate, High, Severe to Very High. The Severe to Very High landslide prone areas are concentrated in the southwest part of the District which consists of equally urban and rural areas. Out of total area of 2557 Sq.km of the district an area of 434 Sq.Km (17%) under high landslide prone areas and 519 sq.km (20.2 %) falls under Severe to Very High Landslide Hazard areas. Totally 27 villages are in Severe Landslide hazard prone areas out of these 50% of the area is under rural areas ie around 260 Sq.km.

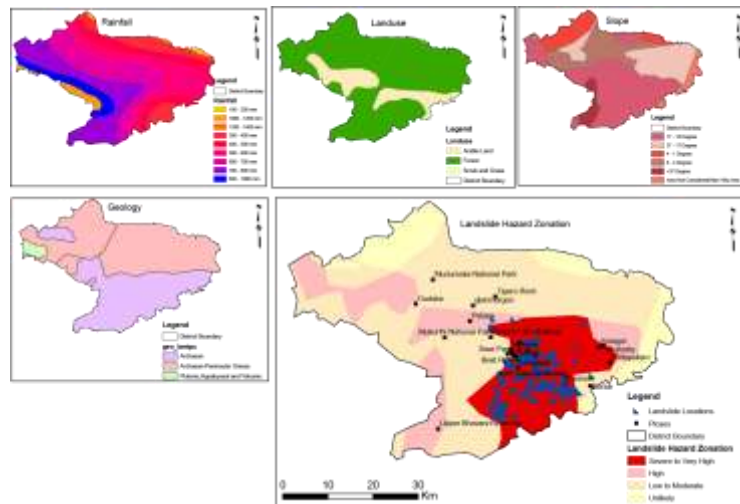


Figure 2. Landslide hazard map prepared using Analytical Hierarchy Process (AHP)

Societal and Physical Vulnerability

Vulnerability assessment that include the user-friendliness of the method, the selection of all the relevant indicators, the transferability of the method, the inclusion of information concerning the hazard itself, the use of technology (GIS) and the provision of products such as vulnerability maps and the consideration of the temporal pattern of vulnerability (Papathoma-Köhle et al. 2011). To identify the element at risk in landslide prone areas, first an inventory must be made of the different types of the construction (concrete, masonry, etc). Secondly a distinction must be made between elements with special design requirements (e.g hospitals) and elements for which vulnerability analysis is feasible such as housing. Thirdly, an inventory must be made of prevalent types of buildings and the vulnerable elements like (Strong high wall, medium high wall, sloping side, number of floors etc., (Papathoma-Köhle et al. 2007).

The Societal Vulnerability carried out based on the details of Census of India 2011 such as total house hold, population total, male, female, Children's, Literate, Illiterate etc., Totally 91837 households in Very High to Severe Landslide Hazard areas with a total population of 3,70,737 (51% of the total population). A total female population of 1,86,832 and 183905 male population is under severe to very high landslide prone areas. 37738 children's are under age 6 which is 40 % of the total children's under landslide risk. Out of 7,20,724 people in the district 206285 are illiterate and out of these illiterates 50% people are under landslide risk. The details of hazard wise societal vulnerability are presented in Figure 3.

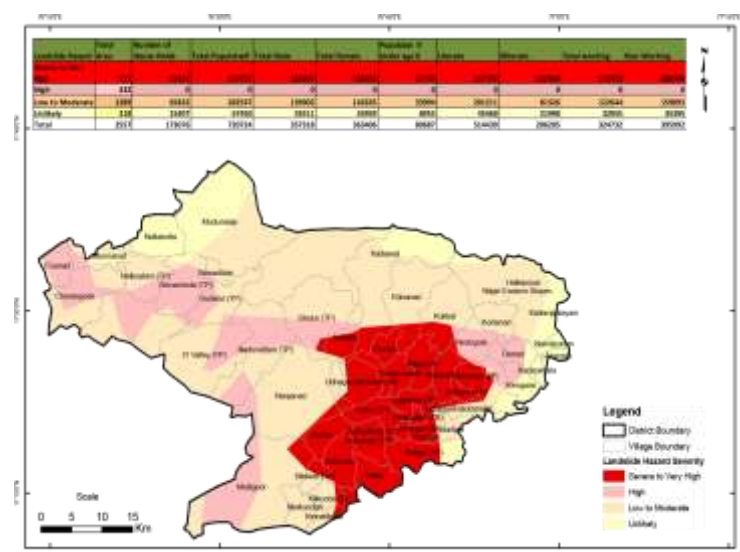


Figure 3. Hazard wise Societal Vulnerability in the study area.

CONCLUSION

Identification of landslide hazard and exposed buildings and population to these hazard plays a major role in landslide risk reduction. When hazard integrated with vulnerability with the exposure it will become disaster. The identification vulnerable population and structures in hazard prone areas will help to reduce risk to the life. The landslide hazard zonation studies are the critical task in landslide risk assessment process. Hazard zonation maps not only helps in landslide monitoring and also useful in predicting future slope failures (Pardeshi et al. 2013). Also the landslides are differ from place to place and based on the nature of study area and its environment. The Mettupalayam to Coonoor sector is identified as one the high to severe landslide prone areas of The Nilgiris district, Western Ghats of India. The slopes prone to landslides in this sector were identified. The built-up areas were demarcated in hazard prone areas. About 70 percent of the buildings in the study area are in high to severe landslide susceptible areas. Totally 20% of the areas is falls under very high to severe landslide prone areas which consist of 50% of the rural in it. Totally 91,837 households are falls under Very High to Severe Landslide Hazard areas. Among these houses holds 51% of the total population of the district. Also the district has 28 % of semi permanent houses which is made up of mainly other than RCC and burn brick houses. These houses in high to severe landslide prone areas are under risk. Since the childends and illiterate people are more in the rural areas which is prone to landslides there should be a proper training for landslide response as well as an efficient landslide monitoring system can be implemented in these areas.

ACKNOWLEDGEMENTS

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DISASTER RISK REDUCTION (DRR) IN THE EVACUATION ROUTES OF MT. MERAPI VOLCANO VILLAGES, YOGYAKARTA

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ABSTRACT

Disaster Risk Reduction (DRR) should be integrated with the development of social and physical values, in order to increase public participation in the DRR programs. Mt. Merapi, as an active volcano in Yogyakarta, covers villages along its slope. The evacuation routes are designed to comprise other functions, which are of economic activities and social activities. However, the economic growth dominates the function of the routes in daily transportation need. Villager's responsive behavior probably decreases together with the land use development along the evacuation route. The understanding of evacuation routes is important for vulnerable people and location, especially in the moment of eruption. The research question is how to integrate DRR in the evacuation routes by considering the land use development and the basic need of road. The aim of the research is to identify and determine the activities in the evacuation routes and the disaster responsive environment of the villagers. The methods were questionnaire and qualitative road assessment. The road assessment and questionnaire collected data in term of the understanding of evacuation route by the villagers. The analysis compared the understanding of evacuation routes by the villagers with the economic activities. The use of roads for business of building materials such as sand and stone decreased the disaster responsive environment of the villagers. The analysis also combined the design of evacuation route standard and the existing route. The regular maintenance and dissemination are needed to control the growth of demography, including elderly people, and land use development. Local government has the important role to implement DRR in the Mt. Merapi.

Key words: disaster risk reduction, evacuation route, land use, responsive

INTRODUCTION

Disaster risk reduction is a key factor to minimize number of sufferers in unexpected occurrences (National Agency for Disaster Management, 2009). Partnerships, responsive regulations, institutional operations, early warning systems, unpaid helper management, social characteristics, infrastructure and training collectively support the disaster management policies (National Agency for Disaster Management, 2009). These strategies should be positioned at the initial completion of the development programs (Brewster, 2005). Related to this and to various disaster frequencies in Indonesia, the government instantaneously launched National Action Plan for Disaster Risk Reduction in 2010. Despite less prepared implementation, local government should respond this regulation by providing actual output of action plan close to potential disaster area such as active volcano of Mount Merapi in Yogyakarta.

Special Region of Yogyakarta is naturally vulnerable from several disasters which are earthquake in Southern side, land slide in Western region and volcanic activity in Northern area. Among these, volcano eruptions were regularly threatening people who live permanently around it. For example, there were more than a hundred of residents died or injured in Merapi eruption in 2010 (National Agency for Disaster Management, 2010). Therefore, evacuation route planning has been declared in order to reduce the number of potential victims by providing emergency traffic-lane in 2010. However, designated evacuation route ought to be questioned because it is positioned in a road in which it is also purposed to serve community's daily activities. More importantly, it should be considered carefully whether potential disaster risk will increase or not.

Study Area

Study area is carefully chosen regarding regulation stated by local government which is Disaster Risk Area Level 1, Level 2 and Level 3 (The Government of Special Region of Yogyakarta, 2013). Disaster Risk Area Level 1 is an area where there may be hit by volcanic mud flow or hot clouds, while Disaster Risk Area Level 2 is an area where it is potentially attacked by hot clouds, hurl-fired stone, poisoned gas and hot lava. Disaster Risk Area Level 3 is an area that is less than 2 km of radius from the center of volcano eruption. Here, only the Sub-district of Cangkringan is selected to be studied. It consists of five villages which are Wukirsari village, Argomulyo village, Glagaharjo village, Kepuharjo village and Umbulharjo village. Figure 1 shows these categories.

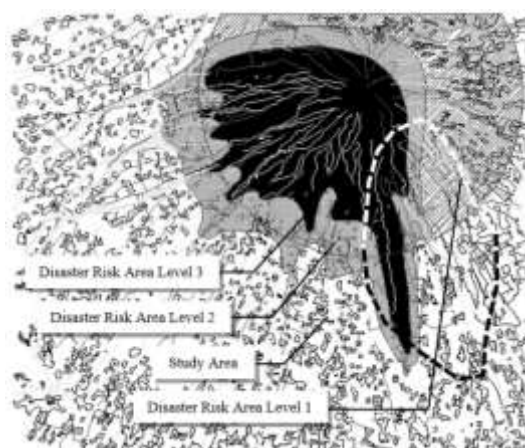


Figure 1: a selection of Disaster Risk Area in Mount Merapi Yogyakarta
Source: National Agency for Disaster Management, 2010

Purpose

The purpose of this study is whether evacuation route listed in this certain area may have an impact on disaster risk reduction or not. This is examined by plotting the distribution of social and economic activities and emergency traffic-lane. By this, perhaps it can be determined the qualitative possibility to accept warning signal, to escape or to be evacuated when unexpected occasion come to pass.

Geographical Description

Population and density in this region is shown in following Table 1 and Figure 2. Residents who live in this selected sub-district are vulnerable from volcano eruption as its close-by the center of disaster. For instance, historical record noted that there were Merapi's eruption in 1822, 1823, 1832, 1872, 1930, 1961, 1994 and 2010 (Arif et al, 2012). Hot cloud may run into 20 km to down town. Scorching geothermal materials flow more than 200,000 m³ of burning lava. Also, this destructive disaster buried 13 villages, injured thousands people and fled over and above 4000 inhabitants (Arif et al, 2012).

These vulnerable people live in sub-district that has 4,799 ha of landmass, while landmass per individual or family is about 2,000 m² (The Sub-district of Cangkringan, 2014). It is 1,093 ha of wet rice field, 1,807 ha of dry land, 24.5 ha of wet land, 904.5 ha of forest, 42.5 ha of public facilities and 926.9 ha of infertile land (The Sub-district of Cangkringan, 2014). Most of residents work in agricultural and breeding cattle activities. They start to work at 5 a.m. and finish around 12 p.m. Their mode to workplace is dominated by harder walking rather than vehicle because higher inclined land and road. And so, farm mechanization is tended to be ineffective as terrestrial contour and coverage range.

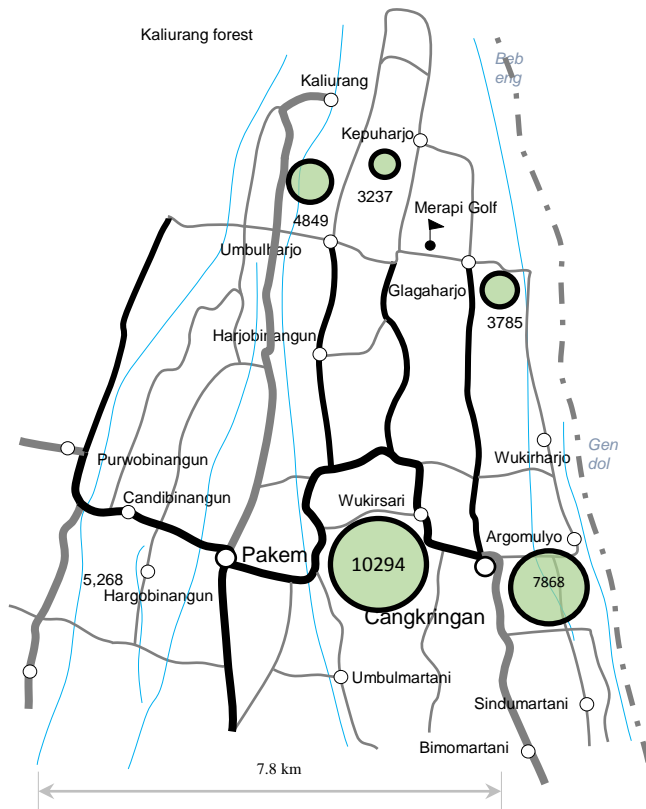


Figure 2: population distribution in Cangkringan sub-district

Table 1: population structure of Cangkringan sub-district

Villages	Population	Density	Sex Ratio
	person	person/km ²	male/female
Wukirsari	10.294	707,00	92,87
Argomulyo	7.868	928,92	95,09
Glagaharjo	3.785	476,10	96,41
Kepuharjo	3.237	396,94	93,25
Umbulharjo	4.849	587,04	102,54

Source: The Sub-district of Cangkringan, 2014

DISASTER RISK REDUCTION VERSUS EVACUATION ROUTE

Selected evacuation route is adopted from policy stated by government as depicted in Figure 3. Route, here, is frequently used by most of local people in their daily activities. On the other hand, it is expected that these roads could become unexpected emergency lane in disaster occasions. These double functions, of course, may possibly produce an effectiveness to evacuate victims because they know the routes very well. But then, it may perhaps create a traffic jam because most of them tend to run to this route at almost the same time. Furthermore, narrow routes could reduce emergency vehicles speed as average widths of all road segments are less than 6 meters. As well, roads are not equipped with safety tools or disaster signals. It can be said that infrastructure is less prepared to be an evacuation route rather than presenting common roads.

Likewise, network system in this particular evacuation routes may possibly produce a bottle neck as shown in Figure 3 (B). Therefore, intersection (B) is significantly vulnerable to heavy traffic jam in disaster occurrences because emergency and communities' vehicles from Purwobinangun, Umbulharjo, Kepuharjo and Glagaharjo have to run into single destination, which is B, to reach safer hospital located in Yogyakarta. Simulation of this scenario is presented in Figure 4 bellows.

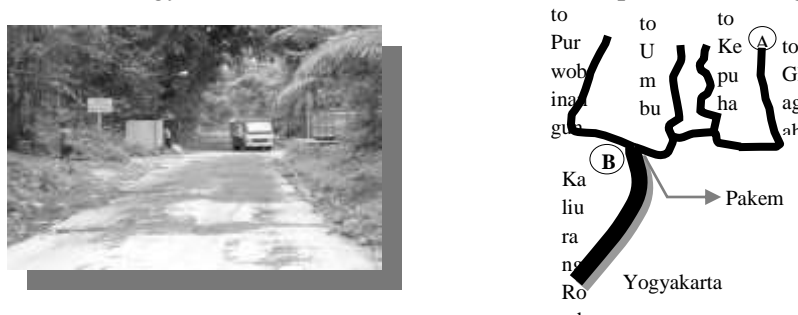


Figure 3: evacuation route in this study area

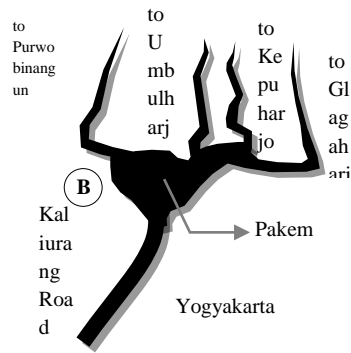


Figure 4: Simulation of traffic bottle neck at B

Disaster Risk Reduction versus Land Use along Evacuation Route

According to Figure 4, it is obvious that evacuation route perhaps reasonably increasing disaster risk rather than reducing it. Besides, local government has a task function to develop resident economic growth in which it is usually generated from business along the street. Therefore, it triggers the growth of parking and traffic on the lane. Shortly, this should be noted that evacuation route and land use may have an interrelated impact on disaster risk. Back to 2010's eruption, as an evidence of this, it was a traffic jam and had caused more victims who spent much more time to get nearer hospital. Compared to 1994's eruption, there was less impact on vehicle speed. Following Figure 5 illustrates the idea of this relationship.

Looking deeply at this circumstance, institutional approach to achieve combined and wide-ranging agenda is significantly essential regarding to this matter (Cang, 2010). Correspondingly, social-ecological systems and communities' resilience capacity is also crucial to reduce disaster risk in dealing uncertain vulnerability jeopardy (Chang, 2010). Furthermore, catastrophes completely challenge to domino effect of growth investments in a very short period (United Nations, 2005). Thus, it rationally remains first and foremost obstruction to sustainable development and poverty declining (United Nations, 2005). Moreover, governance and institutional arrangements, risk knowledge, monitoring and warning system, dissemination and communication, response capacity and gender aspects should be developed by authorities to solve increasing disaster risk connected to any impact of development and natural disaster (UNDP, 2009).

In a bit, it can be interpreted from the idea of evacuation route and disaster risk reduction that both may be affected by the other goals of economic and social growth.

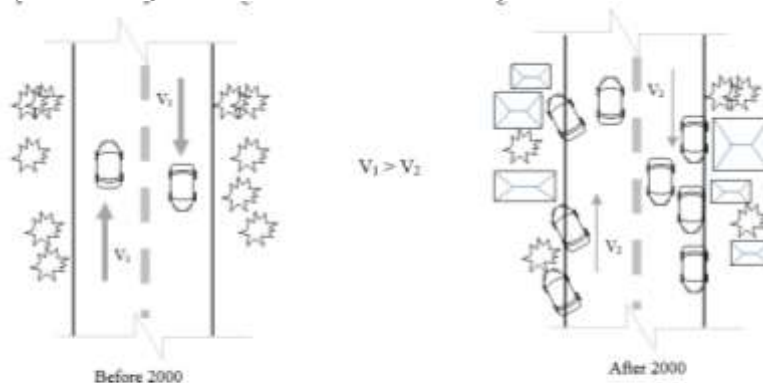


Figure 5: illustration the impact of economic growth on traffic speed and flow, and therefore, evacuation speed in emergency occurrences.

CONCLUSIONS

In conclusion, there was evidence that economic and social growth could feasibly impact on the evacuation process for potential victims. They have increase the number of vehicles and activities around roads and networks. As a result, actual level of service of highway may be decline or even disrupted. Finally, disaster risk reduction will become impossible to be implemented. It is suggested

that comprehensive planning related to evacuation route and economic-social growth is noticeably reviewed in order to reduce catastrophe impact.

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FOOD SECURITY AFTER ERUPTION OF MOUNT KELUD, STUDY CASE PANDANSARI VILLAGE

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ABSTRACT

Based on Food act, food security is defined as when the adequate amounts of food for country and individuals are fulfilled, in quantity and quality, safe, vary, nutritious, equitable, affordable also does not contradict with religions, beliefs, and culture, to be able to live healthy, active, and productive in a sustainable manner. Natural disasters increase the number of people food insecurity that carries a negative impact on dimensions food security including vulnerability nutrition (World Food Programme , 2013). Pandansari village, Ngantang district, is located closest to the top of kelud mountain, 2 km from the top. In 2014, Pandansari village latest eruption of kelud mountain. This research aims to identify the food security status of pandansari villagers in the post eruption phase of kelud mountain. The results showed, Pandansari village is very insecure of food. After eruption, the villagers experienced difficulty in the fulfillment of clean water. It made, the ability of food utilization was very limited. Food availability of pandansari village be on condition lower, caused production food crops decreasing. Food accessibility of pandansari villagers lower, caused physical access or road conditions damaged due to kelud mountain so as to interfere with community to obtain food. Based on the results of composite food security status, pandansari village is lack of food production (0.29 or less than 0.32 point). Based on the results of that research shows that in the aftermath of kelud eruption mountain village pandansari experienced food insecurity , it can be used as input in the manufacture of the government policy malang regency, especially in the handling of natural disasters by taking into account the effect on the condition of food security in the region. Stakeholders (govt,NGOs) may take this finding into account when undergo disaster relieve program.

Key words: disaster, food security.

INTRODUCTION

Mount Kelud located between Kediri, Blitar and Malang. Last eruption of Mount Kelud occurred on February 13, 2014 by issuing material of more than 100 million meters cubic, the eruption of Mount Kelud have a negative impact on the precincts areas, one of the most severely affected, that is Ngantang districts, Malang regency. As a result of the eruption of Mount Kelud, farmland in Ngantang districts suffered severe damage. Ngantang districts have potential in agricultural sector, especially of rice, maize, cassava, sweet potatoes, cloves, robusta coffee, coconut, cocoa, tea, and other types of vegetables. Based on land use in Ngantang districts, land for agriculture area of 1,162 hectares and plantation area of 2,380 hectares (Malang Regency in Figures, 2014), other than, agriculture and plantation Ngantang districts was known center of a dairy farm. Production of the agricultural in Ngantang districts usually distributed to Malang, Pasuruan, Blitar, Kediri, Surabaya, Batu and Jombang.

An eruption of Mount Kelud resulted farmland in Ngantang districts buried in sand that result the villagers lost livelihood. The conditions on farms in Ngantang districts, assumed back to normal as originally took over two years (Indonesian Citrus and Subtropical Fruits Research Institute (ICSFRI), 2014), in addition to the economic problems and farmland were damaged, villagers in Ngantang districts have difficulty in obtaining clean water. It is caused by damage to the pipeline network that drains water from the slopes of Mount Kelud to the residence. One of the villages affected by the eruption of Mount Kelud is severe enough Pandansari Village. Pandansari is a village in Ngantang districts near to the peak of Mount Kelud. Almost all the land in the Pandansari village of covered

with sand / silt 30-50 centimeters, in addition to the approximately 99% of the crop on the farm died from a blast of hot dust. Farmland use in the Pandansari village consists of 94.450 hectares of rice fields, 52.420 hectares of yard, 223.732 hectares of fields and dry land, and 762.500 hectares of forest (Indonesian Legumes and Tuber Crops Research Institute (ILETRI) Malang Regency, 2014). Based the conditions of the region affected by the eruption of Mount Kelud it is necessary to identify the food security of villagers in Ngantang districts. The aim is to determine the condition of food security in the Pandansari village Ngantang districts after the eruption of Mount Kelud, as an input in government policy in Malang regency.

RESEARCH METHODS

The research location is Pandansari village, Ngantang districts Malang regency, East Java. Pandansari village is a most affected severe eruption of Mount Kelud in 2014. The unit of analysis is Pandansari village. The reasons for selecting the study area in the Pandansari village is affected villages most severe eruption of Mount Kelud in 2014. Pandansari Village has great potential in the agricultural sector, but due to the eruption of Mount Kelud of damage and problems on farmland villagers. The study was conducted using a survey method of primary interviews and observations, in addition to the secondary survey to obtain data from such agencies and BAPPEDA, BPBDs, Department of Public Works, Department of Agriculture and Plantation, BKP3 Malang regency, as well as office Ngantang district. The analytical method used in the study of the calculation of the composite index of food security.

Food security analysis

The variables used in the analysis of food security is food availability, access to food and food utilization. Food security analysis unit, the village at high risk, medium, and low eruption of Mount Kelud in Ngantang district. Systematic analysis of food security described in Figure 1. Steps of the analysis of food security in accordance Regulation of the Minister of Agriculture Number: 65 / Permentan / OT.140 / 12/2010:

1. In each of the indicators in each variable indices are calculated using the formula:

$$\text{Indeks } X_{ij} = \frac{X_{ij} - X_{\text{imin}}}{X_{\text{imax}} - X_{\text{imin}}}$$

Explanation:

X_{ij} :value to-j from indicator to-i
 Min dan max :value minimum and maksimum
 from indicator

2. The food security index composite index obtained from the sum all variables using the formula :

$$\text{IFI} = \frac{1}{n} \times (I_1 + I_2 + \dots + I_n)$$

Explanation:

n : the number of variables used
 I_n : indicator n

3. The results of calculation of the index and then classified into range index. Calculation of the index range is done by:
 - a. Determine the range of data: the highest value-lowest value
 - b. Specifies the number of classes in the analysis of food security that is very insecurity, insecurity, rather insecurity, quite resistant, resistant, and vey resistant
 - c. Specifies the length of the class (interval) using the equation = range of data shared with a lot of class

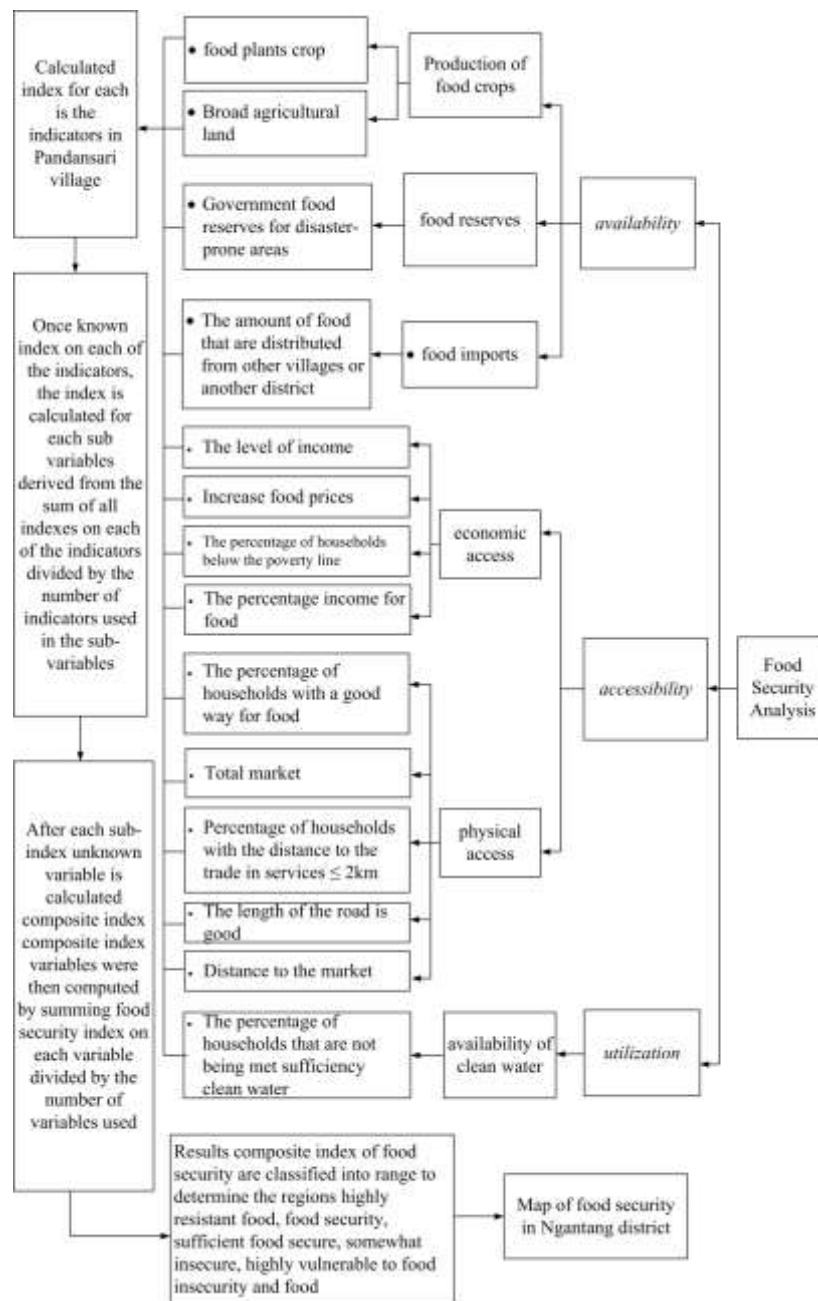


Figure 1. Systematic analysis of food security

RESULTS AND DISCUSSION

Food security analysis

Food availability

Based on the Law of the Republic of Indonesia Number 18 Year 2012 on Food, the availability of food is influenced by crop production, food stocks and food imports. Indicators used to assess food availability is the production of food crops, agricultural land, food reserves from the government and the amount of food that is distributed from other villages. The calculation of the composite index of each indicator will produce a region with a level of food security in accordance with the classification in Table 10.

Production of food crops

Indicators to calculate the composite index of crop production is the harvest of food crops (rice, corn, sweet potato, and cassava) and agricultural land. Results composite index was classified by levels

(Table 3). Based on Table 4 it can be seen the composite index of crop production in Pandansari village is high. The conditions for crops is quite high and large farms so that a composite index of crop production is more than 0.60.

Table 1. Composite Index Classification of Food Crop Production

Composite index	Classification
<0.16	Very low/ High deficit
0.16-<0.31	Low/ Moderate deficit
0.31-<0.45	Rather low/ Low deficit
0.45-<0.60	Quite high/ Low surplus
0.60-<0.74	High/ Moderate surplus
≥0.74	Very high/ High surplus

Table 2. Composite Index of Food Crops Production

Village	Index of food crop production	Index of cropland area	Composite index	Classification
Pandansari	0.51	0.71	0.61	High

Food stocks

Indicators to analyze the food stocks are food reserves of Malang Regency government's disaster-prone areas. Based on the Strategic Plan for Food Security Agency and the Agricultural Extension Year 2011-2015, explaining that as much as 4.9 tons of food stocks in the form of rice for handling natural disaster-prone areas. The results of the index food stocks will be classified in accordance with the provisions in Table 5. Based on Table 6 it can be seen the value of the composite index of food stocks in Pandansari is high. The condition is caused food stocks of the government is high enough so that the composite index aspects of food stocks in the Village Pandansari also high at more than 0.67.

Table 3. Composite Index Classification of Food Stock

Composite index	Classification
<0.17	Very low/ High deficit
0.17-<0.33	Low/ Moderate deficit
0.33-<0.50	Rather low/ Low deficit
0.50-<0.67	Quite high/ Low surplus
0.67-<0.83	High/ Moderate surplus
≥0.83	Very high/ High surplus

Table 4. Indeks Komposit Cadangan Pangan

Village	Index of government food stocks	Composite index	Classification
Pandansari	0.69	0.69	High

Food imports

Indicators to analyze food imports is the amount of rice as a staple food which is sourced from outside the village. Rice import data obtained from surveys primer on some of the shops and markets in Pandansari village. Results composite index of food imports will be adjusted to the classification in Table 7. Berdasarkan Table 8, food imports in Pandansari is very low with the composite index of 0.08. The condition is caused by the amount of rice purchased from outside the village are so few that affect the condition of food imports in Pandansari.

Table 5. Composite Index Classification of Food Imports

Composite index	Classification
<0.17	Very low/ High deficit
0.17-<0.33	Low/ Moderate deficit
0.33-<0.50	Rather low/ Low deficit
0.50-<0.67	Quite high/ Low surplus
0.67-<0.83	High/ Moderate surplus
≥0.83	Very high/ High surplus

Table 6. Composite Index of Food Imports

Village	Index of food imports	Composite index	Classification
Pandansari	9.36	0.08	Very low

Table 7. Composite Index of Food Availability

Village	Composite index of food production	Composite index of food stocks	Composite index of food imports	Composite index of food availability	Classification
Pandansari	0.61	0.69	0.08	0.46	Quite high

Table 8. Composite Index Classification of Food Availability

Composite index	Classification
<0.31	Very low/ High deficit
0.31-<0.42	Low/ Moderate deficit
0.42-<0.53	Rather low/ Low deficit
0.53-<0.64	Quite high/ Low surplus
0.64-<0.75	High/ Moderate surplus
≥0.75	Very high/ High surplus

Based on Table 9, condition of food availability in Pandansari is rather low with the composite index value of 0.46. The condition is caused by food imports very little so the effect on food availability in Pandansari Village. Although Pandansari has the production of food crops and food stocks are high but food imports is very influential of food availability Pandansari Village.

Food accessibility

Food accessibility consists of three kinds of access include physical access, social and economic access (Webb and Rogers, 2003). In the food accessibility research focused economic and physical access, access to the second election in case of disasters caused most disturbed obtaining food that is physical and economic access. Calculation the composite index of each indicator will produce a region with a level of access to food in accordance with the classification in Table 15.

Economic access

Indicators to assess the food security conditions of the aspects of economic access antaralain income level, the percentage of food price increases, the percentage of poor households, and the percentage of revenue that is expended to obtain food. Table 13 is the result of calculation the composite index of economic access that has been classified in accordance with Table 11, so that can know the level of economic access in Pandansari. Based on a composite index of economic access in Pandansari is high. The condition is caused by the level of income and the percentage of family income to buy food high enough, besides the percentage of poor households is low and the rise in food prices after the eruption of Mount Kelud in Pandansari low so that the composite index of more than 0.51.

Table 9. Composite Index Classification of Economic Access

Composite index	Classification
<0.25	Very low/ High deficit
0.25-<0.34	Low/ Moderate deficit
0.34-<0.43	Rather low/ Low deficit
0.43-<0.51	Quite high/ Low surplus
0.51-<0.60	High/ Moderate surplus
≥0.60	Very high/ High surplus

Physical access

Indicators used include the percentage of homes with a good connecting to obtain the food, the amount of each village market, the percentage of households with a minimum distance of 2 km towards trade and services, good road conditions, and the distance to markets. Based on Table 14, it can be concluded Pandansari Village has the very low level of physical access. The condition is caused households with good connecting obtaining food is very low and the number of houses to the distance to facilities and services trade is less than 2 kilometers are quite low, but it does not have a market Pandansari village so that the composite index of the physical access of less than 0.28 (Table 12).

Table 10. Composite Index Classification of Physical Access

Composite index	Classification
<0.28	Very low/ High deficit
0.28-<0.41	Low/ Moderate deficit
0.41-<0.53	Rather low/ Low deficit
0.53-<0.66	Quite high/ Low surplus
0.66-<0.78	High/ Moderate surplus
≥0.78	Very high/ High surplus

Table 11. Composite Index of Economic Access

Village	Index of income level	Index of food price increases	Index the percentage of poor	Index of Income for foodstuffs	Composite index	Classification
Pandansari	0.00	0.60	1.00	0.72	0.58	High

Table 12. Composite Index of physical Access

Village	Index percentage of homes with good connected	Index of quantity market	Index percentage of households with a range of trade and services ≤ 2 km	Index of good road conditions	Index of distance to the market	Composite index	Classification
Pandansari	0.10	0.00	0.30	0.69	0.00	0.22	Very low

Table 13. Composite Index Classification of Food Accessibility

Composite index	Classification
<0.32	Very low/ High deficit
0.32-<0.40	Low/ Moderate deficit
0.40-<0.48	Rather low/ Low deficit
0.48-<0.57	Quite high/ Low surplus
0.57-<0.66	High/ Moderate surplus
≥0.65	Very high/ High surplus

Table 14. Composite Index of Food Accessibility

Village	Composite index of economic access	Composite index of physical access	Composite index	Classification
Pandansari	0.58	0.22	0.40	Quite high

Based on a composite index of food accessibility can be seen that Pandansari has the rather low levels of food access to food access composite index value of 0.40 (Table 16). The condition is caused by poverty and food price increases high enough after the eruption of Mount Kelud so many people in Pandansari experiencing economic problems in obtaining food access.

Food utilization

The indicators used to determine the composite index of food utilization is the percentage of households that fulfilled the adequacy of clean water (Webb and Rogers, 2003). Calculation the composite index of each indicator will produce a region with a utilization rate of food in accordance with the classification in Table 17. Based on Table 18 it can be seen Pandansari Village has a value of the composite index of food utilization is very low at less than 0.17. The condition is caused clean water pipe network in Pandansari sourced from the slopes of Mount Kelud damaged as well as community wells as a source of clean water affected by volcanic ash, resulting in shortage of water supply.

Table 15. Composite Index Classification of Food Utilization

Composite index	Classification
<0.17	Very low/ High deficit
0.17-<0.33	Low/ Moderate deficit
0.33-<0.50	Rather low/ Low deficit
0.50-<0.67	Quite high/ Low surplus
0.67-<0.83	High/ Moderate surplus
≥0.83	Very high/ High surplus

Table 16. Composite Index of Food Utilization

Village	Index percentage of homes fulfilled enough clean water	Composite index	Classification
Pandansari	0.00	0.00	Very low

Table 17. Composite Index Classification of Food Security

Composite index	Classification
<0.32	Very insecure
0.32-<0.39	Insecure
0.39-<0.46	Rather insecure
0.46-<0.53	Quite resistant
0.53-<0.61	Resistant
≥0.61	Very resistant

Based on Table 20 shows the composite index of food security derived from the sum of the composite index of food availability, food accessibility and food utilization composite index divided by the number of variables used are as much as three and a customized classification food security conditions contained in Table 19. Based on the results of the composite index of food security known Pandansari Village has the very insecure conditions (Figure 2), because after the eruption of Mount Kelud Pandansari village communities have difficulty in fulfilling the clean water, so the ability to utilize the very limited food.

Table 18. Composite Index of Food Security

Village	Composite index of food availability	Composite index of food accessibility	Composite index of food utilization	Composite index	Relative condition
Pandansari	0,46	0,40	0,00	0,29	Very insecure

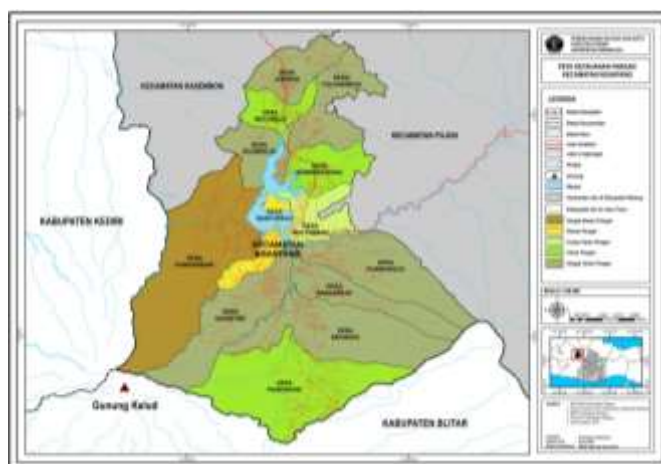


Figure 2. Food security maps in Ngantang District

CONCLUSION

Based on the analysis of food security that consists of aspects of food availability, food accessibility and utilization of food in village at risk of eruption of Mount Kelud it can be concluded that the village with food insecurity conditions are contained in Pandansari Village. The condition is caused after the eruption of Mount Kelud access and utilization of food in the village Pandansari disturbed such as roads and water, thus affecting the food security villagers, besides the village are very insecure in Ngantang also are villages that are highly resistant condition of food the Village Sidodadi, Ngantru, Kaumrejo and Banjarejo Village. Based on the results of that research shows that in the aftermath of kelud eruption mountain village pandansari experienced food insecurity , it can be used as input in the manufacture of the government policy malang regency, especially in the handling of natural disasters by taking into account the effect on the condition of food security in the region. Stakeholders (govt, NGOs) may take this finding into account when undergo disaster relieve program.

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CONSTRUCTING RURAL RESILIENCE: LESSONS FROM CENTRAL JAVA-INDONESIA

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ABSTRACT

In recent years, resilience has emerged as an important theme of transformational development. As people defined living in the urban area outnumber people living in rural area, there are a lot of concerns to elaborate the resilience concept in the urban context. However, it will lead to a misleading outcome if the elaboration is neglected the important role of rural area. The basis for a wide range of strategic interventions to stimulate development should integrate urban and rural as a balance and cross-correlated system. No urbanization (i.e. industrialization) succeeds without sufficient support from the rural area (i.e. agricultural sector). Based on this perspective, to achieve balanced development, the concept of urban resilience will only be fully comprehended if it also accommodates resilience in the rural setting. This paper aims to elaborate the concept of rural resilience by discovering lessons from the case of Central Java-Indonesia. In general, rural resilience may be defined as the capacity of a rural region to adapt the dynamics of external circumstances in such a way that an adequate standard of living is preserved (Heijman et al, 2007). The discussion is focusing on resilience mostly in the perspective of agricultural transformation to accommodate the need of food supply and adaptive capacity of the farming family as there is a significant decline of the rural population as well as the cultivated land (i.e. land conversion). Data from Statistic office (CBS) and Village Potential (PODES) were employed to analyze the rural resilience concept. PODES data were transformed into spatially explicit data under Geographical Information System (GIS) based on their availability in each village. In general, the study result indicates that rural resilience concept is very critical to be further comprehended mainly to ensure food supply. Rural transformation mostly due to urbanization is inevitable but in various ways, the effort for maintaining farmers well-being is a calling for an innovative policy intervention and agricultural productivity should be preserved to remain stable.

Key words: Rural Resilience, Central Java

INTRODUCTION

There have been a lot of discourses to explain the word “resilience”. According to Alexander (2013), Davoudi (2012), and Heijman (2007) the term resilience was first introduced by Holling (1973) applied in the field of ecology for denoting the ability of a system “to persist” and “to adapt”, or in different words is the capacity to return to the steady-state after disturbance so-called shocks and stresses. Hence, the idea of resilience has been expanding and applied differently in the different field ranging from physical, economy to social science. Davoudi (2012) further highlights that resilience is likely to replace the term of sustainability and potentially to become a “buzzword” due to the lack of its clarity.

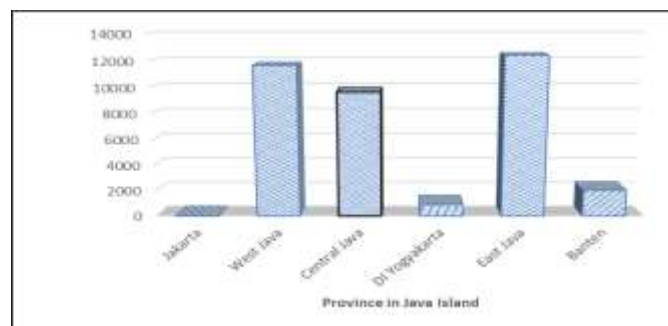
However, despite the fact that the term resilience has been applied in the various areas followed by numerous argumentation, it is so far only Heijman (2007) that has been discussed it comprehensively in the context of rural development. Looking in the perspective of rural and urban development, there has been a lot of discussion on urban resilience for several reasons, but almost none of it considers the relation between urban and rural area. As people defined living in the urban area outnumber people living in rural area, there are a lot of concerns to elaborate the resilience concept in the urban context (Reed et al., 2013; Friend and Moench, 2013). Nevertheless, it will lead to a misleading outcome if the elaboration is neglected the important role of rural area. The basis for a

wide range of strategic interventions to stimulate development should integrate urban and rural as a balance and cross-correlated system. No urbanization (i.e. industrialization) succeeds without sufficient support from the rural area (i.e. agricultural sector). Based on this perspective, to achieve balanced development, the concept of urban resilience will only be fully comprehended if it also accommodates resilience in the rural setting.

This paper aims to elaborate the concept of rural resilience in the perspective of the need to have a balancing role of rural and urban development. The discussion is focusing on resilience mostly in the perspective of agricultural transformation to accommodate the need of food supply and adaptive capacity of the farming family due to the significant decline of the rural population as well as the cultivated land (i.e. land conversion). In general, rural resilience is defined as the capacity of a rural region to adapt the dynamics of external circumstances in such a way that an adequate standard of living is preserved (Heijman et al, 2007). As development (i.e. economic development) has been appreciated as a process of transformation from dominantly agricultural (or rural character) into modern industrial (or urban character) (Mellor, 1986:67), the agricultural transformation process has been becoming a critical issue particularly for developing countries. However, Lewis (1954 in Timmer, 1988: 276) has argued, “economies in which agriculture is stagnant do not show industrial development”. Correspondingly, Mundle (in Dutt, 1990) and Timmer (1988) also have pointed out, no industrialization succeeds without sufficient support from the agricultural sector. However, there is an “asymmetrical and thus dualistic” relation between agriculture (to represent main activity in the rural area) and industry (to represent main urban function) (Ranis, 1988: 74). As a matter of fact, agriculture is compulsory for industrialization and urbanization at least for two reasons, agricultural products are very important to feed people in urban areas and as a crucial input in particular industries. On the contrary, urban activities are not really a requirement to develop agriculture. Following the argumentation on industrial vs. agricultural development, this paper presents potential issues of rural vulnerability as there has been so much centrality in urban resilience approach based on a case of Central Java.

STUDY AREA AND METHODS

The focus commodity to be discussed in this paper is paddy as a staple food and main agricultural production of Central Java Province. Accordingly, rural areas in the province have an important role in producing paddy to accommodate the need of food supply in the country. Figure 1 shows that paddy productivity of Central Java is lower than East Java and West Java, but it still has a contribution in fulfilling the need of food supply in Java Island or Indonesia. Meanwhile, urban development encourages the emerging of land conversion in Central Java . The unbuilt-up area as the cultivated land decline gradually. Based on data 1994 to 2006, land conversion to the built-up area in Central Java keep on increased about 153,04 km² per year (Handayani, 2011). Figure 2 further shows that land conversion has emerged in 1994 and significantly increased until 2030.



Source: CBS, 2015

Fig. 1 Paddy Productivity on Java Island, 2014

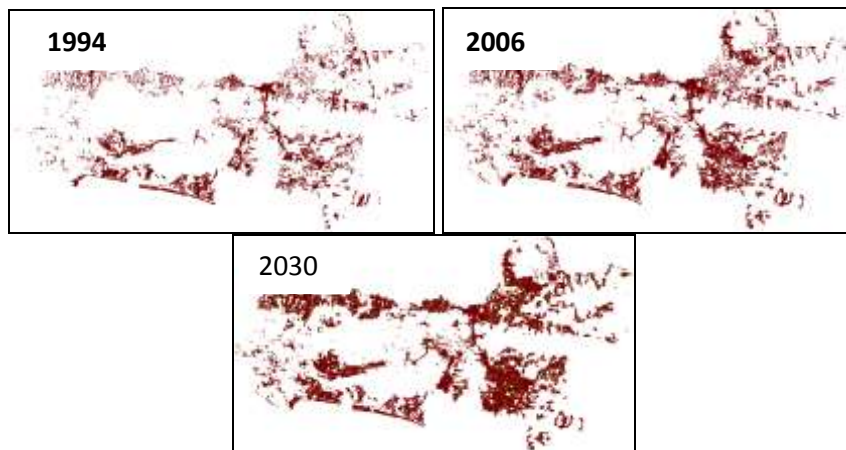


Fig. 2 Built-up Area in Central Java 1994, 2006, and 2030

There are several variables applied in two different level (i.e. district level and village level) to understand rural resilience related to urbanization and food supply context. Three variables in district level consist of paddy productivity, farming family, and agricultural land conversion. Those variables data are compiled from PODES¹⁹ (i.e. farming family) and CBS - Central Bureau of Statistics (i.e. paddy productivity and agricultural land conversion). Each of data is compiled in two different times based on their availability such as paddy productivity (2004 and 2014), farming family (2000 and 2010), and agricultural land conversion (1990 and 2011). Paddy productivity growth rate was classified into six classes, decreased (i.e. more than 4%, 4% - 2%, and less than 2%) and increased (i.e. less than 2%, 2% - 4%, and more than 4% per year). Farming family growth rate was classified into six classes, decreased (i.e. more than 4%, 4% - 2%, and less than 2% per year) and increased (i.e. less than 1%, 1% - 2%, and more than 2%). The agricultural land conversion growth rate was classified into three classes, i.e.; more than 2%, 2% - 1%, and less than 1% per year.

Two variables at village level consist of farming family and the main commodity in each village. Both of them are compiled from PODES data at different times based on their availability. Farming family data are compiled as numerical data in two different times (i.e. 2000 and 2010). The main commodity data are compiled as categorical data in 2010. Differently in district level, farming family data at village level was classified into three classes, i.e.; less than 650, 650 - 1300, and more than 1300 family per village.

PODES and CBS data were transformed into spatial data by Geographical Information System (GIS) in village and district levels. This spatial data was classified into the classification that has been determined. Each spatial data in this paper will be managed and organized by employing GIS. This spatial data can be combined, analyzed, and visualized in different layers. Meanwhile, these different layers also can be overlayed to produce new information. Whereas the result can be visualized into different graduated color. To gain more description of the relationship between each classified data in district level, the scatter graph analysis was carried out. The scatter graph results can explain the relationship between each classified data in district level.

RESULTS AND DISCUSSION

Urbanization in Central Java

In general, the increase of urban population is defined as urbanization, but it is not the same as the urban population growth. Urbanization occurs when urban population growth is higher than the general population growth. According to census 2000 and 2010, Indonesia population growth is 1,49 %. The rural population growth is very low compared to the urban population, that is about 3,3 % compared to 39 %. Figure 3 shows that urbanization in Central Java is relatively low compared to

¹⁹ Village Potential (knowns as PODES) is the formal-secondary data provided by village office

other provinces in Java Island or Indonesian average. Based on data in 2010, the percentage of urban population in Central Java is 45,7 % very much below than other provinces in Java Island (i.e. 60,8 %) or Indonesian average (i.e. 49,8 %). Similarly, the projection in 2035 shows the same pattern with the current situation.

Urbanization also can be defined as emerging urban areas by changing the classification of rural-urban status. Figure 4 shows that percentage of rural villages in Central Java decreased significantly from 2000 to 2010. To further illustrate, the percentage of rural villages in Central Java have decreased about 83,2 % to 68,3 % within ten years. Accordingly, the difference of rural villages in 2000 to 2010 showed a significant change of rural villages status in Central Java as compared to total rural villages in Indonesia. The composition indicates that Central Java has a quite rapid development so it makes many of rural villages changed into urban villages.

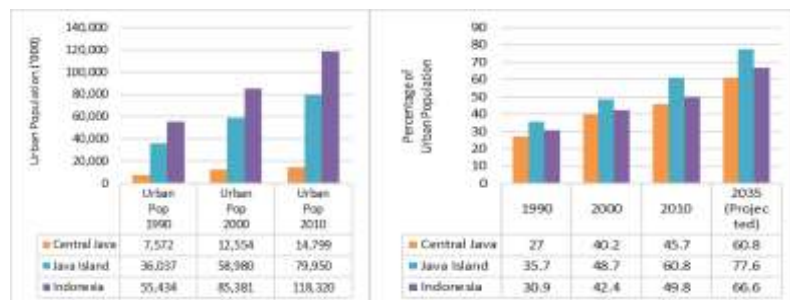


Fig. 3 Urban population growth in 1990, 2000, and 2010

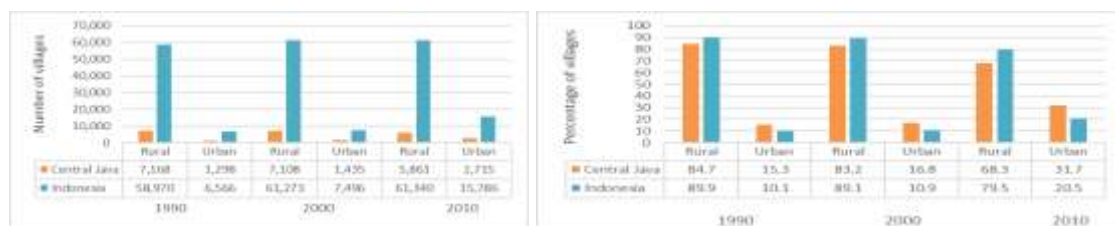


Fig. 4 Composition of urban and rural villages in 1990, 2000 and 2010

Paddy Productivity, Farming Family, and Agricultural Land Conversion in District Level

As illustrated in Table 1, paddy commodity productivity in Central Java decreases quite significant from 9.924.475 Ton in 2004 to 8.314.301 Ton in 2014. It happened mostly due to the high rate of urbanization that takes place intensely in the area. 11 out of 35 districts in the Province has been experiencing lower productivity even though there is significant intensification approach to boost the production. Land conversion in addition to drought due to climate change and pest attack appears as the most reasonable explanation to understand the situation. On the other hand, there is also a movement to transform the agricultural production from inorganic into an organic commodity in which it has better quality, ecologically friendly but will significantly decrease the amount of production.

Table 1. Paddy Productivity in 2004 and 2014 (Ton)

District	Productivity in 2004	Productivity in 2014	Growth rate (per year)
Kab. Banjarnegara	140193	118609	1,82%
Kab. Banyumas	305795	323732	-0,55%
Kab. Batang	178492	198756	-1,02%
Kab. Blora	388726	353565	0,99%
Kab. Boyolali	246681	214695	1,49%
Kab. Brebes	561612	446116	2,59%
Kab. Cilacap	672375	612577	0,98%

District	Productivity in 2004	Productivity in 2014	Growth rate (per year)
Kab. Demak	544087	510703	0,65%
Kab. Grobogan	554587	540078	0,27%
Kab. Jepara	197230	184175	0,71%
Kab. Karanganyar	286285	220078	3,01%
Kab. Kebumen	406976	343305	1,85%
Kab. Kendal	234334	204716	1,45%
Kab. Klaten	344364	309068	1,14%
Kab. Kudus	126866	128034	-0,09%
Kab. Magelang	334987	258062	2,98%
Kab. Pati	484466	486425	-0,04%
Kab. Pekalongan	170721	231669	-2,63%
Kab. Pemalang	414377	324437	2,77%
Kab. Purbalingga	172144	158366	0,87%
Kab. Purworejo	296043	255611	1,58%
Kab. Rembang	166376	187209	-1,11%
Kab. Semarang	213128	162268	3,13%
Kab. Sragen	565257	431273	3,11%
Kab. Sukoharjo	310276	268495	1,56%
Kab. Tegal	296316	277054	0,70%
Kab. Temanggung	157819	138396	1,40%
Kab. Wonogiri	324268	210184	5,43%
Kab. Wonosobo	151564	158568	-0,44%
Kota Magelang	3043	2455	2,40%
Kota Pekalongan	8305	12286	-3,24%
Kota Salatiga	7652	6997	0,94%
Kota Semarang	24639	27801	-1,14%
Kota Surakarta	922	1140	-1,91%
Kota Tegal	3569	7398	-5,18%
TOTAL	9294475	8314301	

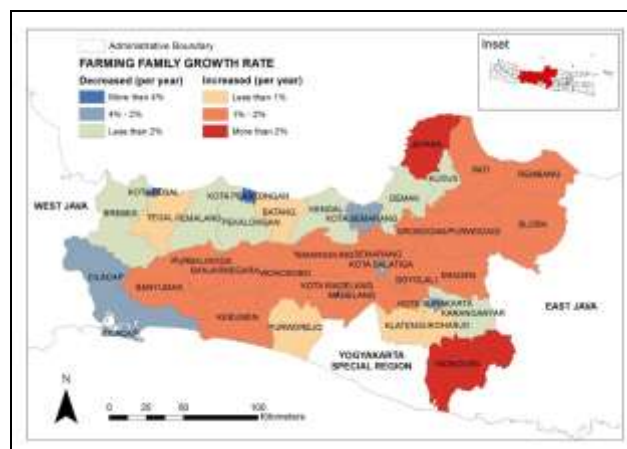


Fig. 5 Farming Family Growth Rate Map. Source: PODES 2000 and 2010

Following the data concerning paddy productivity, Figure 5 indicates that urbanization in Central Java mostly occurred in the coastal areas. Almost all districts located in the northern coastal area has been experiencing decreasing growth rate of the farming family ranging from 2-4%. It leads to an interesting finding as most of the districts located in the inner area of the province has been experiencing an increasing farming family 1-2% while the productivity is likely to decrease (see Table 1). It clearly indicates that most of the farming family is very prone to have lower income and it requires significant policy intervention mostly to fulfill the need of food supply in the country.

Figure 6 illustrates the data of farming family and paddy productivity growth rate. Even though most of the districts (16 out of 35 districts) have been experiencing positive growth rate for both, farming family and paddy productivity, there is only one district that has higher paddy productivity growth rate compared to the farming family growth rate. Meanwhile, only very view districts experience higher (positive) paddy productivity growth rate and negative growth of farming family as it may illustrate higher productivity. To further demonstrate the performance of the agricultural sector in the Province, Figure 7 shows data of farming family in combination with land conversion. The figure describes that 21 out of 35 districts in the Province has been experiencing the increase of the farming family growth rate along with the increasing growth rate of agricultural land conversion. The figure has also further provided evidence that a significant number of people engaged in the agricultural sector in the Province may have loose their cultivated land (i.e. agricultural land). All districts show the same phenomena, and it leads to an obvious tendency that productivity of a farmer in the province decreases significantly.

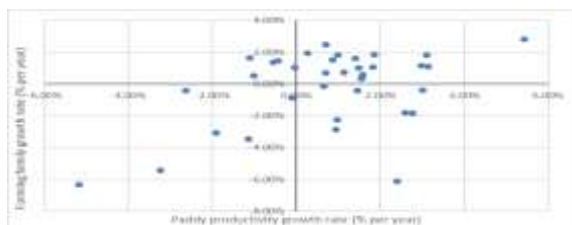


Fig. 6 Farming Family Growth Rate vs. Paddy Productivity Growth Rate

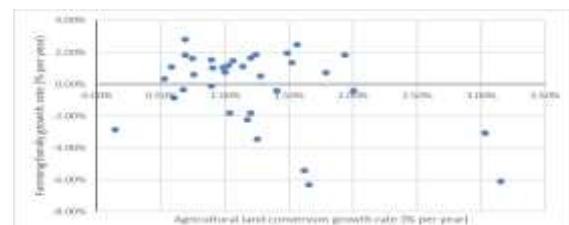


Fig. 7 Farming Family Growth Rate vs. Agricultural Land Conversion Land

Analysis at Village Level

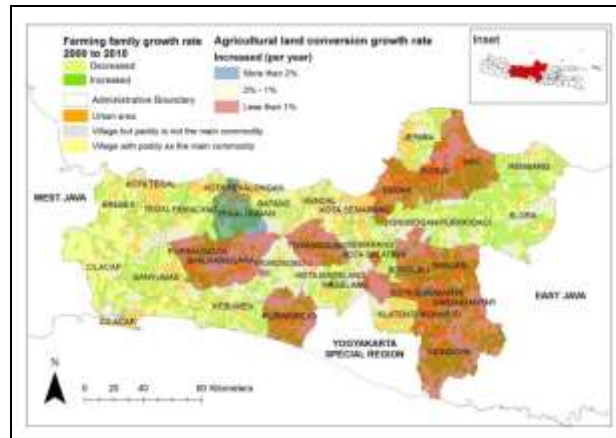
To get into a more detail illustration, Figure 8 illustrates all the applied variables at the village level. The map may describe at least two things:

- a) Paddy is indeed, a main agricultural commodity in the Province. It should be anticipated well mostly because paddy is the staple food for Indonesian people so price stability and continuity are critical for this commodity.
- b) Even though land conversion is likely to increase in the whole region (not only in the surrounding of the urban region), in line with data that is presented at the district level, there is still a significant growth of family engaged in the agricultural sector meaning lower productivity for each farmer and unsmooth rural transformation.

Discussion: Issues to Promote Rural Resilience

Previous parts have explained urbanization phenomena, the trend of paddy productivity, farming family and land conversion in Central Java Province. Urbanization is significant in the area as the number of urban population increases rapidly followed by a significant growth of land conversion. Darnhover et al (2016), taken from the case of Europe, state that the situation may lead to the instability and uncertainty for the farmer for at least two reasons. Firstly, it is likely that development policy has put a lot of attention to urban development (due to its complexity) rather than rural development. Secondly, there will be more pressure for farmers to increase the productivity to feed the urban people and at the same time it is a demand to maintain the environment by promoting organic farming in which it will slow down the production. Burkhard et al, 2011 has also further highlighted the important comprehension of the adaptive cycle to explain the agricultural

transformation. The cycle includes four phases of the adaptive process: exploitation, conservation, release, and reorganization. The farmers in such way should be able to cope with and disturbance happens in each cycle, no matter it is defined as shocks or stresses, to in the end become resilient.



Source: PODES 1990, 2000, and 2010

Fig. 8 Farming Family Growth Rate vs. Agricultural Land Conversion Growth Rate

Following the notion to keep the balance of urban and rural development, there are at least three main concerns to promote rural resilience. It is briefly explained as follow:

- Rural sustainability: shrinking region
 As has been happening in almost all part of the world, rural area has been experiencing declining population. Younger people is very likely to work in industry or services sector rather than engaged in agricultural activity. It does not really a matter if the number of cultivated lands remains stable. The fact is that land conversion happens significantly to accommodate activity due to the growing population and urbanization is regard as inevitable phenomena. It leads to a serious problem as it clearly showing an unbalanced relation between the role of rural and urban. Industrialization and urban population are keep growing. More people and less cultivated land to accommodate the food supply should be regarded as a serious issue to be addressed. On the other hand, growing population in the urban area have been leading to a more complex problem in most of the urban regions require more attention. However, it should be also an increasing awareness of the rural area. How the farming family survives, adapt and retrieve from the current pressure would be the main concern to achieve the rural resilience.
- Food demand vs food supply
 It is very unfortunate that rapid urbanization is taken place in the arable land. Rapid urbanization requires relatively high land demand while it is also important to maintain arable land for agriculture mostly for paddy as the staple food. Eventually, food security appears as the critical issue in regard to agriculture in Java since land productivity of Java is the highest in the country. According to agriculture statistics released by CBS (CBS, 2001), Java still dominating rice production in Indonesia by contributing \pm 60 percent of national production in 2000. On the other hand, Indonesian rice consumption is 114 kg per capita. In comparison with several others Asian countries, rice consumption per capita in Thailand is only 80 kg per capita while in Japan, it is only 40 kg per capita (Tambunan, 2003). These facts result in a dilemmatic situation for Java and may lead to a serious discussion on the-the term of “rural resilience”. Rapid urbanization through industrialization, by some means, is inevitable. This process requires land not only for industries but also for accommodating population growth and various urban activities. On the other hand, agriculture is also important mostly for food security and sustainability.

Table 2 explains rough calculation on the productivity of the paddy in comparison with the demand for rice to fulfill the need of the people in the area. It still indicates as a surplus rather than deficit if the production only for consumption for people in the Central Java. The rice productivity also increases with the higher rate compared to the population growth rate (see Table 2) However, considering mostly that paddy from Java fulfills nearly 60 % people across the country, the calculation becomes dangerous and requires anticipation.

Table 2 Supply and Demand Calculation of Rice in Central Java

Central Java	A		b		c = (b x 114 kg/capita/year)		d = (a - c)	
	Rice productivity ('000 ton)		Total population		Food demand ('000 ton)		Surplus (+)/Deficit (-) ('000 ton)	
	2004	2014	2004	2014	2004	2014	2004	2014
Total	5.216,39	5.831,35	32.397.431	32.791.388	3.693,31	3.738,22	1.523,09	2.093,14

- **Farming Family Adaptation: the Concept of Multiple Livelihood**

As it is a clear indication that cultivated land for each farmer becomes smaller, not to mention that so many many people working in the agricultural sector only as a laborer (not the land owner), well-being appears as another critical issue calling for urgent anticipation. Hence, multiple livelihoods for farming family should be regarded as an important form of farmers adaptation to become more resilience. To briefly illustrate, most of the farmers migrate to the big city in famine season. They are likely to do it in the dry season. Most of the farmers, then come to the big cities engaged in the informal sector as construction laborers, motorcycle taxi drivers, and others. When planting season arrives, they will return to their villages and back to the agricultural based activities. However, putting added value and expanding the value chain of the agricultural product would be the best way of adaptation form. In this way, the rural transformation will take place smoothly and may not encumber the urban area.

CONCLUSION

Despite the fact that urban resilience is regarded as a more renowned terminology compared to rural resilience, it does mean that rural resilience is not important. Urban sustainability will only take place along with significant support from the rural area. Rapid urbanization should be taken place along with agricultural activity proportionally to balance the need of food supply as the basic need of human being and as input for a particular type of industries. In this regard, the land allocation is critical in development. Farmer adaptation also appears as another important terminology in regard to the idea of rural resilience. The concept of multiple livelihoods should be further elaborated for maintaining farmers well-being. It requires an innovative policy intervention as agricultural productivity should be preserved to remain stable.

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SUSTAINABLE RURAL RESOURCE MANAGERMENTS AFTER WENCHUAN EARTHQUAKE

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ABSTRACT

On 12 May 2008, the huge earthquake attacked Wenchuan County where is rural area of Sichuan, China. It caused losses in various social aspects in community such as, economic, human, infrastructure, and environment. Especially, housing reconstruction was the most important reconstruction effort after the quake, because it was represented almost half of the total damage and losses (RMB 403,894 million). Moreover, house is a factor that is essential for affected resident. Also, the right of assistance for housing the victims who lost houses is in charge of Chinese governments, so governments should provide sustainable development on the matter of housing reconstruction and recovery so that residents acquired better and safer house. Therefore, this paper is interested in examining the housing reconstruction mechanism of Chinese governments by analyzing through A Disaster Risk Management Framework that emphasizing sustainability on disaster risk management.

Key words: Rural, Earthquake, Sustainable management, Wenchuan

INTRODUCTION

May 12th, 2008 a massive earthquake measuring 8.0 on the Richter scale hit the southwest area of China. The epicenter was in Wenchuan County where was the rural area of China, also called developing areas, 92 kilometers northwest of the Sichuan provincial capital of Chengdu, affecting a vast area, including 10 provinces and cities. The Wenchuan earthquake caused extensive damages and heavy losses. The death toll had reached 69,227 with a further 374,643 injured and 17,923 missing; 15,106,207 people were evacuated, and 46.25 million people were effected. A great number of rural and urban houses collapsed, infrastructure facilities were damaged on a large scale, agriculture and industry suffered from heavy losses. The direct financial losses reached RMB 845.1 billion, with 91.3% incurred in Sichuan. The total value of damage to housing is RMB 403,894 million, representing almost half of the total damage and losses. Clearly, Rebuilding and rehabilitating homes became the most important reconstruction effort after the Wenchuan earthquake disaster. (Asian Development Bank, 2008)

Hence, the paper aims to study phenomenon of rural housing reconstruction after the Wenchuan Earthquake Disaster through management of rebuilding houses of earthquake-affected populations for sustainability. A Disaster Risk Management Framework is applied in order to examine process of reconstruction and recovery for sustainable development in charge of Chinese governments namely, central and local government. The methodology of this study is the documentary research applied in the collecting data, the related contents of textbook, article, as well as official documents. All of these source data are gathered and analyzed later.

MATERIALS AND METHODS

Literature Reviews

Krishna S Pribadi, teti Agro, Aria Mariani and Hening Parlan (2011) found that community based disaster risk management as a form of people centered, participatory and bottom-up approach disaster risk management has been introduced in Indonesia since the early 2000s. Gabrielle Iglesias (2011) depicted that community involvement is recognized as essential in the disaster risk management process. Community participation is able to reduce risk, and strengthen the consensus over reducing disaster risk and the commitment to disaster risk management goals. Sisira Kumara (2011) suggested that community based risk reduction is a well-known thematic focus of many regional, national and sub-national organization to build capacities and to strengthen existing disaster management structures, whilst emphasizing the contributions made by communities and to advance the creation of safer communities. Y. Chang, S. Wilkinson, E. Seville and R. Potangaroa (2009) found that the aftermath of “5.12 Wenchuan Earthquake”, authorities in China have utilized for post-Wenchuan earthquake recovery and reconstruction.

In short, the review of related documentaries indicates that community is significant to disaster risk reduction and in case of disaster in China, Chinese authorities play a major role in all processes of post-disaster reconstruction and recovery.

Framework

The project of Disaster Risk Reduction (DRR) is established among the severe situations of disaster that occur from year to year. Especially, natural disasters such as earthquake, tsunamis and floods usually strike without notice. Practical Action (2016) is an international non-governmental organisation (NGO) that is doing about Disaster Risk Reduction project so as to reduce the risk of disasters for communities. Its report reveals almost three billion people were affected by natural disasters between 2000 and 2012. Moreover, the majority of those affected live in the poorest countries. By 2015, the organization helped reduce the risk of disasters for over 60,000 people around the world.

It can be seen that nowadays risks of the disaster are gradually growing, many impacts of losses from natural disasters occur continuously. Disasters big and small devastate not only families, communities and nations, but also undermined every aspect of sustainable development, whether social, economic and environment. Statistics of the United Nations Office for Disaster Risk Reduction (UNISDR) (2016) show that between 2000–2011, more than 2.7 billion people were affected and 1.3 trillion dollars were lost by disasters. Consequently, the issue of Disaster Risk Reduction is raised and proposed. The United Nations Office for Disaster Risk Reduction (2016) was set up in 1999, played an important role in the case of Disaster Risk Reduction and facilitated the implementation of the International Strategy for Disaster Reduction (ISDR). From result of the UN General Assembly Resolution 56/195, the office was mandated:

“to serve as the focal point in the United Nations system for the coordination of disaster reduction and to ensure synergies among the disaster reduction activities of the United Nations system and regional organizations and activities in socio-economic and humanitarian fields.”

Following declaration of UN General Assembly Resolution 61/198, the United Nations Office for Disaster Risk Reduction has to handle and develop the project with the adoption of the Hyogo Framework for Action 2005-2015 in order to build the Resilience of Nations and Communities to Disasters (HFA), the United Nations General Assembly tasked UNISDR with supporting its implementation, also organizes the Global Platform for Disaster Risk Reduction.

Disaster Risk Reduction (DRR) aims to reduce the damage caused by natural hazards through an ethic of prevention. In terms of reducing risk, the contents of this project are stated that it should create a culture of prevention, instead of a culture of reaction. Concept and practice are involved in reducing disaster risks through systematic efforts to analyse and reduce the causal factors of disasters.

It can be divided into three characteristics, for instance, 1) Reducing exposure to hazards, 2) Lessening vulnerability of people and property, wise management of land and the environment, and 3) Improving preparedness and early warning for adverse events are all examples of disaster risk reduction. Furthermore, the International Federation of Red Cross and Red Crescent Societies (IFRC) propose five aspects to disaster risk reduction: 1) Disaster mitigation, 2) Early warning, 3) Disaster preparedness, 4) Recovery and 5) Support to livelihoods. Obviously, Concepts of both the United Nations Office for Disaster Risk Reduction and the International Federation of Red Cross and Red Crescent Societies toward Disaster Risk Reduction are similar. This emphasizes that international organizations are interested in awareness of Disaster Risk Reduction. In addition, Disaster Risk Reduction links with disciplines like disaster management, disaster mitigation and disaster preparedness, it is also part of sustainable development. Activities related to sustainable development are to reduce risk and losses of disaster. Therefore, it can be said that Disaster Risk Reduction delivers on development is a no-regret investment that protects lives, property, schools, business and employment, also saves lives and livelihood. (The United Nations Office for Disaster Risk Reduction, 2016). Definitely, disaster losses directly impact on sustainable development in every level of society. Thus, the United Nations set up continuing frameworks related to integration of Disaster Risk Reduction and sustainable development.

First of all, the Hyogo Framework for Action (HFA) 2005-2015: Building the Resilience of Nations and Communities to Disasters was established as a 10-year plan to make the world safer from natural hazards, endorsed by the UN General Assembly in the Resolution A/RES/60/195 following the 2005 World Disaster Reduction Conference. This framework is necessary to cooperate and develop with many stakeholders who needed to reduce disaster risk such as, governments, international agencies, disaster experts and many others so that goal of reducing disaster losses can reach by 2015 by means of building the resilience of nations and communities to disasters in order to get rid of loss of lives and social, economic, and environmental assets when hazards strike. HFA outlines provided five priorities for action, and offered guiding principles and practical means for achieving disaster resilience, for instance, 1) Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation, 2) Identify, assess and monitor disaster risks and enhance early warning, 3) Use knowledge, innovation and education to build a culture of safety and resilience at all levels, 4) Reduce the underlying risk factors and 5) Strengthen disaster preparedness for effective response at all levels. (The United Nations Office for Disaster Risk Reduction, 2016)

Next, the Sendai Framework for Disaster Risk Reduction 2015-2030 (Sendai Framework) is the first major agreement of the post-2015 development agenda that was launched after the Hyogo Framework for Action (HFA) 2005-2015: Building the Resilience of Nations and Communities to Disasters finished. It was endorsed by the UN General Assembly following the 2015 Third UN World Conference on Disaster Risk Reduction (WCDRR). Its purpose is decreasing risk of small-scale and large-scale, frequent and infrequent, sudden and slow-onset disasters, caused by natural or manmade hazards as well as related environmental, technological and biological hazards and risks. Also, aims to guide the multi-hazard management of disaster risk in development at all levels, so as to prevent new and reduce existing disaster risk through the implementation of integrated and inclusive economic, structural, legal, social, health, cultural, educational, environmental, technological, political and institutional measures that prevent and reduce hazard exposure and vulnerability to disaster, increase preparedness for response and recovery, and thus strengthen resilience. Outlines of Sendai Framework are depicted in four priorities for action: 1) Understanding of disaster risk in all its dimensions of vulnerability, capacity, exposure of persons and assets, hazard characteristics and the environment, 2) Strengthening disaster risk governance to manage disaster risk, 3) Investing in disaster risk reduction for resilience and 4) Enhancing disaster preparedness for effective response and to “Build Back Better” in recovery, rehabilitation and reconstruction. (The United Nations Office for Disaster Risk Reduction, 2016)

The fact is Disaster Risk Reduction leads to Disaster Risk Management (DRM). Similarly, both Hyogo Framework and Sendai Framework exist to develop practical approaches to Disaster Risk Management. It involves prevention, mitigation, preparedness, response and rehabilitation efforts. Its management stages can be classified into before, during and after event activities. All activities are

based on the fundamental principle that all stakeholders must be empowered to make informed choices about their risks and how best to reduce, retain or transfer them. Hence, one of significant contents in Sendai Framework is focused on A Disaster Risk Management Framework, its main idea is advised through five pillars. For example, PILLAR 1 is Risk Identification; Understanding hazards, exposure, and vulnerability is the first step towards managing disaster risk, PILLAR 2 is Risk Reduction; Disaster risk information can inform different development strategies, plans and projects that can in turn reduce risks, PILLAR 3 is Preparedness; Adequate preparedness is essential, as risk can never be completely eliminated or reduced, PILLAR 4 is Financial protection; Financial protection strategies protect governments, businesses and households from the economic burden of disasters, and PILLAR 5: Resilient reconstruction; After a disaster, the reconstruction process is an important opportunity to promote resilience. (The World Bank, 2012)

In a nutshell, A Disaster Risk Management Framework is established under continuing frameworks namely the Hyogo Framework for Action and the Sendai Framework. Its five pillars are launched in order to be a representative of disaster risk management linked to disaster management for sustainability. Personally, A Disaster Risk Management Framework's knowledges should be applied in the process of post-disaster reconstruction and recovery so as to make disaster-affected area in all conditions become better and safer.

RESULTS AND DISCUSSIONS

Management of Rural Dwelling Houses after the Quake

State Council and Local Government are the main actor who takes responsibility for matter of rebuilding houses after the Wenchuan Earthquake Disaster. Housing reconstruction for sustainability must be considered in the first step. An understanding of situations and problems after the quake is important for sustainable management and development. Therefore, accessible ways for the goal of reconstruction of rural dwelling houses after the quake will be described below.

Problems of Housing Reconstruction after the Quake

In Sichuan, 1,443,800 households needed the process of strengthening, 1,911,700 households 5,735,100 rooms needed the process of new construction after the quake. Damaged house in rural area of Sichuan can be divided into three categories: 1) collapsed houses (6,350,554 rooms); 2) seriously damaged houses (7,221,930 rooms) and 3) slightly damaged houses (13,896,919 rooms). From these statistic of losses, it can be predictable that Chinese government was necessary to spend lots of money to investment for solving the enormous troubles. (Asian Development Bank, 2008)

The first problem that governments had to cope with is building pre-fabricated houses for unhoused people. The State Council built many pre-fabricated houses for the homeless families so that earthquake-affected residents lived in there temporary houses during the transitional period prior to the construction of permanent houses. Basic facilities of water, electricity, common kitchens and toilets were installed in the temporary houses. Next, the local governments in Sichuan faced two major problems in the housing reconstruction: 1) Lack of funding: Main role of Chinese governments was taking responsibility to assist the victims who lost houses. The governments at all levels must provide large investments in rebuilding dwelling houses and relevant facilities. A lot of money must be spent for the reconstruction and recovery of houses and facilities, and 2) Shortage of land for reconstruction and relocation: Sichuan is one of the most densely populated provinces in China, there are places where are deep in the mountains and valleys, also population density of minorities is very high.

Normally, the limitation of lands is available before the quake hit, this leads to the problem of local economic and social development. The situation was more severe after the earthquake with landslides, mountain movements and changes of watercourses in many places. The static of the State Overall Planning showed that there were 3,355,500 households in the rural areas that needed to strengthen or to rebuilt their houses. Moreover, Building each house in rural areas would require 70,000-150,000 RMB Yuan. Yet neither the households not the government were able to cover the

entire costs. The government provides financial assistance in case of rural area by subsidizing 20,000 RMB Yuan for each family whose house was destroyed. In addition, number of family members and economic conditions of the households were the major factors that determine the exact subsidy. (The Recovery Status Report, 2008).

Fundamental Understanding of Rural Housing Reconstruction

Before action of reconstruction will be begun, there are three significant points regarding Rural Housing Reconstruction that each stakeholder, especially government at all levels must realize and recognize. Firstly, information transparency and public supervision are the appropriate way to win the support of affected people. In order to receive real public supervision, government must focus on principles of openness, equity and fairness as well as on transparent information in the process of rural housing reconstruction. Such as the matter of policy, implementation, programming, funds allocation and utilization should be declared through open channels and can be known by affected people in community. This is able to confirm that people actually advise and supervise government operations.

Secondly, rural housing reconstruction design, planning and programming must be considered to decrease disaster risks. Conceptualization of avoiding seismic faults and geological risks in reconstruction and recovery process is the first priority. In fact, many kinds of disaster caused numerous new geological hazards that might lead to landslides or quake-lakes. Even though avoiding the disaster risks is so tough and any case absolutely may be not realistic, governments are necessary to find out the suitable ways for coping with any chaos. For example, governments should apply special engineering practices and organize field investigations on geological hazards, so as to avoid places with high risks for house reconstruction. Afterward, they must design action plan to stable and minimize the risks of house reconstruction.

Finally, in the process of house reconstruction, quality and safety are more important than speed and progress. Although number and scale of house reconstruction projects are vast, as well as they have to be limited with a short and compressed time, the provincial government and respective agencies should strictly follow and respect the law for the whole process so that house reconstruction and recovery can reach the goal of quality and safety. For instance, the aftermath of the quake in Ruo'ergai, Sichuan, the Planning and Construction Bureau did two things for the reconstruction: 1) to use good building materials and 2) to use good construction methods. Accordingly, the county official should set up supervising teams to verify the quality of reconstructed houses in order to ensure that they followed the designated design. (The Recovery Status Report, 2008 and National Development and Reform Committee (NDRC), 2008).

Rural Housing Reconstruction for Sustainability

Management of rural housing reconstruction for Sustainability by local governments could be classified in four measures.

- **Selling old lands for earning money to rebuild houses**, this phenomenon occurred in Tianma Township of Duijiangyan where is the severely damaged area, and closest to Chengdu, the capital of Sichuan Province. As one might expect, if earthquake-affected villagers had funds and rebuilt their houses on the original sites where lands and means of production still existed, rural house reconstruction would not become difficult problem. Actually, after the quake happened, the house reconstruction faced the problem of a fund shortage, while the lands were still valuable. These leaded earthquake-affected villagers chosen to merge the old small villages, where houses were originally scattered around, into new compact villages. Following this policy, the households had to give up their lands where the old houses stood, after that the village management would collect the lands to trade them for funds from commercial companies. Furthermore, the local government provided designs of new houses free of charge. The new designs were earthquake resistant. This new policy had been accepted by many villagers, it rapidly solved the problem of land and funding shortages for rural reconstruction.
- **Upgrading local conditions after the quake struck through house reconstruction**, the main concept of rural housing reconstruction is "Build back better and safer". Local

government organized an all-professional force to complete the planning and layouts for 2,043 villages, 631 towns and 39 severely hit counties, cities and districts, by means of detailed investigation, expert review, and public comments. Such as, an international seminar was organized during the review of the reconstruction plan of Sichuan in order to design for the reconstruction plan of Duijiangyan City that was put through an international bidding process, also rebuild the new county town of Beichuan county was helped by experts.

- **Listening to affected people's needs to seek their comments and requirements on the reconstruction and recovery process**, earthquake-affected residents have their own right, judgement and choice in the selection of earthquake resistant houses, therefore all parties, especially local government must spread the knowledge of disaster prevention and reduction as well as the proven technologies of house building. In order to ensure transparency and respect for the residents, governments must recognize the personal authority of the affected individuals and seek for the real needs of them, for example, where they live, what homes they live in, where they work, how they acquire food, and other considerations. To undertake understanding of the housing needs, governments provided affected residents helpful policies and sent representatives to visit and consult with each household to hear their housing needs, to see their living conditions and to know their difficulties. And then information from the visits and consultations was sent to the local leadership for approval of house reconstruction plans.
- **Mobilizing all resources and useful policies to rebuild the houses**, Even though funding in post-disaster reconstruction is always limited and governments cannot commit to cover all expenses, they can serve and provide affected residents in other forms of support. In china, land ownership belongs to the county, hence the governments can provide assistances by reducing the hidden costs in land provision for house reconstruction in three forms: I) tax and fee reduction/exemption for land used for house reconstruction, II) financial incentives of credit, loan and mortgage and III) provision of key public services of water, electricity, sewage treatment. In fact, Support and help were provided by Sichuan Provincial Government can be summarized in three ways: a) the central and local governments provides subsidies totaling about one fourth of the building cost, reducing or eliminating land and construction fees and taxes; providing concessional loans, establishing guaranteed funding to borrowers who were not eligible to get loans and for the extremely poor households, also the governments provided secured housing, in case of free of charge; b) governments provided technical supports, technical specifications and standards were prepared to guide the rural house reconstruction. They provided over 300 types of house designs free of charge. Moreover, construction departments of local levels dispatched technicians to villages so as to give technical guidance in house building and trained 90,000 rural masons; c) governments supported in supplying building materials. They dealt with a supply shortage and spiked in the prices of building materials, in case of establishing special channels to secure the supply and subsidizing the transportation of building materials. The companies and the households could buy the building materials which were shipped long-distance with reasonable prices and a constant supply. (The Recovery Status Report, 2008)

To the best of our knowledge, like the study of Y. Chang, S. Wilkinson, E. Seville and R. Potangaroa, Chinese governments, both central and local authorities played a main role. They solved the problems of post-disaster reconstruction and recovery by following A Disaster Risk Management Framework. As you can see from the above results, firstly, they understood risk identification through seeking for true problems and listening to affected people's needs to seek their comments and requirements on the reconstruction and recovery process. After that they aided them by setting up house reconstruction plans and layouts; secondly, they applied helpful policies to aid affected residents such as tax and fee reduction, financial supports and provision of key public services. Moreover, affected residents acquired subsidies for rebuilding from governments, it is financial support of authorities; finally, they

provided resilient reconstruction to affected residents, “Build Back Better and Safer” concept was generalized in rural housing reconstruction.

CONCLUSIONS

All in all, Governments are the major actor in the post-disaster situation, especially in terms of rural housing reconstruction. All governmental authorities are to concentrate on disaster management for sustainability so that condition of houses is better and safer than before the disaster. This leads to save the national budgets and residents’ life.

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DISASTER-DERIVED BUSINESS CONTINUITY PLAN IN SABAH: METHODS, APPLICABILITY AND LIMITATIONS

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ABSTRACT

Natural disaster has always been a major threat to the rural community due to its unpredictable occurrence and potential damages to infrastructure creating substantial impact to the socioeconomic. In the case of a large-scale natural disaster, given its low frequency and high magnitude, quantification of the disaster impact is still elusive. A business entity, e.g. small- and big enterprises, suppliers, traders, or even local people is also known as an affected disaster community and subjected to the quantification of disaster impact and post disaster activity, reaction and strategic to recover. The concept of Area Business Continuity Management (Area BCM) has been widely adopted to minimize economic losses or impacts from disaster. An Area Business Continuity Plan (Area BCP) is one of its popular strategic to direct the areas and affected community becoming more resilient to future disaster. Based on the international disaster database OFDA/CRED 1990-2014, Malaysia has recorded an average annual loss by multi-hazard of about 1.3 billion USD. Therefore, the formulation of Area BCM and its implementation plan in Malaysia is critically and timely needed. This paper provides an insight of Area BCM and Area BCP in the context of rural environment and multi-hazard at different working scales. We propose the methods of formulating disaster-derived business continuity plan with the example of Kundasang, Sabah. The study area is located at the north of Borneo Island, East Malaysia, known as international touristic area, and highly vulnerable to the natural disasters. In this study, we review the appropriate methods that have been successfully implemented at different disaster regions, mainly due to geological-, and metrological hazards. A substantial number of spatial and attribute data is required for assessing the reliability of planning and assessment in a quantitative manner. We also address the applicability and the limitations of disaster derived business continuity plans at national, regional, municipality and local scales. An integrated smart geospatial solution incorporating advanced earth observation system and intelligent geo-information technology will be critically discussed for assessing and managing the area BCP in a geologically prone area to the multi-hazards. This study aims at developing a generic framework, which is applicable and replicable to other disaster prone areas in a densely populated rural region in Malaysia. This integrated disaster research is in line with action plans particularly dealing with the *build-back-better*, as listed in the Sendai Framework for Disaster Risk Reduction (SFDRR) 2015-2030.

Key words: Business Continuity Planning, Natural Disasters, Disaster Risk Reduction, Kundasang, Sabah

INTRODUCTION

Malaysia is geographically outside the Pacific Rim of Fire and is relatively free from any severe ravages and destruction caused by natural disasters. However, the country is vulnerable to natural hazards including floods, forest fires, tsunami, cyclonic storms, landslides, seismic activity, epidemics, and haze (local and trans boundary) [1]. The 2014-year end downpour and floods were the worst in the country's history, affecting more than half a million people. Damage to infrastructure alone was estimated at \$670 million U.S. dollars (RM2.851 billion) [2]. Ranau is a district located in [Sabah, Malaysia](#) that sits 108 km east of [Kota Kinabalu](#). The population back in 2010 was 94,092, an almost entirely [Dusun](#) ethnic community. Ranau is noted for its hilly geographical structure and is the largest producer of highland vegetables in the state of Sabah. Tourism and highland agriculture are the major industries, as the district is at 1,176 m above sea level. Tourism sector include recreation to the [Mount Kinabalu](#), [Kinabalu Park](#), [Poring Hot Springs](#), [Kundasang War Memorial](#), Kinabalu Golf Park, and [Sabah Tea](#) Garden. Therefore, Ranau is an important agricultural and tourism center in Sabah and these two sectors have been the main economic backbone for the district. Most of the tourism business is centered on the highlands of [Kundasang](#), a sub-district in Ranau while agriculture business is widespread all over Ranau. The 6.0Mw Earthquake on 5th June 2015, where 18 people were killed, and million in losses because the Kinabalu Park was suspended from operating, where local community suffered job losses. Local community also suffered cut of daily supplies, however government bodies, NGOs, JPAM, MKN and private organization handed much assistance. No doubt there was no specific rescue plan on how to response to the natural disaster, during, and after it hits.

Once a natural disaster has hampered or damaged a business, it is a self-evident that a certain amount of time will be required for that business to recover and to return to a level of production sufficient for trading to take place. The recovery process may be disrupted due to the loss and lack of business resources such as personnel, machinery, electricity, gas and water. Other indirect effects may include increased expenses, lack of demand, short-term of market share, travel difficulties, involvement in recovery operations, loss of production efficiency, loss of supplies and many more. For many businesses these impacts can be catastrophic. A business continuity plan or a BCP is a documented plan that describes methods and means to continue or quickly re-establish “*core-businesses*” (high priority business operations) in an emergency situation. BCP described tactics to minimize the loss and lack of business resources in an emergency. A BCM is a framework for identifying an organization's risk of exposure to internal and external threats. The goal of BCM is to provide the organization with the ability to effectively respond to threats such as natural disasters of data breaches and protect the business interests of the organization.

However, for comparatively small business enterprises, particularly in developing countries where although many industry agglomerated areas are located in vulnerable conditions against natural disasters, the BCP or BCMS has not been formulated nor implemented yet in most of the local enterprises [3]. Moreover, the business enterprises have limited capacity to mitigate damages and maintain operation by their own efforts even if BCPs are prepared, as was the case during recent large scale disasters. In order to minimize economic impacts or losses in case particularly of large scale disasters that disrupt fundamental infrastructure in certain areas, it is important to carry out risk assessment at a proper scale and to make scenario based contingency plans for area damage mitigation.

The Sendai Framework for Disaster Risk Reduction 2015–2030 (SFDRR) was born from the need to ensure Disaster Risk Reduction (DRR) policy reflects evolved understanding of the complexity of disaster risk in the twenty-first century. SFDRR also intends to reflect new challenges that characterize today's world, namely climate change, increased globalization, and the development of new technologies and expertise in the field of risk prediction and early warning systems [4]. One of the SFDRR action plan is to enhance disaster preparedness for effective response and to “*build back better*” in recovery, rehabilitation and reconstruction. Therefore, this study compliment the needs in SFDRR action plans.

MATERIALS AND METHODS

A preliminary study in Kundasang on November 2015, a few months after the Earthquake, were significant for this research. This preliminary study is to acknowledge the effect of the earthquake tremors to the local people and their businesses in Kundasang, Sabah. Five (5) villages were selected as a case study which are; Dumpiring Atas, Dumpiring Bawah, Mesilou, Lembah Permai and Kundasang Lama (Figure 1). The selection of these five villages are made after analyzing the information obtained in respect of the initial direct impact of disasters on the lives of people following the earthquake which occurred in June 2015.



Figure 1: Location of the selected villages (adapted from: google images, 2015).

The method used for this preliminary study are using a questionnaires distribution and interview session (Figure 2). The questionnaires were distributed to the main local businesses in those areas such as at the Kinabalu Park, Mount Kinabalu Golf Park, Desa Dairy Farm and so on. Other than that, there are many homestays as well as the hotels for tourist accommodations. These type of businesses are the main focus for business continuity study and plan for natural disaster prone areas. The interviews were held with important people or upper management team such as the assistant district officer of Ranau, Mr Bernard Kimin, and a few of local people who most of them were selling the vegetables and managed their own local businesses within the villages. Most of the local people were so cooperative during the interviews and they are willing to fill in the questionnaires. By using these approach, 57 questionnaires successfully collected. There were some difficulties to collect more respondents for questionnaires because most of them were still affected with the earthquake and didn't continue their jobs for a while.

Applicability

The feedback from the questionnaires gave the impression on how fast the local people reacted when natural disasters happened. They managed to recover in a short time and some of them change their type of jobs after the earthquake. After the earthquake, some of the farmers could not continue to doing their farming because of their garden and plants were destroyed. However, they managed to recover in a short time and continue planting the new vegetable seeds in their farm. The interview giving some impression on their community survival and how they adapt with the natural disasters. From the questionnaires and interviews, it is justified that they do not have any specific plans on how to save their businesses from natural disasters. Moreover, they need to find the alternative on how fast they can recovered from the destructions caused by natural disasters

Limitation

There are some limitation in this preliminary field study. The questionnaire given to the local people were difficult to understand and it shows that the approach were not suitable for their community. Most of the local people were the elders and using Dusun dialect. Therefore, it is a little bit difficult to get their feedback without the basic knowledge in their daily language of communication and dialect.

However, with a few of introductions and a short brief to them, they managed to answer the questionnaire. Their warm welcome and openness to talk about the natural disasters that happened within the area, their local businesses survival and their spirit on protecting the villages are inspiring. During the field trip to distribute the questionnaires to the villages, some of the road were closed due to the debris or mud flow that occurred after the Earthquake. The closed road had made some of the vegetable suppliers could not come to Kundasang to supply their products. This shows the limitation of the supply chain for the area when the natural disasters strikes. Some of the business building structures were badly damaged during the earthquake, the park were closed from the tourist who came to climb the Mount Kinabalu. The management needs to refund the tourist when they cancelled their trips to the park and Kundasang homestay and hotels. All of the limitations proven that they need to specify the proper framework in order to reduce their business discontinuity.



Figure 2: Interview and questionnaires session.

RESULTS AND DISCUSSIONS

Analysis of the questionnaires revealed a total of 57 respondents from five villages around Kundasang been involved in this study with 35 people (62 %) are women and the remaining 22 people (37 %) were male (Table 1). Almost all of the respondents are Dusun people. The majority of respondents (80 %) are those who were born and raised there, while the remaining 20 % said that they were moved to the village from other areas of the marriage and employment issues.

Table 1: General information of the respondents.

Information	Respondents	Total (%)
Genders	Male (22)	38
	Female (35)	62
Origin	Born and raised in the villages (45)	80
	Transferred to the villages (12)	20

From the questionnaires, there were a question asking on the types of works for the respondents before and after the disasters. Table 2 explained the four (4) main types of work performed. Results of the analysis find out that the main work as farmers (cultivation of vegetables) and trade represents more than 55% of respondents work. While the remaining 45% of the work consists of working as the workers in the hospitality sectors (24%), government and private sectors (10%) and the unemployed (11%).

Table 2: Type of works of respondents.

Type of Works	Respondents	Total (%)
Farmers	31	55
Hospitality sectors	13	24
Government and private sectors	6	10
Unemployed	7	11

The findings were significant to the Kundasang image as the main supplier and production of the stock and supply of vegetables as well as agriculture- related business activities in the state. Comparative analysis were done to see the changes in the type of work before and after the disasters (post-June 2015). The analysis in Table 3 show the existence of the decrease trend for the main work as a farmers and traders but only at a small percentage (2%).

Table 3: Type of works of respondents (before and after disasters).

Type of Works	Respondents		Total (%)	
	Before disaster	After disaster	Before disaster	After disaster
Farmers	31	30	55	53
Hospitality sectors	13	14	24	26
Government and private sectors	6	7	10	11
Unemployed	7	6	11	10

In other section of the questions, there were questions were focusing to the disaster impact to the businesses. Respondent can choose more than on answers for this type of questions. Table 4 and table 5 shows the distribution of the type of losses to businesses and the reason for the natural disasters to happen (on their perspective / opinion).

Table 4: Type of losses to the businesses.

Types of losses to the local businesses	n = 57	%
Loss of customers	48	84
All the equipment's were destroyed and cannot be used	39	68
Supply chain of the products were stopped	30	53
Others	25	44

Table 5: Reason to the natural disaster happened.

Reason of the natural disasters	n = 57	%
Un-controllable development	29	51
Earth's phenomena's	40	70
Climate change / extreme weather	35	61
Others	15	26

In the last part of the questionnaires, the questions were focusing on the self-assessment of the entrepreneur and businesses. They were given the indicators such as 5 for strongly agree and 1 for strongly disagree. Respondents can answered based on their own opinion. Listed in Table 6 are a few questions regarding on the self-assessment and their answer.

Table 6: Self-assessment questions for respondent.

Questions	Answer (Indicators)
I have no problem to communicate with employees during emergencies	5
Important records of my business is protected from damage due to disasters	3
I'm willing to take the risk of continuing the business despite receiving warnings of disaster	1
My business is insured	4
I know the importance of spreading the disaster experience to the community	5
I have a safe area to move my business operations in the event of disaster	1
I know which agency should be contacted in case of disaster	5
I have set up an emergency disaster kit to protect my employees	3
Clogged drains can contribute to disasters (floods, landslides)	5
I believe my business is safe from disasters	1
I know about the business that are prone to disasters	5

Table 7 is the list of all the places visited during the field trip in Kundasang area. Although there were not much respondents but the places visited were mostly related to business entities.

Table 7: List of places visited during the field-trip.

No	Places visited
1	Ranau District Office
2	Local businesses
3	Celyn Resort
4	Farmers in Pasar Tamu
5	Dream World Resort
6	Homestays in Mesilou and Kundasang Lama
7	Desa Dairy Farm
8	Mount Kinabalu Golf Park
9	Kinabalu Park
10	Kiram's village
11	Alpine Resort
12	Rocky Lodge
13	TM resort
14	Perkasa Hotel
15	Mile36 lodge
16	Restaurants
17	Grocery shops
18	Mesilou Atamis Homestay
19	Kinabalu view Resort
20	Anjung Rehat Homestay
21	May Homestay
22	Tagal Fish Massage
23	Poring Hot Spring

CONCLUSIONS

From the questionnaires distributed, the awareness of Kundasang community are high even though they are living in the prone disaster areas. They managed to survive and facing their daily life as usual. The relationship between the resiliency community and cooperation in the disaster were found among the communities. They live in a small area and they have their own head of village which always held up a meeting on how they should managed and protect their villages. These head of villages also maintaining their harmonization with events such as sport activities between villages and so on. During the earthquake, the local people having problems with their clean water supply. This is due to the debris and mud flow to the river, which is their main source for clean water had been disrupted. Therefore, they need to rely on the help from the outside i.e. Ranau for supporting them with the clean water tank for months. This is really disadvantage for local businesses such as homestay and hotels. Other than that, some of the villages need the support from the government to move out from Kundasang because most of them were in poverty. However, most of the local people said that they do not want to move out from their village because they grew up there and love the nature and Mount Kinabalu itself. After the earthquake, the road were badly damaged and some of the bridge were collapsed. Due to this matter, local people could not send their vegetable supplies to the town or their Pasar Tamu. Some of the houses and businesses structure also affected. Besides, the electric and wireless communication were slow after the earthquake. This preliminary study gave the opportunities to understand how the local people survived in term of maintaining their businesses before and after the natural disaster occurred. Therefore, it would give an interesting finding for the research to study and build up a framework on the disaster-derived business continuity plan in Kundasang area. By using a geospatial tools in managing the data for natural hazards and socio-economic distributions, this integrated disaster research is in line with action plans particularly dealing with the *build-back-better*, as listed in the SFDRR 2015-2030.

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SOCIO-ECONOMIC IMPACTS OF NATURAL DISASTERS IN THE RURAL REGION OF KUNDASANG, SABAH: A COMMUNITY LIVELIHOOD ANALYSIS

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ABSTRACT

This paper analyses the socio-economic impacts of natural disasters and multi-hazards resulted from the Sabah Earthquake (followed by series of aftershocks, landslides and debris flow) using a community livelihood approach. The main analysis examines the impacts of natural disasters mainly to the local economy, social activity and physical environment. The third and final section offers general recommendations on disaster risk reduction (DRR) and enhancements on livelihood resiliency based on the inputs derived from the local stakeholders' engagement sessions conducted during a field visit in 2015.

Key words: Kundasang, Community livelihood, natural disasters, socio-economic impacts.

INTRODUCTION

This study focuses on five villages in the region of Kundasang, Sabah namely: Kampung Dumpiring Atas, Kampung Dumpiring Bawah, Kampung Kundasang Lama, Kampung Mesilou, and Kampung Lembah Permai (Figure 1). These villages are located near to the Kinabalu National Park (Mount Kinabalu) which is known as a popular tourist site. On top of that, Kundasang itself is also renowned as an important agricultural hub for the production of vegetables for local markets, as well as for export markets such as to Sarawak, Labuan and Brunei. These villages were selected based on a literature research sourced from the Sabah Mineral and Geoscience Department (MGD), and reports published by local newspapers which mentioned villages that have been directly impacted by natural hazards, particularly during the July 1st 2015 earthquake. Following the disaster, the communities within the study area were also reported to experience series of aftershocks (small tremors), apart from being hit by series of landslides, mud flood and debris flow.



Figure 1: Map of the study area and locations of five villages.
Source: Google Images

MATERIALS AND METHODS

Prior to this study, villages were selected based on the stratified random sampling (SRS) approach. The SRS method is used for this study due to the following reasons:

1. The data for each *stratum* (sub-group within the community) can be analysed respectively. The sub-groups include both who have and have not been involved in or experienced any aspects concerning hazards.
2. This sampling method can provide better information as compared to using the simple random sampling method. In addition, this method could incorporate the voice and opinions of marginal groups in the community to secure their participation in the process of planning and surveying.
3. SRS can also assist in administration, particularly in training Research Assistants involved in the research. Better focus can be obtained by the researchers as they would need to face various groups of people which include women groups, youth groups, entrepreneurs, administrators and many more.
4. Using the SRS approach, the results are more substantial as the differences between strata are more obvious. This is because the respondents for each stratum have experience and/or knowledge about reoccurring natural disasters in their respective village, and thus would give better input and responses to the research.

A total of 96 respondents were targeted in the research. The highest number of respondents was from Kampung Lembah Permai (30%), followed by Kampung Dumpiring Bawah (24%), Kampung Mesilou (22%), Kampung Dumpiring Atas (13%) and Kampung Kundasang Lama (11%) (Figure 2).

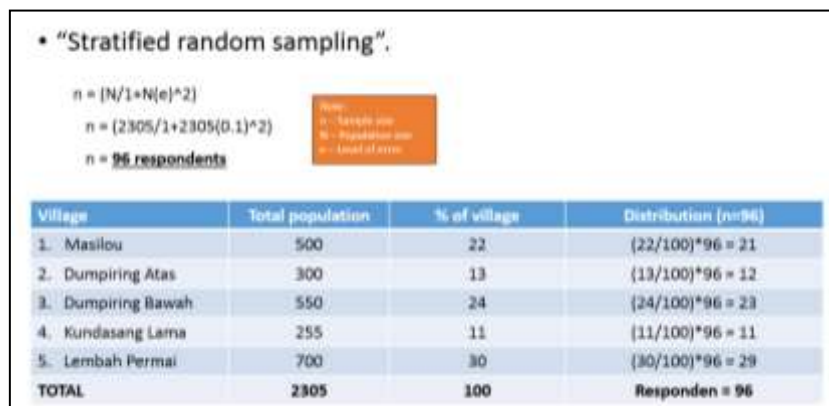


Figure 2: Guideline for sample size calculation and distribution of respondents according to each village. Source: Research fieldwork in 2015.

Nevertheless, after the interview and all of the survey forms have been screened, only 93 forms could be used for the analysis process (Figure 3). The remaining three forms had to be temporarily ruled out from the analysis process because the respondents are not from any of the aforementioned villages.



Figure 3: Photos of settlements and data collection process (household survey and interview).

Community Livelihood Analysis

A community livelihood analysis (CLA) is a tool for analysing people's livelihood and the impacts of specific threats on livelihood vulnerability. CLA, according to Lax and Krug (2013), Morse et al. (2009) and ENN (2006), could include an analysis of household income, employment structure, ownership of assets, socio-economic goals and strategies at a micro-level which might affect livelihoods of the community as a whole. Another crucial element of CLA is that it involves community participation to identify the economic, social and physical components of their livelihoods that are affected or vulnerable to a specific threat (or in this case, the multi-hazards and the aftermath of natural disasters) (Lax and Krug, 2013; ENN, 2006). Relevant participatory methods for assessments are adopted such as household surveys using specifically-designed questionnaires and unstructured interviews in order to uncover local issues, problems or concerns and their perception and response towards reducing the risk or negative consequences, should multi-hazards and disasters occur in the future. The CLA might not serve as a basis for emergency assessments. However, some information gathered through CLA process could be useful especially to alert the community and local authorities regarding the socio-economic impacts of a disaster on the livelihoods of rural households.

RESULTS

Profile of respondents

Results from the analysis process show that there are a total of 93 respondents from five villages in Kundasang in which 60 of them are women and the remaining 33 people are men (Table 1). Almost all respondents are from the Dusun ethnicity, making up 97% of the respondents. A majority of them are Muslims (97%) while 2% are animistic and 1% is Christian. Most of them are married (76%), whereas 17% are single. The remaining 7% are single mothers (4%) and single fathers (3%). About 80% of the respondents were born and raised in the village, whereas about 20% mentioned that they have moved to the area due to marriage or work purposes.

Table 1: Profile of respondents.

	Information	Num. (n)	Total num. (n)	%	Total (%)
1	Gender <ul style="list-style-type: none"> • Male • Female 	33 60		36.0 64.0	
			93		100.0
2	Ethnicity <ul style="list-style-type: none"> • Dusun • Others 	90 3		97.0 3.0	
			93		100.0
3	Religion <ul style="list-style-type: none"> • Islam • Christian • Animism 	90 1 2		97.0 1.0 2.0	
			93		100.0
4	Marital status <ul style="list-style-type: none"> • Single • Married • Single mother • Single father 	16 71 4 2		17.0 76.0 4.0 3.0	
			93		100.0
5	Origin <ul style="list-style-type: none"> • Born and raised here • Moved here from other villages/places 	74 19		80.0 20.0	
			93		100.0

Source: Research fieldwork in 2015.

Respondents' age category

Generally, most of the respondents are aged between 36 to 45 years old (45%), followed by 26 to 35 years old (18%). Respondents in the 18-25 category and 46-55 category shared the same percentage which is 13%. Only about 8% of the respondents are above 56 years old while 3% are those who are below 18 years old (Figure 4).

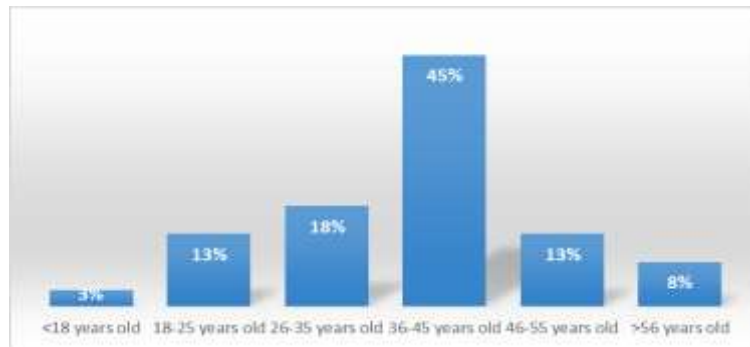


Figure 4: Respondents' age categories (n=93).
Source: Research fieldwork in 2015.

Respondents' level of education

From the analysis, a majority of the respondents' (60%) graduated secondary school, followed by 21% of the respondents stopping at primary school (Figure 5). 8% of the respondents possess a certificate-level education and 4% possess a diploma. Only 3% of the group have a Bachelor's degree. The remaining 4% did not receive any form of formal education.

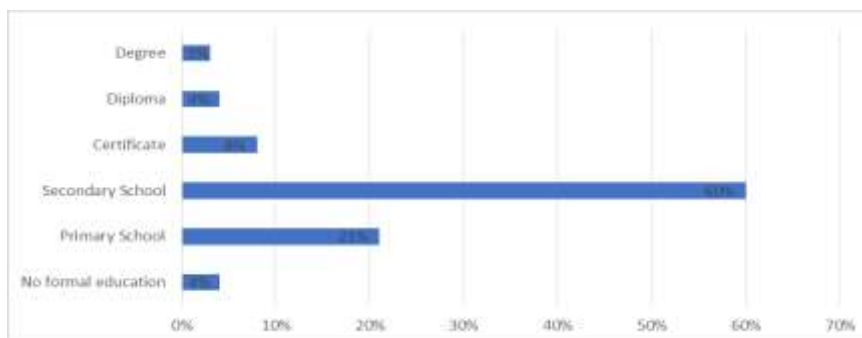


Figure 5: Respondents' level of education (n=93). Source: Research fieldwork in 2015.

LIVELIHOOD ANALYSIS ON THE IMPACTS OF NATURAL DISASTERS

This chapter examines the socio-economic and environmental impacts of natural disasters in the five villages in Kundasang.

Respondents' types of occupation/job (before and after the disaster)

Respondents listed the five (5) main types of work performed before and after the disaster. Results of the analysis found 60% of the respondents are farmers and entrepreneurs involved in the cultivation and trade of vegetables. The remaining 40% consists of full-time homemakers (<20%), workers in the hospitality sector (2-4%), workers in government and private sectors (each about 3-4%) and the unemployed (7%) (Figure 6). The findings support the views of Kundasang's reputation as one of the main players for the production of vegetables, as well as agriculture-related business activities in Sabah.

A simple comparative analysis is also done to determine if there is a change in the type of work the respondents have performed before and after disasters (post-July 2015). The results in Figure 6 show a downward trend for farmers and traders, although within a small fraction (1%), after a disaster. Analysis also shows an increase in the government sector and the private sector which rose by 1% respectively. Lastly, homemakers and hotel workers recorded an increase of 2% after a disaster.

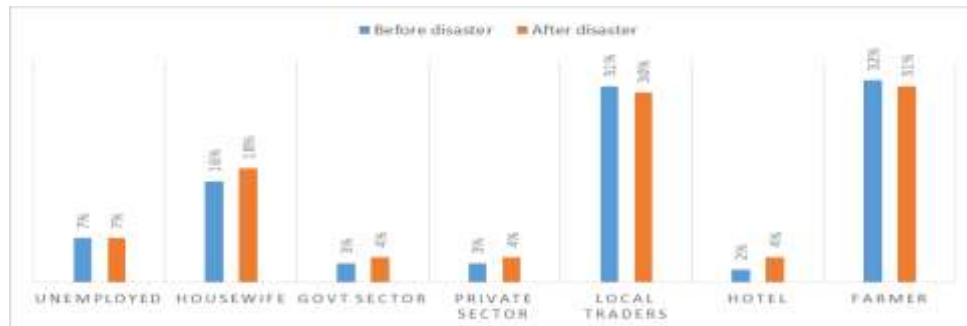


Figure 6: Comparative analysis regarding respondents' types of occupation (before and after the disaster) (n=93). Source: Research fieldwork in 2015.

Based on the comparative analysis shown above, it appears that there is a change of the type of work done by the respondents. However, the changes that are listed are very small and may not be significant enough as to reflect the direct impact of the disaster that occurred in the affected area. Further research is needed before a clear correlation can be established between the types of jobs and disasters.

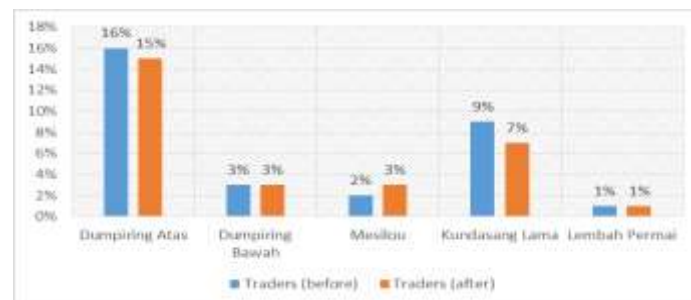


Figure 7: Comparative analysis regarding respondents' occupation as local traders by village (before and after the disaster) (n=93). Source: Research fieldwork in 2015.

A detailed analysis (Figure 7) found the number of those who work as traders reduced in Kampung Kudasang Lama (-2%) and Kampung Dumpiring Atas (-1%) while there is an increase of 1% in Kampung Mesilou.

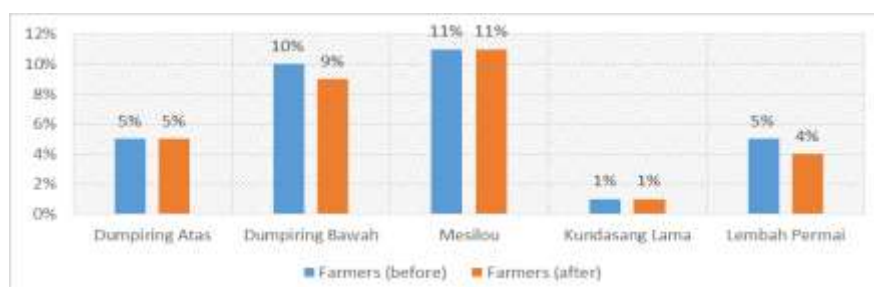


Figure 8: Comparative analysis regarding respondents' occupation as a farmer by village (before and after the disaster) (n=93). Source: Research fieldwork in 2015.

Farmers in each village decreased in Kampung Dumpiring Bawah and Kampung Lembah Permai respectively by -1% whereas no changes were recorded for other villages (Figure 8).

Respondents' monthly household income (before and after the disaster)

Other than to identify changes in the respondents' types of occupation/job, comparative analysis is also made to see if there are any changes to the monthly household income both before and after the disaster. The results of data analysis are presented in Figure 9 below.

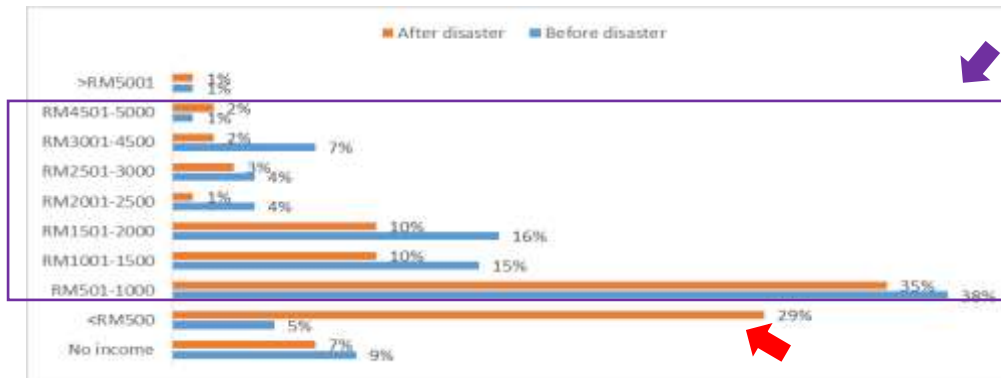


Figure 9: Respondents' monthly household income (before and after the disaster) (n=93).
Source: Research fieldwork in 2015.

Results of the comparative analysis found that there is a **significant increase** to the amount of households with a monthly income below RM500 after the disaster, from 5% to a whopping 29% (Figure 9) (marked with red arrows). The opposite can be observed for the household group with income of RM501 to RM4500 where the decrease is between 1-6% a month after the disaster (marked with purple arrows). Looking at both patterns, the researchers made an assumption that many families have been financially impacted after the disaster.

Types of economic losses due to disaster

With reference to Figure 11, the respondents have stated three types of economic loss faced from the effects of natural disaster. First is "loss of main source of income" (60%), followed by "property damage" (46%) and thirdly, "the decline in investment with the decline of tourist" (39%). The findings from this analysis are parallel to the data collected in Figure 9 (respondent's income) which have been described in the previous section.

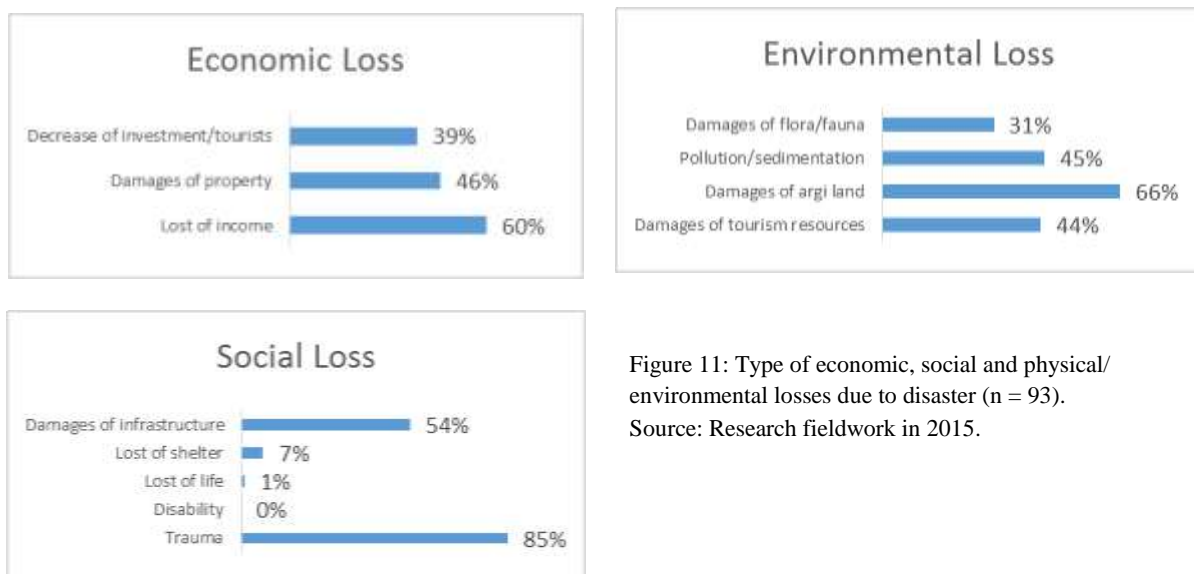
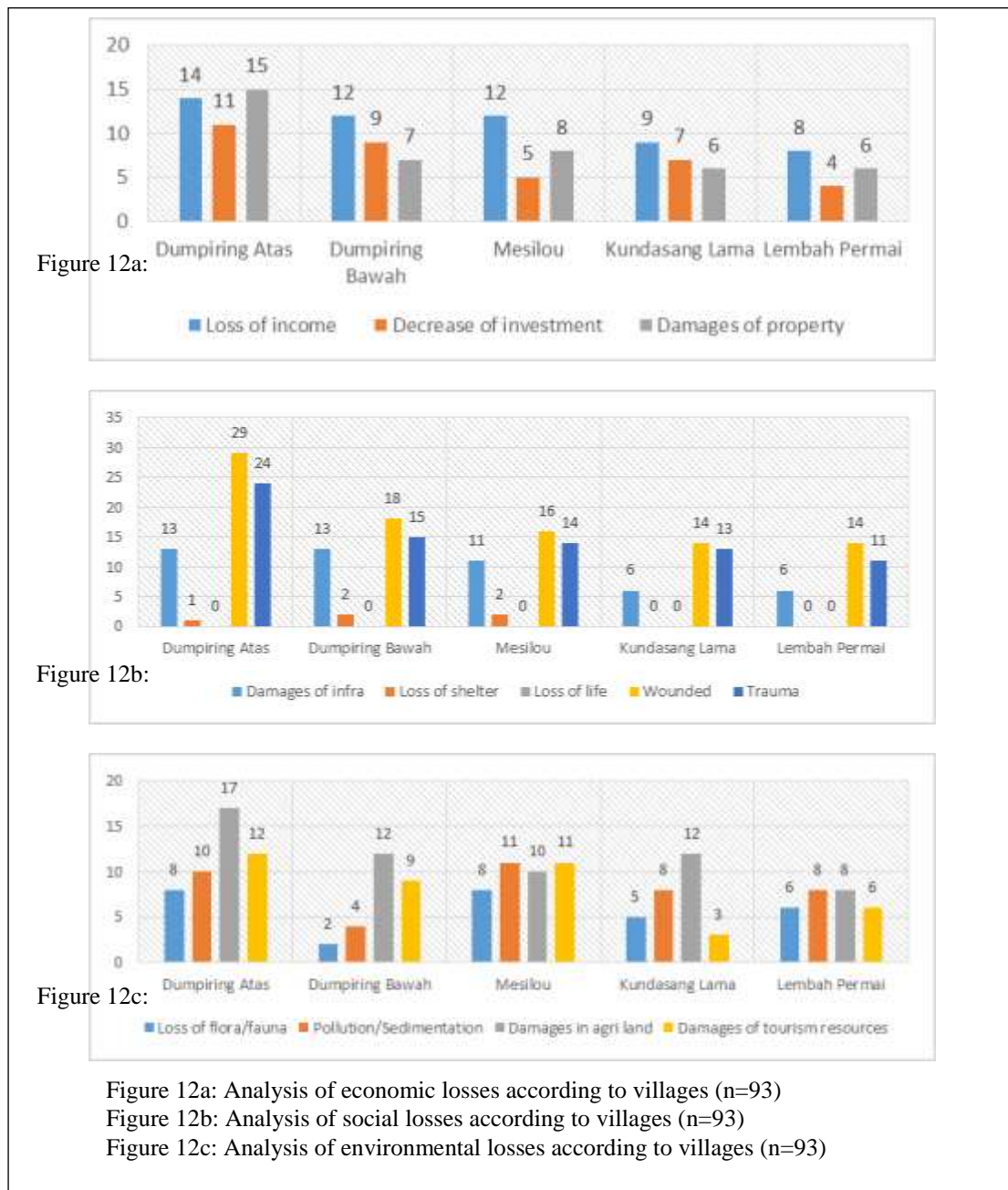


Figure 11: Type of economic, social and physical/ environmental losses due to disaster (n = 93).
Source: Research fieldwork in 2015.

In terms of social loss, majority of the respondents said they were affected by “trauma” (85%), followed by “damage to the social infrastructure” that has affected the lives of the population (54%). Other types of loss which are deemed insignificant are “homelessness” (7%) and "the loss of lives among family members" (1%). Meanwhile, “damages on agricultural land” was identified as one of the main environmental losses with 66% respondents, followed by 45% of the respondents choosing "pollution" caused by floods and mud rock flows in Mesilou. Some 44% of the respondents chose "impairing tourism products" and 31% answered "damage to flora and fauna" as one of the forms of environmental loss following the disasters that occurred.

The findings of this analysis aim to observe the consistency and the correlation between the results from previous reports either through newspaper, the news or technical reports about the impact of disasters on the population in Kundasang.



Detailed analysis for each village indicates that most villagers have lost their main source of income. Villagers in Kampung Dumpiring Atas have been affected greatly, followed by Kampung Mesilou and Kampung Dumpiring Bawah. Kampung Dumpiring Atas is recognised as the most badly affected village in terms of loss of property, the decline in investment revenues and the decline in the number of tourists (Figure 12a). As for social aspects, detailed analysis found that there are three major losses experienced by all villages, which are trauma, disability due to injuries, and the fall of social infrastructure. Apart from that, respondents from Kampung Dumpiring Atas, Kampung Dumpiring Bawah and Kampung Mesilou have to face the issue of homelessness because many houses were damaged due to the disaster (Figure 12b).

The most prevailing impact on the environment, according to detailed analysis per village indicated that after the incident occurred, is the structural damage to agricultural land. This is because Kampung Dumpiring Atas, Kampung Dumpiring Bawah and Kampung Kundasang Lama are located on a hillside where the main economic activity is highland agriculture. Earthquakes and landslides have damaged the structure of agricultural land, especially the drainage system and may require a long period of time to be fixed. In addition, aquatic habitats are also polluted and impacted in Kampung Mesilou after the mud flood and debris flow which occurred after the earthquake that struck Mesilou River up to Ranau (Figure 12c).

DISCUSSIONS

The results from this analysis support the qualitative results from the interview conducted, whereby the respondents admitted that their livelihoods had been badly affected due to the earthquake and landslides. This is because those who were cultivating vegetables could not go to their farms as the roads were damaged (in Kampung Mesilou), and many were still traumatized and concerned about their safety. The main road that connects the vegetable farm in Kampung Mesilou to Kundasang town was cut off and damaged, making it difficult to deliver vegetables to the collection and distribution hub. For respondents who work in the field of hospitality, their business was severely affected because the number of tourists declined and many tour operators had stopped dealing with motels and hostels in the area. Although respondents had said their income has been directly affected after the disaster, they have no other option but to continue operating their motel or homestay, and modify the scale of agricultural operations in order to deal with the situation.

In conclusion, after the overview and detailed analysis, there is evidence that can be used to support the claim that monthly income of the villages was reduced after the disaster. The most significant evidence is the increase in the percentage of households with a monthly income below RM500 in every village (which means more people have fallen into the “poor” category) which is then directly related to the decrease in households with a monthly income between RM501 and RM2500. Nevertheless, this study cannot fully conclude whether the poor people (income below RM500/month) in the study area is attributed to the reduced revenue for categories other than under RM500. Thus, regular research should be conducted promptly to describe this relationship in greater depth and find out whether the decline in income was due to a disaster or otherwise.

THE WAY FORWARD

Disaster Risk Reduction (DRR) efforts by the Community

This final section examines the measures and strategies adopted by the community and the parties responsible for managing and reducing the risk of disasters on the communities and their livelihoods. The aspects discussed in this section includes immediate action taken after the disaster, community’s solidarity in facing disaster, barriers/challenges to restore the community, and the steps taken by communities and agencies during and after disasters.

When asked about the steps or immediate actions taken by the community right after the disaster struck, the majority of respondents (74%) responded "emergency general meeting", followed by "setting up a fund for disaster relief" (71%) and perform a "gotong-royong" or neighbourhood clean-up (61%) (Figure 16). The remaining 42% of respondents said they held a meeting with local politicians to express their feelings, in addition to try to get immediate assistance. Only 4% said they would unite in prayer as immediate action to face the hard times after the earthquake (Figure 16).

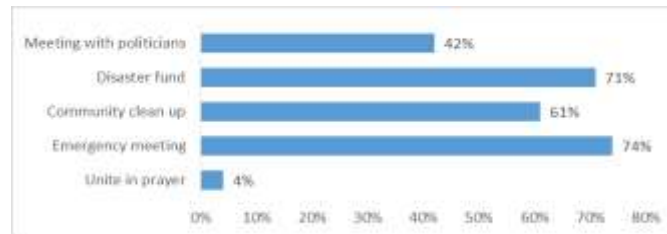


Figure 16: Actions taken immediately after the disaster by the community (n = 93).
Source: Research fieldwork in 2015.

Measures for disaster risk reduction

An additional of five (5) questions were posed to respondents on current or future implementations of risk reduction measures. The results are then analysed and presented in the table below.

Table 2: Measures for disaster risk reduction done by the community.

	Question	(n)	Total (n)	%	Total (%)
1	Were you given any training or exposure on how to prepare for disasters? • Yes • No	24	93	26.0	100.0
		69		74.0	
2	Does the community have a system to detect disasters before they happen? • Yes • No	5	93	5.0	100.0
		88		95.0	
3	How are disaster prone areas monitored? • Monitored by local community • Monitored by local government agencies • Cooperative effort by community and agencies • None	14	93	15.0	100.0
		22		24.0	
		55		59.0	
		2		2.0	
4	Does the community have a map of disaster prone areas? • Yes • No	14	93	15.0	100.0
		79		85.0	
5	Does the community have a special committee (AJK) dealing with disasters? • Yes, we do • No, we do not • Not sure	23	93	25.0	100.0
		34		36.0	
		36		39.0	

Based on the analysis in Table 2, there are some important elements or aspects related to disaster risk reduction measures done by the community that need attention from various agencies/parties involved:

- i. A majority of the respondents (74%) said they did not have the training or exposure related to disaster risk reduction.

- ii. 95% of the respondents said their communities do not have any early warning system regarding natural disasters.
- iii. Disaster prone areas (especially landslides) have been monitored by local residents and government agencies involved (59%).
- iv. The majority of respondents (85%) said their community has mapped disaster prone areas.
- v. Only a small number (25%) of respondents established a special committee to look at issues related to local disaster and risk management.

In the opinion of the reviewers, the feedback given by respondents of this study should be viewed by various agencies involved in disaster risk reduction and should be taken as an opportunity for further improvement. This includes the need to develop and establish an effective early warning system and a hazard risk map that covers Kundasang and Ranau. With the early warning system and a hazard map, we can educate the community to increase awareness on the disasters around them and also inform them of the measures that should be taken to alleviate the adverse effects in the future.

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POLITICAL PREFERENCE AND RURAL DEVELOPMENT: CASE STUDY OF MRANAK VILLAGE, DEMAK REGENCY

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ABSTRACT

Mranak Village belongs to Wonosalam Sub-District, Demak Regency, Indonesia. This area is known as agro-tourism area with Ruby Water Apple as a base commodity. The existence of agro-tourism was driving the economy movement in this village. Moreover, ruby water apple is being competitive advantages commodity now. Except agro-tourism, the clothing industry also becomes an important sector in supporting economic performance. This industry was established in settlement area and managed by villagers, therefore, the government still gave the aid and supervision. The existence of agro-tourism is related to the Central Java Governor program in rural development called "Desa Vokasi". Desa Vokasi is one kind of program to achieve the successes of rural development agenda. The main goal of Desa Vokasi is promoting creative and innovative products in every selected village. This rural development program was formulated by central java Governor in 2013. Politically, this governor won in 2008 governor election. In that time, he got 81 % votes. But in 2013 election, he failed to survive his position although his votes were high like 2008 reception. Actually, there are three approaches in political preference. They are a sociologist, phycologist and rational approaches (Zainuddin, 1996). Refer to the phenomena of Bibit Waluyo and rural development in Mranak Village, the researcher wants to examine the relation between the type of political preference approach and rural development program. This research is conducted by deductive qualitative. It is used the interview as a tool to compiling the data. This interview will be conducted trough snowball and purposive samplings. Because not of all voters are participated in 2008 governor election. Moreover, it uses to get the deep information regarding political preference of Mranak People in that time.

Key words: Politic, Preference, Rural, and Development

INTRODUCTION

The rural area is known as an area where the agriculture sector is driven the economic pattern. (Lynch, 2005). This statement reveals several things regarding the rural area. Firstly, the agriculture land covers almost all of area. Secondly, the agriculture activity is based villagers location. In the current situation, the agriculture sector in a rural area is decreasing slowly but persistently. At least, there are three issues related to this situation. The first, agriculture is seen as less benefit occupation. In Indonesia, every farmer only has 0.4 Ha farm land in average. Often it cannot produce enough paddy to covering plantation cost although sometimes the farmer gets the benefit. But the fluctuating situation makes agriculture sector lower than another sector (occupation). The second one is the land conversion. When the farmer fell that their land isn't prospective to get the revenue, they begin to sell their farm land to get the money as capital to establish other occupation. Moreover, several investors offering the high price to buy the farm land. The third issue is related to human resources. In the current condition, urban offering many kinds of livelihoods beyond the agriculture sector such as industrial labor, seller, and services. Those urbanly occupation is attracting the younger generation in the village to come to urban for the job. In the other side, many villagers also come to urban to look for higher education. The migration of human resources from rural to urban make agriculture sector have no worker. That situation put the rural area underdevelopment, high level of poverty and low human resources. To solve the rural problem, the government establish several programs called rural

development program. The idea of rural development is developing the rural area without neglecting the agriculture sector as the fundamental regional economic. Mranak Village belongs to Wonosalam Sub-District, Demak Regency, Indonesia. This area is known as agro-tourism area with Ruby Water Apple as a base commodity. The existence of agro-tourism was driving the economy movement in this village. Moreover, ruby water apple is being competitive advantages commodity now. Except agro-tourism, the clothing industry also becomes an important sector in supporting economic performance. This industry was established in settlement area and managed by villagers, therefore, the government still gave the aid and supervision.

The existence of agro-tourism is related to the Central Java Governor program in rural development called “*Desa Vokasi*”. *Desa Vokasi* is one kind of program to achieve the successes of rural development agenda. The main goal of *Desa Vokasi* is promoting creative and innovative products in every selected village. This rural development program was formulated by central java Governor in 2013. Politically, this governor won in 2008 governor election. In that time, he got 81 % votes. But in 2013 election, he failed to survive his position although his votes were high like 2008 reception. Actually, there are three approaches in political preference. They are a sociologist, phycologist and rational approaches (Zainuddin, 1996). Refer to the phenomena of Bibit Waluyo and rural development in Mranak Village, the researcher wants to examine the relation between the type of political preference approach and rural development program.

MATERIALS AND METHOD

Materials

1. Location

Mranak Village is located in the northern part of Wonosalam Sub-District. Geographically, it is position between 110.66497 E and 6.88617 E with 5 meters upper than sea water. Administratively, the boundaries of Mranak Village are:

East : Mrisen Village and Demak Sub District
West : Botorejo Village and Demak Sub District
North : Demak Sub District
South : Botorejo, Mrisen, and Sidomulyo Village.

2. Population

The population of Mranak Village is about 3.443 person. It is consist of 1.155 adult man, 1284 adult women, 449 boys and 460 girls. In the structure context, based on the age groups, Mranak Village belongs to the stationary pyramid. This type happens when the number of productive people is highest than others. It is explained that the level of birth in Mranak Village is high so it will be entering into demographic bonus era.

3. Rural Product

Demak Regency has many competitive products like water apple, corn, tobacco, banana, water apple and so on. Mranak is identified as one of water apple center in Demak Regency.



Figure 1. Base Commodity of Mranak Village. Source: Early Survey, 2015

Picture 1 letter “a” is water apple trees, in Mranak Village there is agro-tourism which has water apple as the main commodity. Picture “b” is the water apple harvesting. Picture c is water apple packaging and it will be exported to another region such Semarang, Jakarta and others.

4. Political Condition

In 2008 Central Java Governor election was participated by five candidates, In that time about 81% people voted Bibit Waluyo – Rustriningsih, 3 % voted Tamzil – Rozak, 10 % chose Bambang – Adnan, 1% chose Agus Kholiq and 5 % selected Sukawi – Sudharto to became their Governor. According to those votes, Bibit Waluyo – Rustriningsih, the candidates which were supported by PDIP won the election and beat the others. In 2013 Governor election, there are three candidates participated. The result of the election was Bibit – Sudijono got 81 % votes, Ganjar Heru earn 16 % votes and Hadi – Don got 3 % votes. In that time Bibit won in mranak again, but he is lost in province level beaten by Ganjar Pranowo nad Heru Sujatmoko. The illustration of the central java Governor election in 2008 and 2013 can be seen in the figure bellow

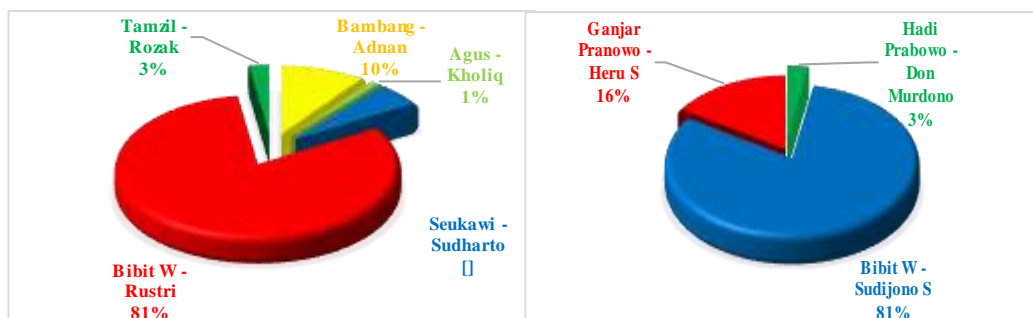


Figure 1 Central Java Governor Election Result In Mranak Village In 2008 (Left) And 2013 (Right).
Source: Pugara, 2016

METHODOLOGY

This research is conducted by deductive qualitative. It is used the interview as a tool to compiling the data. This interview will be conducted towards snowball and purposive samplings. Because not of all voters participate in 2008 and 2013 governor election. Moreover, it uses to get the deep information regarding political preference of Mranak People in that time. Except interview, this research also uses the institutional survey to get the data regarding the result of governor election. In the part of data analysis, this research use contract, compare and descriptive qualitative analysis.

RESULT AND DISCUSSION

Mranak Village is Java-Islamic rural on the northern side of Central Java. The acculturation is begun from Dmeak Islamic Empire, so now the culture in this area is a combination of Javanese and Islam. Generally, at least two type of internal factor which is influencing the political reference of the people they are Islamic value and Javanese value. In term of political preference, it is illustrated clearly when the people reveal about the criteria of the leader or election candidate. In the context of candidate religion, the statement of the people can be distinguished into obedient and egalitarian. The obedient one reveal that the leader should be a Muslim and don't come from the other religion. Besides that, the leader must a man and cannot be a woman.

“The leader must be a Muslim and a man”

They feel this statement is appropriate with Qur'an particularly surah An-Nissa chapter 34 and Al-Maidah chapter 51. In the opposite, they explain that the leader can be everyone as long as he or she can hold the government and bring the country or region to be a good condition.

“The leader can be a man or woman, the important is can bring the region and community to be a good future (I-ASN-2)” (Pugara, 2016)

This statement also comes from Muslim, but it is different with the previous statement because of the respondent has an argument that An-Nissa chapter 34 reveal regarding the leader in the household and the head of household should be a man (husband). Moreover, the Quran Al Maidah chapter 31 explain about the leader in the Khalifa form not in the democratic country. In the Khalifa system, the leader has an absolute authority so in that situation the Quran state regarding the criteria of leader from religion side. But in a democratic country, the leader has a limit authority and it is controlled by legislative. So that, they think it is no matter if the leader comes from other religion beyond Islam. The statement can be identified as an egalitarian argument.

In the context of Javanese culture, the obedient respondent gives a statement that the leader must a Javanese. Because of the Javanese obedient has several requirements to be a good leader such as humble, patient, polite and has self-positioning.

“The leader must a Javanese” (Pugara, 2016)

In the other side, the egalitarian statement explains that then the leader can be everyone who comes from all of the tribe in Indonesia as long as can guide and lead the community and put the region or country into a bright future condition.

“The leader can be from all of the tribe in Indonesia. The important is can put the nation into a good and bright future” (Pugara, 2016)

The statement actually has the same position with Indonesia constitution in chapter 27 article 3. This part reveal that every citizen has a same position in the law and government and responsible for abiding by the law and the government without any exception. This statement does not differentiate between people based on the personality. So it also suitable with the National Slogan of Indonesia call “*Bhineka Tunggal Ika*”. This slogan means “Although Indonesia has many varieties in tribes religion, language and culture but we have to be unity always”. In fact, the egalitarian Javanese is closely related with Pancasila and constitution value. In 2008, the Central Jawa governor election was participated by five candidates, they are:

- a. Bambang Sadono – M. Adnan were supported by Golkar;
- b. Agus Soeyitno – Abdul Kholiq were supported by PKB;
- c. Sukawi – Sudharto were supported by Demokrat and PKS;
- d. Bibit Waluyo – Rustriningsih were supported by PDIP;
- e. M. Tamzil – Abdul Rozaq were supported by PPP and PAN;

In fact, all of the candidates are Muslims and Javanese. Moreover, the candidate M. Tamzil was a Demak Head Regency in a previous time. In this election, 81% villagers voted Bibit Waluyo – Rustriningsih, 3 % voted Tamzil – Rozak, 10 % chose Bambang –Adnan, 1% chose Agus Kholiq and 5 % selected Sukawi – Sudharto. Bibit – Rustri won in Mranak level and in province level. So in that time, Bibit Waluyo became Central Java Governor from 2008 to 2013. In 2013, Bibit Waluyo also participated the Governor. In that time the participants were:

- a. Hadi Prabowo – Don Murdono were supported by PKS, Gerindra, Hanura, PKB, PPP and PKNU;
- b. Bibit Waluyo – Sudijono Sastroatmojo were supported by Golkar, Demokrat, and PAN;
- c. Ganjar Pranowo – Heru Sudjatmoko were supported by PDIP.

In this event, actually, all of the candidates are Muslims and Javanese. But Hadi – Prabowo – Don Murdono are supported by Islamic parties. The result of the 2013 Governor election was Bibit – Sudijono got 81 % votes, Ganjar Heru earn 16 % votes and Hadi – Don got 3 % votes. In this phenomena, if refer to the political preference based on religion, in 2008 Tamzil should become a winner and in 2013 it should be Hadi Prabowo. But the result revealed Bibit Waluyo as the winner in 2008 and 2013 election in Mranak Village. So that, the religion reason is recessive at that time.

Secondly, all of the candidates are Javanese, but how can Bibit Waluyo become a winner in both of election. At least there are several finding that can explain the Bibit Waluyo phenomena:

1. Sociological phenomena (approach).

Actually, all of the candidates are Javanese, but Bibit Waluyo has a special bond with Mranak People. He is known have ever stayed in Mranak for school when he was a child. Moreover, he has a family member in there.

“Bibit Waluyo is my friend in elementary school and the grandparent and his uncle was live in here”

That statement means, the sociologist condition in term of the extraordinary relation between candidate and people will beat the ordinary relation (same in the tribe). So emotional sociologist more dominant in case of Mranak Village.

2. Rational phenomena (approach).

Rational approach actually comes from rational thinking regarding the regional condition when the candidates hold the government in the previous period. When Bibit Waluyo was in the last of the first period, he established some rural development program called “*Desa Vokasi*”. This program has an objective to promote a rural area produce one or more competitive advantages product to enhancing the rural economic and social welfare. Mranak is one of many villages where was given this program, In Mranak, the government established agrotourism with Ruby Water Apple as the main commodities. The ruby water apple is valuable fruit. For example, with 20 trees, farmers can get 40 – 50 million per years with the selling price between Rp 11.000,00 to Rp 12.000,00 per kilograms (Pugara, 2016). So that, no wonder if most of the paddy farmers changed their plantation into water apple trees. This program really had a significant role in improving the economy and level of people income in the Mranak Village. Based on the experience, in 2013 many Mranak people decided to vote Bibit Waluyo to become their Governor again.

Central Java Province is known as PDIP based supporter. Related to the election, Generally, in province level, it is still tangible when the candidates from PDIP are a win in twice election. But in the Mranak Village, Bibit Waluyo win in both of election although in the second election he is not supported by PDIP. It is strengthening the finding that the personality branding is more string then political party loyalty moreover the voters have a particular relation with the candidate sociology.

In the context of political preference and rural development, this case reveals the subjectivity of the Governor in term of giving rural development program to the village where has strong relation with him. After that, the people give their additional favor in the election because of the sociologist relation and his rural development program. So that, the subjectivity begin from the first election from the people to select their leader and then the leader also has subjectivity to select their priority village to give rural development program.

DISCUSSION

Refer to the research finding regarding political preferences and development, the researcher can establish at least there question to become material thinking and discussion. They are:

1. Political preferences in some area often influenced by internal and external factors. Both of them will create the situation in the people political thinking. Generally, in the political preferences approach they are known as a sociological, psychological and rational approach. The sociologist

approach has a tendency in emotional bond between voters and candidates. The psychologist approach has a tendency in act and behavior of candidates and voters. And the last one, rational approach has a tendency in the regional change and development when the candidates led the other area in the previous condition. Between there of them, which one the best approach to developing the political preferences?

2. A political party is a legal institution to accommodating people aspiration including politic, development, and other country issues. In the current situation, the people has a big distrust to a political party because of some political crime such as corruption, nepotism, and etc. Based on the research finding, the people more excited to know personal branding than a political party. Although actually, the political party and political actor cannot be distinguished each other. The additional phenomena are an independent candidate. In fact, it is less appropriate with Indonesian democratic. Because of it can degrade the role of the party in democratic. So that, what should the political party do to push back the people trust?
3. The subjectivity of the government often influencing the rural development agenda in Indonesia. The area where the get high favor in the election will be taken as the priority. In the further section, the disparity in development between ruling party area and no ruling party area can be prevented. To avoid this situation, what should we do to state that development is social rights?

CONCLUSION

Rural development and political preference aren't splittable things in the rural area. Rural people construct their political preference begins from the sociological aspect in the first and following another aspect in the next step (rational and psychologist). The tendency of the sociological aspect is caused by primordialism which is growing in the culture and local value. It is the normal phenomena when the people still view on the tribe side and don't see about public interest. So that on the rural case the opportunity of the political conciliate is high when their personality same with the voters and moreover they has a more special relation. Actually, everyone has their own subjectivity including the government. In politics, the subjectivity is the main actor to determine the authority (government). The role of subjectivity in political preference and rural development is the motivator or catalysator to do or not to do. In short, the opportunity for the rural development is high when the leader has some subjectivity reason such as political aid and other relation.

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IDENTIFICATION OF INDUSTRIAL DEVELOPMENT IMPACT ON RURAL INFRASTRUCTURE DEVELOPMENT: CASE STUDY : SUBDISTRICT CIBATU, DISTRICT PURWAKARTA

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ABSTRACT

Industrial development is proven to increase the chances of employment and business opportunities. This has contributed to improving regional economic growth index. Industrial development is directed to rural communities in the suburbs, with a view to distributing development and reduce urbanization. Subdistrict Cibatu are areas with rural characteristics, located in the northern part of District Purwakarta and have high accessibility to Toll Cipularang. In RTRW Purwakarta, Subdistrict Cibatu directed to the development of the service function of industry, trade and services. This study tried to identify the impact of industrial development in the Subdistrict Cibatu on rural infrastructure development. The method used is observation field for mapping rural infrastructure and conduct interviews to the public. Rural infrastructure that is observed is a network of roads, water, electricity, and telecommunications. Based on this research can be identified that the development of infrastructure for electricity and telecommunications has reached all of the subdistricts. Major road networks that support the smooth operation of the industry and the settlement is in excellent condition, some village roads in the south in the medium-broken but improving the quality of roads is being carried out, while the access road to the plantation is still a stone path. To meet the needs of clean water, the people of the Subdistrict Cibatu using groundwater. The existence of the industry were affecting the continuity and quality of ground water around the industry. The study was conducted based on evidence in the field. The result inform the real conditions in the field and is expected to influence the policy of rural infrastructure development in the Subdistrict Cibatu.

Key words: the impact of industrial development, rural infrastructure.

INTRODUCTION

Industrial development in Indonesia, in the last fourteen years, has added a very large and become a major contributor to the national income. Based on Gross Domestic Product (GDP) in 2014, the industrial sector is in first position which contributed 23.71%. The second position is trade, hotels and restaurants amounted to 14.60%. Then the third was agriculture, livestock, forestry and fisheries amounted to 14.33%. Industrial development was able to absorb a lot of labor and can increase business opportunities, both formal and informal, around the industrial area. That condition is the main attraction that triggers the high rate of urbanization of the countryside towards the industrial area. The government then makes industrial development policies directed to rural communities in the suburbs, with a view to reducing the burden on urban areas, reducing the flow of urbanization and distributing development.

District Purwakarta is one of many area of interest industry in West Java, Indonesia. In the National Spatial Plan (RTRWN), Purwakarta included into mainstay region PURWASUKA (Purwakarta, Subang and Karawang) which function as a control for the mainstay region of perennial agricultural-food zone and industrial processing zone. In the Spatial Plan (RTRW) of District Purwakarta, there are four subdistricts that function as industrial services zone namely Subdistrict Bungursari, Babakan Cikao, Campaka, and Cibatu. The total area of the planned industrial area is 2,200 hectares or 2% of the total Purwakarta. In 2013 registered 161 industrial companies, foreign and

domestic companies operating in that industrial area. At the macro level, the value added of the industrial sector is able to provide a contribution of 58.96% of GDP of District Purwakarta in 2014. Little research was done to see the impact of industrial development at the micro level. To identify the impact of industrial development in Subdistrict Cibatu that perceived by the local population, based on infrastructure construction and services to the entire village. This study conducted in the subdistrict Cibatu, as the local activities center (PKL) promotion which service function as an industrial, trade and services area. The study conducted based on evidence in the field. The result inform the real conditions in the field and expected to influence the policy of rural infrastructure development in the Subdistrict Cibatu.

LITERATURE REVIEW AND RESEARCH QUESTION

Industrial estate development prerequisite supporting from the availability of adequate infrastructure, in order to sustain a smooth production process and also the process of collection and distribution of goods and people. The more complete support infrastructure will improve competitiveness and boost investment. As regulated in Permenperin No 35 / M-IND / PER / 3/2010 about technical guidelines for the industrial area, the basic infrastructure that is considered for industry needed is power resources, water resources, road networks, telecommunication networks and facilities such as banks. Zhao and Kanamori (2007) classify infrastructure into three major groups namely infrastructure to support productive activities, infrastructure fulfillment of basic needs, and infrastructure for the benefit of productive and basic needs. Infrastructure supporting productive activities refers to infrastructure that provides service only for production, such as irrigation systems. Infrastructure for the fulfillment of basic needs refers to infrastructure that provides service only for the improvement of living conditions, such as drinking water systems, petrol, gas, and television networks. Some of the infrastructure to provide services for the production as well as to basic needs such as roads, railways, environmental protection facilities, electrical systems, and telecommunication systems.

Infrastructure affects rural development through various means, such as the improvement of agricultural productivity, an increase in non-farm rural employment and rural migration to the urban sector (Fan & Zhang, 2004). According Tarique (2008) infrastructure development has an important role in economic growth and reduce poverty. In this study will be discussed four types of rural infrastructure includes roads, water supply system, electricity, and telecommunications. To answer a research question "Will the construction of supporting infrastructure and its industrial area, in Subdistrict Cibatu, affect the development of rural infrastructure to serve the entire subdistrict?"

METHODOLOGY

The approach method in this research is qualitative descriptive. Using data text, objects, and images intended to describe conditions on the ground with more detail, about the impact of industrial development on the rural infrastructure development in the Subdistrict Cibatu. Methods of data collection is done through field observations to maping rural infrastructure and conduct interviews with respondents. Total number of respondents was 50. All respondents are Subdistrict Cibatu residents which is randomly scattered, with a division of 30 people around the industrial area and the rest in the south subdistrict area.

DISCUSSION

Characteristics of the Subdistrict Cibatu

Subdistrict Cibatu administratively covers 10 villages, with an area of 4,643.50 ha. Monograph forming plains region at an inclination of 2-15% in the North, and the more hilly with a slope of 15-25% in the South. The dominance of the use of land by farming rice fields and non-paddy agriculture

(plantation). While the activities of non-agricultural land as an urban settlement activity, trade and services are concentrated linearly follow the arterial road in the North. Since 2013, industrial activity also began to develop along the arterial roads.

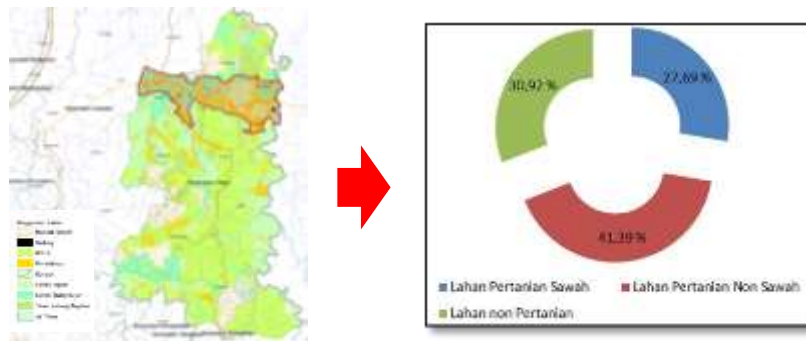


Figure 1. Land Use Subdistrict Cibatu

Characteristics of social and economic life of society is still very thick with rural character. As many as 50% Subdistrict Cibatu residents work in the agricultural sector, such as farmers, ranchers, and gardening. Residents who work in the industry as much as 20.61%. The rest worked as traders, civil servants, military, entrepreneurs, and others.

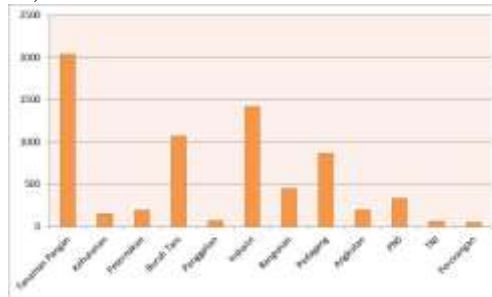


Figure 2. Proportion of population Subdistrict Cibatu Based on Livelihood

Industrial Estate in the Subdistrict Cibatu

In RTRW of District Purwakarta 2011-2031, northern area of Subdistrict Cibatu designated as part of district strategic area (KSK) of Urban Cibatu for utilization of industrial zones, trade, services and urban settlement area. While other areas of the Subdistrict Cibatu for the development of dryland agriculture and plantations.



Designated KSK Cibatu as an industrial area is very strategic. The availability of infrastructure is very supportive, as passed by the arterial road that connects Sadang-Subang to toll gate Cipularang. The plan will add access to toll gate Cipali. A power source with a power capacity of 120 MVA. Water resources by utilizing ground water. As well as wireless telecommunication network.

Study Results

Based on the results of data processing of the interview that has been perpetrated against the population around the industrial area, identified the positive impacts and negative impacts. The negative impact is only felt by the 30 respondents who are around or near industrial areas, such as air pollution becomes smell, sound becomes noise, and pollution of ground water becomes turbid and continuity began to decrease. While the positive impact is felt by all respondents in the Subdistrict Cibatu. In addition to improving the economy and jobs, the positive value of an industrial presence is the support of the industrial companies for the construction of infrastructure, especially roads.

Road network

The length of the road network in the Subdistrict Cibatu is 52,835 km, has been reach entire subdistrict. Since 2013, the development and improvement of the quality of the road for the entire subdistrict has been done. 100% of respondents believe that this is a positive impact from industry, where assistance for the construction comes from the industrial enterprises. Condition of roads in Subdistrict Cibatu illustrated through steadiness road conditions. According to the data of highways at the end of 2013, the stability of the road in Subdistrict Cibatu reached 83%. Overview proportion of road network based on the stability of road conditions can be seen in Figure 3.

Based on observations, identified major road network that supports the smoothness operation of the industry is using asphalt concrete pavement in very good condition. Rural roads to settlement activities using asphalt pavement in very good condition, although some rural roads in the south in fair to poor condition but the quality improvement project is being carried out. While the access road to the plantation is still a stone path. Mapping the condition of road infrastructure can be seen in Figure 4.



Water Supply System

Subdistrict Cibatu has an average rainfall of 2500-3500 mm / year and has the potential for groundwater reserves moderate to high. Based on information from local residents, the quality of ground water is clear and the continuity of its availability throughout the year despite the dry season. The pattern of utilization of water resources in the Subdistrict Cibatu 100% using groundwater. Potential groundwater consists of shallow ground water and ground water. Shallow ground water used for domestic purposes with a small capacity. While the potential of ground water is used for activities in urban and industrial activities which are growing rapidly.



Figure 4. Mapping the Condition of Road Infrastructure

To meet the need for clean water, residents take advantage of shallow ground water resources by way of dug wells. Each house has dug wells, water from wells pumped into reservoir with a capacity of 1,000 ml and distributed into water reservoirs in the house for daily use. Water supply system in the Subdistrict Cibatu is still individual, there is no piped communal water supply system.



Figure 5. Utilization of Ground Water Resources

Industrial activity in the north Cibatu have permission to take water from ground water for the production process. The impact of this activity is perceived by respondents who are nearby. 22.91% of respondents complained about the negative impact that the disruption of continuity of water availability and water quality.

Electric Network

Electricity is one of infrastructure that has a very important role as it relates to the basic needs of the community and to supply the needs of the industry. Electric service providers in Subdistrict Cibatu managed by PT. PLN, as the state-owned company in charge of all aspects of electricity in Indonesia. Northern areas Purwakarta served by the substation with a capacity of 120 MVA, which is sourced from the Hydroelectric Power Plant (PLTA) Jatiluhur. The capacity is sufficient for the purposes of industrial production and meet the needs of the community. Currently the electricity infrastructure coverage has reached to all parts of the Subdistrict Cibatu with the electrification rate of 100%.

Telecommunication networks

Provision of telecommunications services is the obligation of the government in ensuring community needs to be able to communicate over long distances. With the development of mobile phone

technology, ease of communicating remotely can be felt throughout the subdistrict area. Telecommunications infrastructure like tower mobile phone operator is spread in several locations in the Subdistrict Cibatu.



Figure 6. Telecommunications and Electricity Infrastructure

CONCLUSION

Based on the results of this discussion can be concluded that the development of industrial estates in Subdistrict Cibatu give an impact on its rural infrastructure development.

- The positive impact of the presence of the industry is the support of the industrial companies for the construction of infrastructure, especially roads.
- Construction of roads, telephone and electricity not only to support the industry. Currently the basic infrastructure services have been able to reach all villages with a 83% level of stability of the road, electrification of 100%, and a mobile telephone signal range.
- Areas affected by the negative impacts are located around or close to the industrial area. As air pollution becomes the smell, the sound becomes noise pollution, and pollution of ground water becomes turbid and continuity began to decrease.
- Facing of declining quality of groundwater resources, especially the pollution caused by the industrial sector, the supply of clean water and safe drinking water emerged as a major challenge.

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IMPLICATION OF PEAT LAND PROTECTION IN INDONESIA: A CASE STUDY IN BENGKALIS ISLAND, RIAU

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ABSTRACT

Peat land protection has been prioritized by the Government of Indonesia, exhibited by launching of Government Regulation No 71, 2014. Important content in the regulation relate to the assignment of minimum 30 percent of peat hydrological unit and peat depth more than 3 meter to areas with protected function. If these criteria are implemented, then some negative potential effect to economic activity will be arisen. This research intended to see the implication of the regulation through implementing overlaying spatial data between two scenarios of planning protected peat areas with land utilization using geospatial analysis. The planning protected areas are based on 30 % of peat hydrological unit and soil depth more than 3 m, which soil depth is interpolated from field data. The result shows that Bengkalis Island is dominated by forest production area, oil palm agriculture area. The land cover change year of 2002-2014 shows conversion in agro-forestry, oil palm and agriculture. Implementing different scenarios create different results. Using the 30 % area as protected area, then the dominant area affected is agro-forestry and palm oil while implementing 3 meter area are protected area, then the agro-forestry, palm oil and agriculture and open field will be affected. These data result have very big implication for further land use planning and management-

Key words: protected peat area, peat depth, overlay, economic activity, land use plan

INTRODUCTION

Peat land degradation in Indonesia due to improperly utilization is very wide and currently more than 2 Million ha that is needed to rehabilitate, as informed by Indonesian Peat Agency for Restoration (BRG, 2016), particularly in frequently fire occurrence areas. Solving for problem of degraded peat areas have been responded by Government of Indonesia, through launching of Government Regulation No 71, 2014 about Protection and Management of Peat Ecosystem. Important aspects in this regulation relates to the assignment of minimum 30 percent of peat hydrological unit (PHU) in peat dome area and peat depth more than 3 meter to areas with protected function. The idea of protection of 30 percent of PHU is to protect water storage area as it may work to provide water balance between protection area and development area (KLHK 2007), while the need for protection peat with deep more than 3 meter, beside for water protection, also the concern of environmental protection that already has been existed in the previous regulation (Keppres, No 32, 1990). The function of 3 m as criteria for peat land utilization was aimed to develop rice crop, not for other crops such as palm oil, rubber.

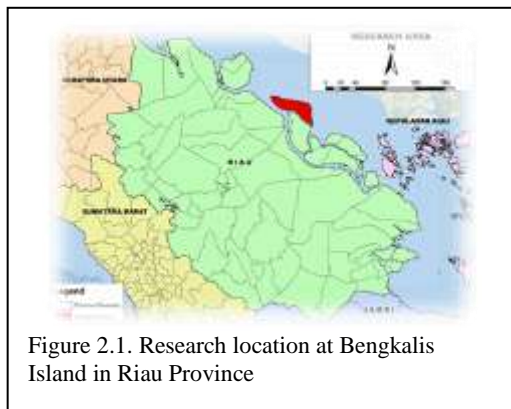


Figure 2.1. Research location at Bengkalis Island in Riau Province

The consequence of these points, when a particular area has been designated, then all economic activities in protected area will be terminated following its legislation permission. Currently it is suspected that

there are many economic activities both in peat dome area and peat deep area. This research intended to see the implication of the regulation between two scenarios of *planning protected peat areas with land utilization*. The planning protected areas are based on (a) 30 % of peat hydrological unit (PHU) from peat dome area, and (b) Soil peat depth more than 3 m

MATERIALS AND METHODS

Materials

Research area is Bengkalis Island, Riau Province. There are 267 soil samples observation, taken Agustus - September 2014, Drainage data, Concession maps and Landsat 2002 and Hotspot 2014, computer with GIS facilities in Laboratory of Remote Sensing and Spatial Information, Department of Soil Science and Land Resources, IPB, Bogor, Indonesia.

Methods

The analysis consists of 3 steps as follows:

First step :

1. Interpolation of soil peat depth data point using spline method, provide map of contour line
2. Assignment approximately 30 % area from peat dome
3. Assignment of areas with peat depth more than 3 meter

Second step :

1. Remote sensing data preparation
2. Visual interpretation for satellite image 2002 and 2014 producing 2 map of land cover 2
3. Analysis of land cover change 2002 and 2014

Third step :

1. Overlay map of protected peat areas (criteria of 30 % PHU) with land cover map 2014
2. Overlay map of protected peat areas (criteria of peat depth >3 m) with land cover map 2014
3. Overlay map of the result of point 1 and 2 with land concession area (oil palm and forest industrial areas)

RESULTS AND DISCUSSIONS

Peat depth contour and characteristics

The distribution of actual field data soil depth and the distribution contour of soil depth is presented at Figure 3.1. The data point data shows that the area with soil depth locates in central area and tend to southern area. After applying spline interpolation method with accuracy 90 percent, then the contour map is created. The data shows that the PHU in Bengkalis dominate by peat deep area, as the thin peat depth (<1 m) is less in number, only 28 percent (Table 3.1).

Tabel 3.1. Peat soil depth (ha and %) in Bengkalis Island

No	Peat depth (m)	Acreage (ha)	(%)
1	0 - 1	25,670	28.3
2	1 - 3	8,916	9.8
3	3 - 5	7,710	8.5
4	5 - 7	8,859	9.8
5	7 - 9	12,177	13.4
6	9 - 12	18,945	20.9
7	> 12	8,441	9.3
	Total	90,719	100.0

The peat with depth more than 3 meter occupy more than 60 percent, and specially with depth more than 7 meters occupy almost 40 percent of the island. Field data shows that PHU in Bengkalis Island is rain-fed peat area. In other words, majority water of this peat ecosystem is controlled natural rainfall; and lack controlled by water sea tide. This data shows the importance of storage of water during rainy season for supplying in dry season. Without proper storing water in peat dome area, then during dry season will very vulnerable for fire.

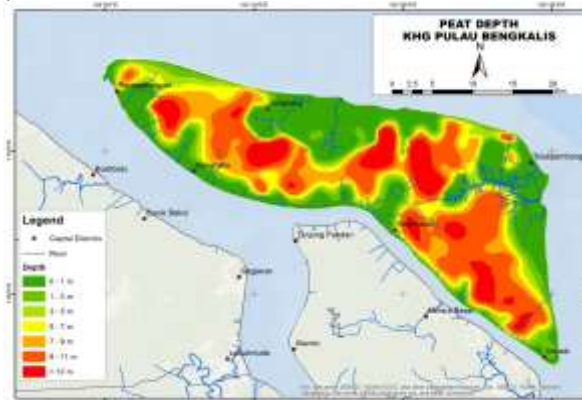


Figure 3.1. Contour map of soil peat depth in Bengkalis Island, 2014

The spatial characteristics of peat depth shows that northern area is less deep compare to southern area. The soil deep area as a peat dome areas are distributed evenly. In term of potential problem then the southern areas may create different problem when peat disappear, compared to northern areas. Currently in the northern area some problem related to abrasions are very distinct, while in the southern area problems more relate to fire and peat subsidence.

Protected area 30 % and soil peat depth > 3 m

Following the Indonesian Government Regulation No 71, 2014, minimum 30 percent of area should be protected, that in this case it will approximately taken from soil depth more than 9 meter (30.2%), while when we apply regulation with soil peat depth more than 3 meter then the number for protected area will increase significantly (61.9 %). The data in Figure 3.2. shows the area from peat dome area that distribute almost in all areas, with domination in south east area. Furthermore, ideally in assignment for protection area, the isolated or separated polygons should be merged, with consequently will take wider area to be protected. Implementing this policy may effect to land utilization in the area.

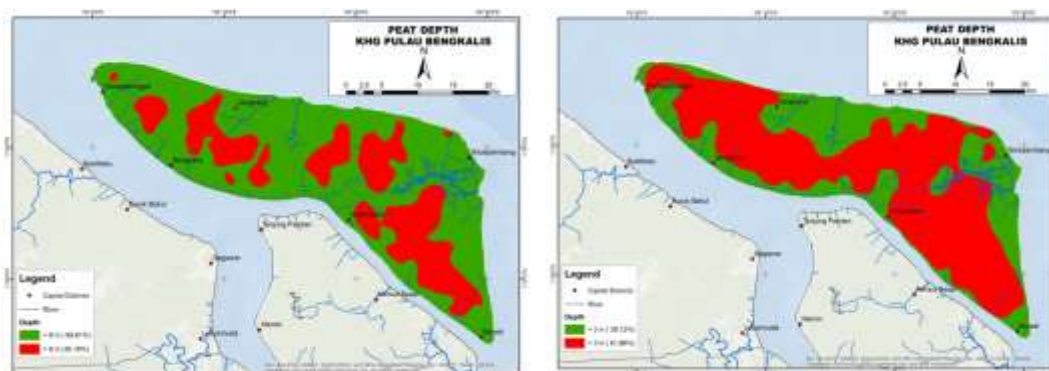


Figure 3.2. Potential protected area with 30 percent of PHU (a) and Potential protected area with peat depth more than 3 meters

Land cover of 2002 and 2014

Land cover of Bengkalis Island in 2002 and 2014 is presented in Figure 3.3 and 3.4. This data show the dominant land covers belongs to agro-forestry area / secondary forest covered and primary forest (more 70 %). Since 2002 to 2014, there is relatively small change of landuse between these two years. The highest increase areas occurs at secondary forest, palm oil, dry land, and the smallest at settlement, on the hand, land cover of primary forest, mangrove, open land are decreased. The changes in these three land cover can be understood as historically Bengkalis island is dominated forest production area. In addition, the increase these three coverage indicate there will be problem peat ecosystem, as all land covers require a dry environment. Operating industrial forest / secondary forest, palm oil, and dry land usually require drainage line to drain water from peat area. These data shows potential problem for future when water management is lack concern. The restoration peat area in Riau Province indicates Bengkalis island is one target area as the occurrence of hotspot is relatively high (BRG, 2016). The Indonesian Peat Restoration Agency (BRG) prioritizes to restore peat at high fire frequency, beside other considerations.

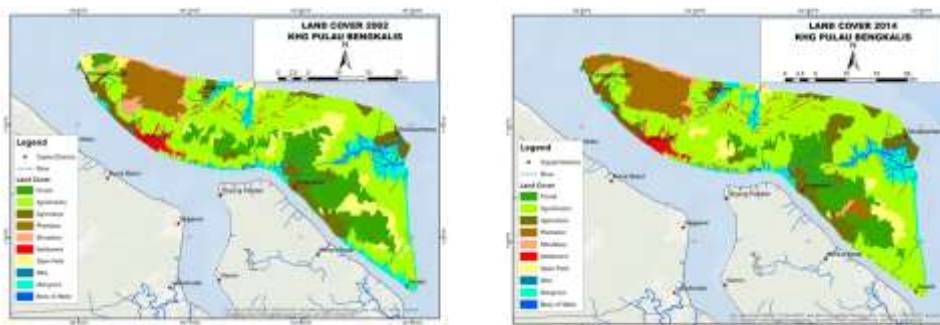


Figure 3.3. Land cover in Bengkalis Island in 2002 and 2014

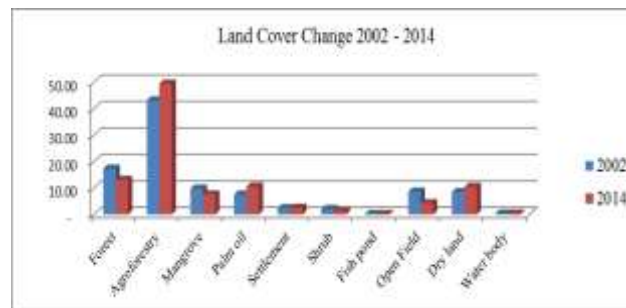


Figure 3.4. Graphic of land use area (percentage) of Bengkalis Island in 2002 and 2014

Land Cover 2014 in Two Scenarios of Protected Areas (30 % HPU and 3 meters)

Applying protected area of 30 % HPU and 3 meter as parameters will occupy different acreage or areas in different land cover types (Table 3.2). The effects of different scenarios are different. Using the scenario of 30 percent, then large area will be allocated into protected area such as are from agro-forestry area, forest, palm oil, open field and agriculture. When we apply the second scenario of 3 meter of peat depth, then the protected area increase dominantly from agro-forestry, forest, palm oil, agriculture and open field.

This data shows the problem when the source of conversion from different sources. The change from forest, agro-forestry and palm oil can be managed through legal aspect that is in line with the Government Regulation No 71, 2014 as it will be implemented after concession period expired. However, when the affected area originated from open field (3,422 ha) and agriculture (4,462 ha), or settlement (375 ha) then the problem assignment of protected status is more difficult. The local community economic may be in danger and create social problem if the government do not provide a proper solution.

Table 3.2. Land cover area (ha) in two scenarios of protected areas

No	Land cover type	Scenario 30 %		Scenario 3 m		different Prot (ha)	N-different Prot (ha)
		<9 m (NP)	>9m (P)	<3m (NP)	>3m (P)		
1	Forest	4,444	7,459	1,251	10,652	3,193	(4,267)
2	Water body	340	-	314	26	26	26
3	Agroforestry	33,764	11,075	18,047	26,792	15,717	4,642
4	Fish pond	156	-	156	-	-	-
5	Mangrove	6,874	34	6,077	831	797	763
6	Palm oil	5,603	3,971	873	8,700	4,729	758
7	Settlement	2,255	37	1,917	375	338	302
8	Shrub	959	405	495	869	465	60
9	Open Field	1,666	2,221	465	3,422	1,201	(1,020)
10	Agriculture	7,271	2,184	4,992	4,463	2,279	95
	Total	63,332	27,386	34,586	56,132	28,746	1,360

Note : Protected areas (P); Non Protected areas (NP)

Implication Community and Concession Areas

Data of land cover in Table 3.2. show the dominant affected areas are land controlled by government such as forest area, agro-forestry, and palm oil (about 46,144 ha). Some others may also from shrub areas. Furthermore, using legal data of concession, Figure 3.5. and Table 3.3. show data only 37.9 % (approx 25k ha) already has a legal concession area. Outside of this regal status, means many area in forest concession area has potential to occupy by local community either by legal or illegal. The actual concession for palm oil is bigger than actual crops. It means there will be potential new legal palm area and can be also from local community. This data also shows that dominant of legal concession areas locate at very deep soil peat and mean the actual concession will be controlled by government in its operation.

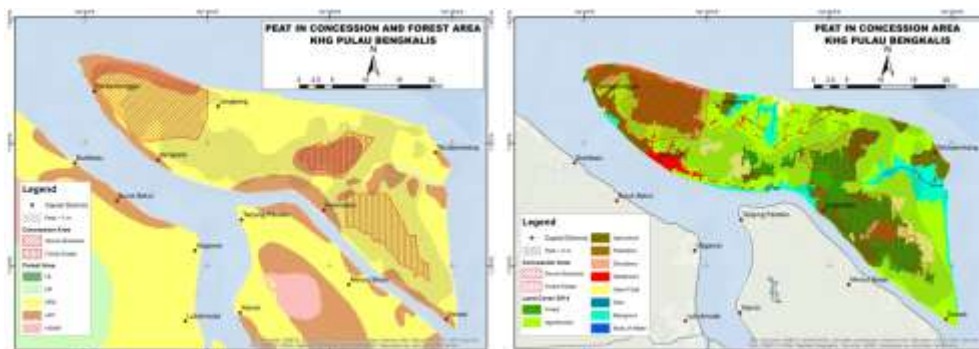


Figure 3.5. Concession areas such as Industrial forest and Palm oil in Forest status and Land cover of 2014 and Peat depth > 3 meters in Bengkalis Island

Table 3.3. Distribution of palm oil estate and industrial forest estates in Bangkalis

No	Peat depth	Palm Oil Estate (ha)	Industrial Forest Estate (ha)	Non Concession Areas (ha)	Total (ha)	(%)
1	0 - 1 m	1,441	24	24,205	25,670	28.3
2	1 - 3 m	1,557	160	7,198	8,916	9.8
3	3 - 5 m	2,031	204	5,476	7,710	8.5
4	5 - 7 m	2,129	382	6,348	8,859	9.8
5	7 - 9 m	2,721	1,331	8,126	12,177	13.4
6	9 - 11 m	3,124	5,992	9,829	18,945	20.9

7	> 12 m	980	3,226	4,235	8,441	9.3
	Total	13,983	11,319	65,417	90,719	100
	%	15.4	12.5	72.1	100	

According to regulation, the organization that manages the area can be force to follow existing regulation to work accordance to a proper water management, before terminating its activity as its land permit. In current regulation, every activity in peat land ecosystem has to manage it's soil water surface less than 40 cm in average. Beside that some other regulation, it is not allowed to open or manage land through fire activity. The failure to comply these regulations has possibility consequence to stop permit and to withdraw the land before its legal termination.

The situation is different when the affected area come from community such agriculture, open area, settlement (8,260 ha). So far there are some problems for land ownership as historically all area belongs to forest production area (through legal assignment in 1980's), but some local people already reside in the area before the assignment; or new occupancy by local in the area that already more than 20 years and recognized by local government. The current existing practice, the forestry agency do not recognize these occupancy by not providing any legal land ownership, but the local people still use the land. In this case we can consider some areas belong to open access areas without any control by government but utilized by community. Implementing the status as a protection zone in these locations needs a proper preparation. The land with legal ownership or without proper legal administration data is more difficult, compare to illegal occupation areas. The difficulties are due to no explicit regulation to allow people doing economic activities in the protection status area as mention at PP No 71, 2014.

DISCUSSIONS

The peat ecosystem in Bengkalis Island is a peat ecosystem that fully dependence to rainfall for storing water in peat dome areas. The implication of this situation requires a proper managing of land in the peat dome area, which the data shows majority area has very deep peat. So far using 30 % (depth > 9 m) of HPU as criteria than it will occupy 30.2% area. The question, is does it sufficient to store water for people and environment need. In this case we need a further water balance calculation. However, using peat depth > 3 m as a criteria for protection area than it will occupy 62% area of Bengkalis. Applying this regulation, then protection areas probably store water more than sufficient. So far the problem of fire and subsidence are very real in the area. By protecting more water, it means it is better to mitigate potential disaster from this potential problem. However, this decision should connect to actual economic activities.

Economic activities can be seen from large business such as palm oil and acacia (forest crop); and community. If a protection area is developed from criteria of 30 % (peat depth > 9 m), then the affected the company palm oil area is 23 % or 4,103 ha, and 81% of industrial forest area (9,219 ha). While if protection area from peat depth > 9 m, then the affected the company palm area increases to 79 % or 10,984 ha and 98 % of industrial forest or 11,134 ha. This data shows the area of industrial forest is bigger in very deep peat soil, as it impact is bigger compare to affected area in palm oil.

Outside of this area, some of them are utilized by local community; So far status of land ownership by local community is not very clear and become one major social problem. From field data, some local people inform that some of their lands according to government cannot be recognized as it is located in forest status region. When these areas are affected by the criteria of protection area, then some disputes would appear as it would effect to people livelihood. So far this problem has been recognized from the early stages of development of the regulation, but the quantity of problem has not been detected (Barus 2011; Barus *et al* 2014). After data has been collected, then more precise data require a proper solution, either from economic or legal aspect (Supiandi and Maswar 2014; Barus and Tarigan 2016).

CONCLUSIONS

Bengkalis peat hydrological unit is dominated by soil peat deep in central area, with tendency to deeper at Southern area. Bengkalis island is categorized as forest production area, then has a consequence to dominant as forest production area, and some area gradually to utilized by non forest area and its supporting such as agriculture, palm oil, settlement area, open area, and others. The land cover change between 2002-2014 shows the general similar utilization, but palm oil and agriculture tend to be increased. The change of land utilization currently creates some environment problem such fire, land subsidence and other, which are needed to resolve.

The new regulation in peat protection and management in Indonesia (PP No 71, 2014) would be affecting to land utilization through changing of land protection and its management. The implication 30% area as protection area will affect dominantly to industrial forest and palm oil, and when applying peat depth > 3 m, then the effect will be expanded more to industrial forest and palm oil and agriculture, open area and settlement. Beside that, all peat utilization require a particular concern to maintain water level in land at particular level.

To operate this regulation, in Bengkalis island, it is important to find out resolution from legal aspect and its easy for companies than to community. Legislation for land ownership at community is one important step that need to proceeded before calculating any social and economic consequence.

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THE EFFECTS OF GOVERNMENT POLICIES ON ENTREPRENEURSHIP AND PERFORMANCE OF SMALL SCALE BATIK INDUSTRIES IN PAMEKASAN EAST JAVA, INDONESIA

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ABSTRACT

One of the effort on increasing the society welfare is through national economic development. The development sector of the industry and trade have be done by implementing sustainable development and optimizing existing resources. The policy objective of government establishment is forwarded to cope constraint faced by small scale industry. The constraints including lack of technical and managerial skills, limited capital, limited ability on promoting and marketing, minimum industrial and trade elucidation. The purpose of this research is to analyze the effects of government policies including: training, marketing, capital support, and industry and trade elucidation; on entrepreneurship and the performance of small scale batik industries in the rural region of Pamekasan, East Java. Sample of 46 small scale industries were taken with stratified proportional purposive sampling method. The analysis of government policies in this research is identified more through Partial Least Square (PLS) method. Research result showed that only 2 of 4 government policies influence significantly and directly toward entrepreneurship of the respondents. Two aforementioned government policies are training support and industry and trade elucidation but only industry and trade elucidating policy influence to performance of small scale batik industries. Inspected in more detail, it turns out that training support can be easily applied by entrepreneurs in managing their own business. Whereas, industry and trade elucidation was very useful in improving the knowledge and skills of entrepreneurs. According this research, the two other policies have no significant influence against entrepreneurship spirit and performance of small scale batik industries in the region of Pamekasan, East Java. Marketing and capital support are seemed to be urgent in their business and in need of proactive action from the government.

Key words: training support, marketing, capitalizing, elucidating, entrepreneurship, performance.

INTRODUCTION

Small and medium-scaled industries play a significant role in economic development, namely by increasing employment, supplying low-cost goods and providing low-cost services, reducing poverty, and most important solving more complex social problems. There is no doubt about small and medium scaled industries contribution in economic development both in Indonesia and developed countries. Therefore, the existence of this business needs attention in supporting them. Based on Central Bureau Statistics of Indonesia (Badan Pusat Statistik) in 2012, industrial sector is capable of absorbing labor as much as 15,37 million out of 118 million labor available. From the total labor absorption by industrial sector, around 61,57% of it done by small and medium scaled enterprises (SMEs).

Likewise in East Java, the role of SMEs is significant enough for the economy. Beside the economy doer is local community, the activity of micro scaled industry also uses local raw material and labor. And the product is consumed by local community. Based on the census of Central Bureau Statistics of Indonesia 2012, the number of micro, small and medium scaled industries in East Java reached 6,825,931 units of industries. And 6.8 million of it are micro-scaled industries dominated by informal industries which have limited access, assets and productivity. In Pamekasan regency, there are 28 centre of small scale industry that have been successful to stand facing economy crisis. Based

on data of the success of small and medium scaled industries, therefore comes a question whether micro, small and medium-scaled industries will always continue to grow and develop? Whether training policies done by the government will always contribute to the performance of small, medium-scaled industries? There are two different opinion, the first opinion said that the government policies contribute to the performance of small, medium-scaled industries (Dana, 1999) while the second opinion said that not all government policies affect on the performance of small, medium-scaled industries (Premerratne, 1999; Moeljadi, 1999). The performance of company which was mentioned by Jauch and Glueck (2003), quatitative and qualitative aspects. Quantitative aspect is the performance of a company viewed by comparing past results and present results in case of nett benefit, the result of capital return, market segment, selling growth, production cost and its effieience, rate of in and out of labor and satisfaction index of labor. On the other hand, qualitative value is a question to know whether integrated and comprehensive goal, strategy , and plan from a company has already been consistent, right, and can also run well or not.

Tambunan (2009) mentioned that the characteristic or common features of small scaled industries as follows: a) Small companies run in informal sector, unregistered and do not pay tax, b) Simple organization structure, c) Limited labor with loose performance division, d) They don't separate their own wealth and the company wealth, e) bad accounting system, or even they don't have one at all, f) A too small economy scale so that it is hard for them to cut cost, g) Limited marketing and diversification skills, h) A light benefit margin. Even though with some limitation mentioned, small, medium scaled industries have been successful to stand facing economy crisis, whereas some big industries have been collapsed. Joseph Schumpeter (1883-1950) as cited at Idrus (1999) viewed that community who could defend from depression in 1920ish is small business, small sellers and blue labor. It gave him ideas that economy had to be built from the very small community. It is called an entrepreneurship. According to him, entrepreneurship doesn't appear only in certain social status, but it is also able to be done by every one. On the other hand, entrepreneurship that can make a country compete with the others is sense of creativity and inovation. Through their policies, government can support their community with capital giving.

According to Michelmoore and Rowley (2010), it has a connection with entrepreneurial competencies and business performance. Based on some research, entrepreneurial competencies are determined by several factors, such as: first, personal and experience back ground, such as trading experience, history of innovation, production and marketing experiences, status, entrepreneurial experience, and some contact with other companies. Barreira (2010:16) mentioned that characteristics of entrepreneurs are, confident, optimistic, original, tough, result oriented, dare to take risks moderately, tolerant to ambiguities and uncertainties, and having high Need of Achievement (N-Ach). Based on theoretical descriptions and review of related studies above, the research hypothesis proposed in this research are:

1. Training support significantly affects entrepreneurship.
2. Capital support significantly affects entrepreneurship.
3. Marketing support significantly affects entrepreneurship.
4. Industrial and trade elucidation significantly affects entrepreneurship
5. Training support significantly affects performance.
6. Capital support significantly affects performance.
7. Marketing support significantly affects performance.
8. Industrial and trade elucidation significantly affects performance
9. Entrepreneurship significantly affects performance

METHODOLOGY

Research Samples and Procedures

The objects of this research were batik entrepreneurs in Pamekasan Regency. The population of the research was all entrepreneurs run batik business in Pamekasan Regency. Preliminary data indicated there were 150 batik entrepreneurs in Pamekasan Regency. The 46 respondent withdrawl stratified

proportional purposive sampling method. The primary data collection method utilized in this research was conducted by distributing research questionnaires onto batik entrepreneurship in Pamekasan Regency as the respondents. Respondents' perceptions were measured using self-rating process.

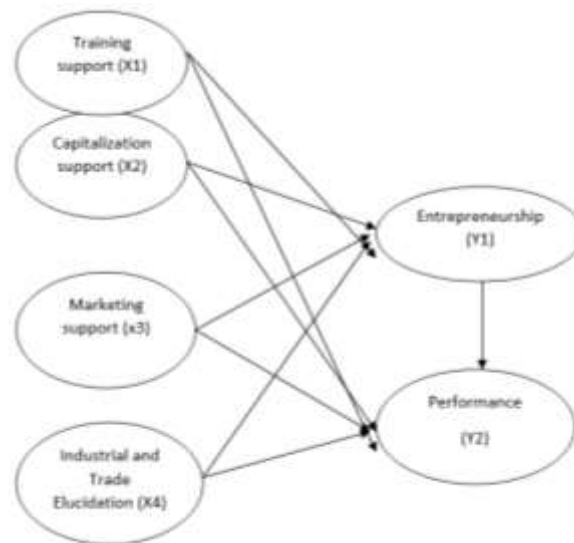


Figure 1. Conceptual Framework

Measurement

In this research, the research measured several variables. First, Government policy on SMEs as state in the Law No. 20/2008 Chapter 5 Article 7, a) Training Support (X1), b). Capitalization Support (X2), c). Marketing Support (X3) and d). Industrial and Trade Elucidation (X4). Second, Entrepreneurship referred to several characteristics served as driving factors of business development was based on entrepreneurs' skills to conduct innovations such as introducing new products and production functions, expanding new material sources, accumulating capital sources, and organizing and developing new industries. Entrepreneurship was measured by adopting 6 measurement items proposed by Meredith (1996). Third, performance measured qualitatively according to Jauch dan Glueck (2003) such as; whether the integrated and comprehensive goal, strategy, and plan of a company has already been consistent, accurate and is able to run well or not. All of these variables were measured based on Likert's scale which scores ranged from 1 (one) to 5 (five).

FINDING AND ANALYSIS

In this research, the researchers utilized *Partial Least Square* (PLS) analysis technique due to several advantages PLS was a powerful analysis tool because it did not assume data based on particular measurement scale and particular amount. PLS was also applicable to prove some theories (Hair et al., 2010). The respondents of this research can be grouped into several categories. Based on their ages, 24 of them (52.17%) aged between 20 and 35 years old; 14 of them (30.43%) aged between 36 and 50 years old; and 8 of them (17.39%) were older than 50 years old (51-62 years old). Based on their sex, 19 respondents (41.30%) were male and 27 respondents (58.70%) were female. Based on their educational background, most of respondents had lower education. 12 respondents (26.09%) were graduated elementary school (*SD*), 16 (34.48%) from junior high school (*SMP*) and 18 (39.13%) were graduated from high school (*SMA*). Based on the year the respondents started their business, 5 respondents (10.87%) said they started their business between 1976 and 1989. The majority of the respondents (25 respondents or about 54.35%) said they started their business and joined Pamekasan batik industries center between 1990 and 2002 while 16 respondents (34.78%) just started their business after 2003.

Testing the Hypothesis

Table 1: Results of Path Coefficient Test

Inter-variables Relationship	original sample estimate	mean of subsamples	Standard deviation	T-Statistic	p-value
Training Support (x1) -> Entrepreneurship (y1)	0.326	0.379	0.160	2.034	0.024
Capitalization Support (x2) -> Entrepreneurship (y1)	0.044	0.065	0.183	0.241	0.405
Marketing Support (x3) -> Entrepreneurship (y1)	-0.153	-0.136	0.122	1.253	0.109
Industrial and Trade Elucidation (x4) -> Entrepreneurship (y1)	0.557	0.483	0.166	3.356	0.001
Training Support (x1) -> Performance (y2)	0.333	0.240	0.278	1.196	0.119
Capitalization Support -> Performance (y2)	-0.221	-0.214	0.229	0.965	0.170
Marketing Support (x3) -> Performance (y2)	-0.196	-0.178	0.178	1.100	0.139
Industrial and Trade Elucidation (x4) -> Performance (y2)	0.438	0.527	0.223	1.966	0.028
Entrepreneurship (y1) -> Performance (y2)	0.067	0.100	0.157	0.425	0.337

The path coefficient score of training support to entrepreneurship indicated 0.326 and its t-statistic and p-value scores were 2.034 and 0.024 respectively. Its t-statistic score was higher than its critical value 1.96 and p-value was lower than error standard 0.05. Hence, hypothesis 1 was accepted implying significant relationship between training support and entrepreneurship. The relationship between Industrial and trade elucidation and entrepreneurship was proven to be significant which was indicated by its t-statistic score 3.356 which was higher than critical value 1.96 indicating that hypothesis 4 was accepted. As displayed on the table above, the path coefficient value, t-statistic, and p-value for Industrial and trade elucidation to performance were 0.438, 1.966, and 0.028 respectively. The t-statistics score was higher than its critical value 1.96 while the p-value was lower than its error standard 0.05. Thus, it implied that Hypothesis 8 was also accepted.

The relationship between capitalization support and entrepreneurship turned out to be insignificant. It was indicated by t-statistic score 0.241 lower than its critical value 1.96. This made Hypothesis 2 was rejected. Meanwhile, the path coefficient of marketing support to entrepreneurship indicated score -0.153 with t-statistic score 1.253 which was lower than critical value 1.96 and p-value score measured 0.109 which was higher than error standard 0.05. Therefore, it seemed that Hypothesis 3 was also rejected.

The relationship between training support and performance was proven to be insignificant as showed by its t-statistic score 1.196 which was lower than critical value 1.96 and its p-value measured 0.119 which is higher than its error standard 0.05 while path coefficient of training support to performance was 0.333. This made Hypothesis 5 was rejected. The path coefficient value, t-statistic, and p-value for capitalization support to performance were -0.221, 0.965, and 0.170 respectively. The t-statistics score was lower than its critical value 1.96 while the p-value was higher than its error standard 0.05. Thus, it implied that Hypothesis 6 was also rejected. Path coefficient value for marketing support to performance indicated the score -0.196 with t-statistic score 1.100 and p-value 0.139. Its t-statistic was lower than critical value 1.96 and its p-value was lower than error standard 0.05. Hence, it can be said that Hypothesis 7 was rejected.

Path coefficient value for entrepreneurship to performance indicated the score 0.067 with t-statistic score 0.425 and p-value 0.337. Its t-statistic was lower than critical value 1.96 and its p-value was higher than error standard 0.05. Hence, it can be said that Hypothesis 9 was accepted. Path Diagram of Hypothesis testing was presented by Figure 2 below:

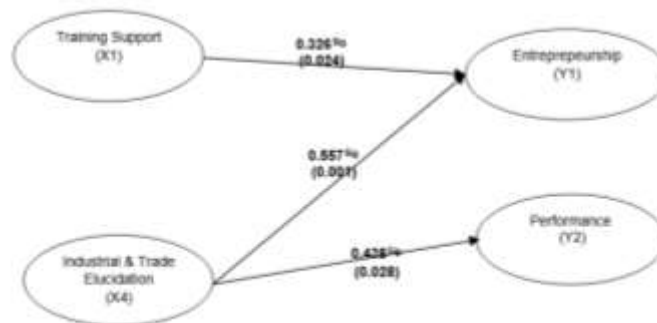


Figure 2: Path Diagram of Hypothesis Testing

DISCUSSIONS

Effects Training Support on Entrepreneurship

Training is the process of improving people’s knowledge and skills. It may also involve changing their attitude so that they can do their jobs more effectively. Training is a process whereby people improve capabilities to achieve organization goal. Because this process is tied to a variety organizational purpose, training can be viewed either narrowly or broadly. In a limited sense, training provides employees with knowledge and skill for use on their present jobs. An entrepreneur who often attended some trainings will have wider thoughts and ideas in planning, running, and evaluating his business. Entrepreneurship, by Drucker (1994), defined as the capability to create something new and different. In this research, the concept of entrepreneurship indicator referred to the theory said by Meredith (1996) about entrepreneurship characteristics which explained that there are 6 personality traits of an entrepreneur, i.e. confident and optimistic, duty and result oriented, courageous to take risks, has sense of leadership, originality, and has future oriented. A suitable training is succesful to lead and build mindset as an entrepreneur in daily basis of small medium scaled industries entrepreneurs of batik.

In this research, hypothesis 1 was accepted implying significant relationship between training support and entrepreneurship. Referring to the result of respondent characteristic analysis, those can be explained as follows: based on the description of respondents, it is known that 24 of respondents (52.17%) aged between 20 and 35 years old. The involvement of young aged entrepreneurs shows that mostly respondents with young age have high school qualification, so that the are able to absorb all training material given by instructors. The training material given is able to inspire entrepreneurship spirit growth of small medium-scaled industries entrepreneurs of batik. Following the theory of culture capital by Bordieu (1986), there is a type of knowlegde inheritance and the awareness of entrepreneurship from previous generation. Parents directly or indirecly teach their kids to develop their business. Besides, these young-aged entrepreneurs are capable to observe things around them. They can see that the only way to live independently is to be entrepreneur.

Effects Capitalizing Support on Entrepreneurship

One of government policies in developing small, medium-scaled industries is capital support such as facility to get capital access, proposal making guidance, and provide capital support. Through the National Program for Community Empowerment, local government capital support disbursed to the Micro, Small and Medium Enterprises. This funding is expected to raise the potential of small scale batik industries in Pamekasan regency.

Result of hypotheses test indicated hypothesis 2 was rejected implying that capitalizing support could not help increase their entrepreneurship particularly in terms of confidence and optimism required in developing their businesses. This can be explained that in reality, a big capital is

capable to push someone to develop his/her business. Whereas capitalizing support given by government was limited.

Effects Marketing Support on Entrepreneurship

Kotler (1997) states that marketing is a social and managerial process in which individuals and groups obtain the level of need by creating, offering and exchanging products with others. The company knows how to adapt to a changing market by making strategic planning. Government policies in developing small, medium-scaled industries in terms of marketing support based on Indonesian laws no 9/1995 are, 1) realization on promotion support, 2) Budgeting support for exhibition, 3) Leaflet and brochures making support, 4) Giving information in marketing chance.

Market share began to open when Pamekasan's batik become the winner batik design competition in East Java Province. Local government promotes batik and participates in regional and national exhibition. The 28 centre of batik small scale industries has not increased in number. This is corresponding with the results of this research. Result of hypotheses test indicated Hypothesis 3 was rejected implying that marketing support provided by the government so far has not been able to enhance the entrepreneurial spirit of small scale batik entrepreneur to expanding new business.

Effects Industrial and Trade elucidation on Entrepreneurship

Tenaga Penyuluh Lapangan (TPL) or Field Assistant is The Government employee who gives guidance and counseling industry and commerce to SMEs to : 1) analyzing the situation and formulate future action, 2). increase knowledge about globally oriented businesses, 3). Assistance in monitoring, evaluating and analyzing to choose the correct action to the business. Ismail (2002) more detail explain the counseling are about: a) management and administration, b). preparation of financial statements and making feasibility proposal, c). improve product quality, c). development of business networks, d). social relation, culture and humanity in the local environment, e). delivering information about capital access, raw material, marketing access, f). mentality, morality and work ethic and g). Strategic development and infrastructure expansion.

Result of hypotheses test indicated Hypothesis 4 was accepted implying that counseling assistance given by Field Assistant (TPL) is very helpful to improve the knowledge and skills of entrepreneurs. As revealed by Masu and Goswani (1999), entrepreneurial competence is a socio-economic factors, such as educational attainment, business experience, including family background in business and how long experienced in the business world, and know the sources of informal finance.

Effects Training Support on performance

Human capital theory mentioned that someone is able to increase his/her income through training. Training will increase working ability, skill and income levels and at the end, it will also improve business performance (Simanjuntak, 2008). In this research, government policies through training support did not significantly affect on the company performance of Small, medium-scaled industries of batik in Pamekasan. The result of this research is contrary to its theory. It happened because the amount of trainings done was not enough for all small scale batik industries in Pamekasan regency. In Pamekasan Medium Term Development Plan, the district government budgeted only 375 million rupiah for development of small scale business.

Effects Capitalizing Support on performance

Every company needs capital to operate the business. In the short term, capital needed for working capital or operational capital. It used to: 1). Materials production; 2). Cost of production process and 3). Distribution. Government policy in capital support was to facilitate to get capital access, proposal making guidance, and provide capital support. This research results was capital support insignificantly effects on performance of small scale industries in East Java. This is because of limited budget. This

research result is different from the results of previous research by Manan (1999). The results of Manan study in East Java show that capital support affects significantly on small scale industries performance.

Effects Marketing Support on performance

Government policies in developing small, medium-scaled industries in terms of marketing support based on Indonesian laws no 9/1995 are, 1) realization on promotion support, 2) Budgeting support for exhibition, 3) Leaflet and brochures making support, 4) Giving information in marketing chance. Marketing problems such as: market segmentation, product planning accuracy based on market needs, pricing, promotion and distributions are important things for companies so that they can compete. These are also influencing the performance of a company. The success of small, medium-scaled industries to reach the expected goal will be supported by the ability of a company to do promotion and marketing. In this research, government policy in terms of marketing support is not significant on the performance of small, medium scaled industries because of limited support.

Effect Industrial and Trade elucidation on performance

The research show that industrial and trade elucidation affect significantly on performance. The existence of Field Assistant had has improve performance of small scale batik industry in Pamekasan. There are six Field Assistants /Tenaga Penyuluh Lapangan (TPL) in Pamekasan Industrial and Trade Agency. The consultant is able to look at the problem a more appropriate angle and his or her services should be more widely used. The consulting is the planned intervention in the company by indentifying problems that may occur in its organizations and implementing those considered suitable and fitting in order to resolve the problems (Saphiro, Eccles and Soske, 1993). Hermosilla (1997) says that the development of the industry in Spain is strongly supported by the consulting services of expert. They assist management skills, how to enhance competitiveness, marketing and the development of quality products.

Effects of Entrepreneurship on Performance

In this research, entrepreneurship referred to theory proposed by Meredith (1996) regarding personal characteristics of an entrepreneur which consisted of confident and optimistic, result and task-oriented, eager to take risks, owning leadership characteristic, originality, and future-oriented. Meanwhile, performance measured qualitatively according to Jauch dan Glueck (2003) such as; whether the integrated and comprehensive goal, strategy, and plan of a company has already been consistent, accurate and is able to run well or not. The research results show that entrepreneurship insignificantly affects on performance. As Lumpkin and Dess (1996) state that entrepreneurship orientation may be strongly associated with performance when it is combined with both the appropriate strategy and the proper environmental condition.

Limitations

1. The indicators used in this research was adopted from the western country which is different from Indonesian culture, and the result may vary.
2. This research applied self-rating concept enabling subjective assessment based only on entrepreneurs' point of view.

Recommendations

1. In this research, capitalizing support and marketing support did not significantly affect entrepreneurship and performance of small scale batik industries in Pamekasan. This could be due to a limited budget. The government policies to develop small scale batik industries should be better planned and budgeted more.

2. In this research entrepreneurship of small scale batik industries in Pamekasan insignificantly effects on performance. The next researches should be view the other variable such as strategic planning and business environment.
3. Due to homogenous characteristics of center of batik small scaled industries, the findings of this research can be applied to other centers of small scaled industries.

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THE TRANSFORMATION OF NAGARI (VILLAGE) KURAI V JORONG INTO BUKITTINGGI CITY, INDONESIA

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ABSTRACT

Bukittinggi is one of cities in West Sumatra Province - Indonesia that was made as gemeente (municipality) by the Dutch Colonial Government as stipulated in *Staatsblad* of 1918. There is a long history behind the decision to make Bukittinggi as gemeente. Based on a historical study to available documents, this paper discusses the transformation of a tiny settlement, Nagari Kurai V Jorong, in the Kingdom of Pagaruyuang into a city known now as Bukittinggi. Nagari (settlement/village) Urang Kurai, then was a tiny settlement, was the center of Luhak Agam; Nagari Urang Kurai is the origin of Bukittinggi city. The paper argues that the Nagaris are the foundation of the Pagaruyuang Kingdom; Nagari is autonomous region, has a very broad authority, and has its own customary courts. Its strategic functions and location, as well as its abundant natural resources have made the Dutch Colonial Government upgraded Nagari Urang Kurai into Gemeente after the downfall of the Pagaruyuang Kingdom. It is argued that during the transformation from Nagari into Gemeente, cultural and political acculturation occurred between Dutch and Minangkabau; especially seen in the indigenous customs of Nagari Kurai V Jorong. Many aspects of the customs were considered and legalized in writing, but some were eliminated and deflected.

Key words: Transformation, Nagari Kurai V Jorong, Bukittinggi

INTRODUCTION

The city is a physical utility of human beings in groups and is a product of culture that very diverse / heterogeneous (Mumford 1970). The city is also a phenomena product of space to speed up the civilization of development. Development process of the city written in the history of the city. Writing the history of the city should start from the embryo of the city, the development / transformation of the city, and the prospects of the city. Based on this stage, Mumford divides the development of cities ranging from eopolis, polis, metropolis, megalopolis, tryanopolis, necropolis. Eopolis stage is an intermediate stage of the pattern of rural life to pattern of city, occurring in the village who have had regular and advanced development (Mumford 1961). The history of rural development in Indonesia is almost unknown (Dobbin, 2008), including when the village has been transformed into the city.

Bukittinggi also occur the eopolis phase. Bukittinggi city comes from Nagari Kurai V Jorong (pre-colonial era). In the Dutch colonial era, Nagari Kurai V Jorong ellipse turns into the city. Bukittinggi is an inland city and the second important city in West Sumatra provience, Indonesia. The village of Nagari Kurai V Jorong formed from the Pagaruyuang Kingdom. Nagari is the basis for the Kingdom Pagaruyuang, and at that time the number of villages has reached 500. At first the village is the unity geneologis, then evolved into a territorial unity. Each village is an autonomous region, has a very broad authority, and has its own customary courts. Stibbe in 1981 Amran explains the definition villages as:

“.....Zelfstanding territorial gemeenschap met haar eigen vertegenwoordigend bestuur, haar eigendommen, vermogen en gronden. En in tegenstelling met de desa op java, had reeds een zelfstanding bestuur lang voor onzekomst ter Sumatera's Westkust”

That mean: “nagari standing on his region, describe the government, his asset, and land. Nagari is different from rural/ village in Java, Nagari has been exist along time ago before we come to west coast Sumatera ”. according to local ordinance Kabupaten Agam Number 31 of 2001, nagari is the law indigenous unity in West Sumatera Province, consist of some ethnics group, has a territorial boundaries, property assets, have the right to manage his household in elected the leadership of government. Today nagari interpreted by rural. Provisional actually nagari has a large influence area and autonomy. The limitation of this paper to transformation Nagari Kurai V Jorong into Bukittinggi city is 1942 (until the end of Dutch Colonial in Indonesia)

Cities in Sumatra grown from a village (Zed 1996 in Dalil 1997). But not all villages can be a city, as described Mumford at the stage of development of the city eopolis. In West Sumatra, Nagari who became the city generally has a good strategic position in regional constellation (physical, political, social, economic, and cultural), and has a rapid development, as nagari which became the center of Luhak Agam, Luhak Tanah Datar, and Luhak 50 Koto who have *pakan* (market) as an economic center. The villages will serve as the city (*gemeente*) by the Dutch Colonial Government. With the above background the authors tried to construct historical revisionism Bukittinggi from space perspective, since from villages to become the city (pre-colonial - Colonial). This paper aims to describe the transformation process Nagari Kurai V Jorong into Bukittinggi in space and cultural perspective.

MATERIALS AND METHODS

This paper uses a multidimensional and hermeneutic approach from various secondary sources (references study). The background of this approach is the data/ source during pre-colonial and colonial limited, based on historical evidence such as documents, artefacts, and many aspects that influence it. Hermeneutic approach is done by identifying, analyzing, and interpreting old texts. Because one of the functions of hermeneutics is to build an old text (Spilackova, 2012), interpreting the text (Seebom 2007), the interpretation of particular text or symbols that can be called a collection of text (Ricoeur, 2008). Meanwhile, a multidimensional approach is an approach with the point of view of the various aspects so that results can be displayed more rounded and comprehensive. This multidimensional approach avoids determinism or alignments (Pranoto, 2006). The second approach used aims to strengthen the research, as stated in Qualitative Methods in Social Science, qualitative research methods will not be eligible single interaction theory. Qualitative research using some design strategies and theories for understanding the depth of investigation that will be generated (Janesick, 1994; Miles and Huberman 1983 in Berg, 2001)

The data collection method is done by the secondary survey technique. The source of history according to Danto, 2008 in Spilackova 2012 were four, 1) a primary (original documents found in the archives), 2) secondary source (works by other authors writing history), 3) official record (official records of various institutions, case reports), 4) other materials (chronicles, autobiographies, diaries, memoirs, oral history record). Difficulties in data collection is limited sources of data, because data were missing brought to the Netherlands, and burnt when the Japanese colonial rule (Amran, 1988). The data were missing allegedly burned and destroyed during *Paderi War* (Hadler, 2010).

Analysis stage in historical research include the interpretation phase (analysis and synthesis). Interpretation of history should be presented in chronological order and systematically, in their interpretation must be very careful because of errors of interpretation will result in an error history (Spilakova, 2012). The method of analysis layer by layer (Moughtin, 2003) is a research method used, namely the structure of space, spatial pattern, fabric, and culture. The last stage is a synthesis, grouping and unification of data. The analysis method used can be seen in Figure 1.

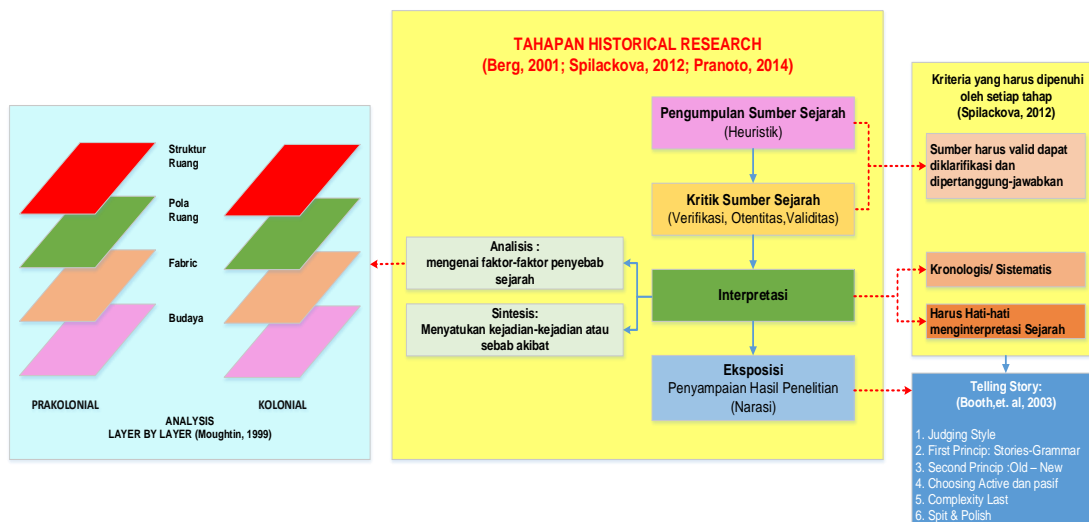


Figure 1. Research Analysis Method Used
 Source: Author Illustration in 2016 from Various Reference

RESULTS AND DISCUSSION

Criteria Established Nagari

In the Minangkabau Kingdom there is a hierarchy of region. Nagari is formed through a process, not directly be a great. The process of forming villages in Minangkabau advice implicit in *petuah adat* and written in the law of village: "From Taratak into Dusun, Dusun into Koto, Koto into Nagari, Nagari has a headman". Criteria for the establishment of Hierarchy Nagari according to Navis, 1984 and Achir, 2011 which quotes from several traditional leaders Minangkabau and Dee Rooy (Dutch) are: 1) *Taratak*, a outer settlement Nagari unity which some occupancy inside it (temporary residence). The leader called Tuo (Parent/ Chairman), have not had *penghulu* and therefore the houses were not allowed *bagonjong*. The social life was associated entirely with families in nagari of origin. 2) *Dusun*, is a settlement that has a lot of the population (settled), has had a place of worship, *rumah gadang duo gonjong* but does not have *panghulu* and government leaders called *Tuo dusun*. 3) *Koto*, a settlement which does have the rights and obligations of such nagari and the leadership is *penghulu*, but the *balairung* didn't have a wall. There are several genealogical groups in *koto* (blood roped group called tribes). Most activities are no longer dependent on the village. 4) *Nagari*, a settlement that was inhabited at least four tribes with *Penghulu Picuk* as top government leaders and has had fittings perfect government.

Nagari in Minangkabau can constructed if it had physical qualified as follows: "*babalai bamusajik, balabuah batapian, bagalanggan bapamedanan, bapandam bapakuburan*". That means: must have the customs hall and a mosque; access roads and sanitation; arena /great field (for *pencah silat exercise* and traditional ceremonies); and have a funeral (legislation of nagari; Sutan, 1997; Hadjerat, 1947 in Zulqayyim, 2006; Kato, 2005 in www.sejarahnusantara.com; Achir, 2011). In another reference said the establishment of a nagari requirement " *balabuah batapian, babalai bamusajik, badusun bataratak, basawah baladang, babanda buatan, bakabau bajawi, batabek bataman-taman, bagalanggan bapamanehan*" (Manggis, 1987). Manggis said that to establishment requirement of nagari we must have the *dusun* and *Taratak* (administrative region under it; have the rice fields and the fields; have artificial irrigation channels; have buffaloes and cows; and has a pool and a garden. Each nagari has a *pakan* (market) and generally become a center of nagari.

The History of Nagari Kurai V Jorong Establishment

The territory of the Kingdom of Pagaruyuang divided into two parts, namely *darek* and *rantau* regions. The meeting of these region called *ujuang darek kapalo rantau*. There are two definitions for the division of the region. The first definition is shown *darek* plain areas /land (Hadler, 2008) and the *rantau* is a coastal region/ sea / coast (Pires, in www.sejarahnusantara.com). The second definition is the hinterland/ suburb area became the entrance to *darek*. *Darek* is a core area of the Kingdom Pagaruyuang (Zulqayyim, 2006). *Darek* and *rantau* subdivided into several sections (a kind of development areas). *Rantau* divided over *Rantau Mudiak* (West Coast Region) and *Rantau Hilia* (East Coastal Region). These *rantau* called *rantau nan duo*. *Darek* is divided into 3 (three) *luhak*, namely *Luhak Tanah Data*, *Luhak Agam*, and *Luhak 50 Koto*. *Luhak* is the area of culture (Hadler, 2008). Bukittinggi is located in the middle of *Luhak Agam*. *Luhak Agam* is the second *luhak* that appears in the Minangkabau Kingdom (Achir, 2011). At the beginning of the establishment, Luhak Agam consists of 16 villages. According to *tambo*, the population of Luhak Agam came from Nagari Pariangan Padang Panjang. The population of Nagari Agam entered into four periods. Each period consists of four groups. The first period, nagari are placed in Luhak Agam and inhabited is Biaro, Balai Gurah, Lambah and Panampung. The second period Nagari Lasi, Canduang, Kurai, and Banuhampu. The third period: Nagari Sianok, Koto Gadang, Guguak, and Tabek Sarajo. The fourth period occupies; Sariak, Sungai Puar, Batagak, and Batu Palano.

About 100 (one hundred) people *menaruko* (clear land) Nagari Kurai headed by 13 *ninik mamak*. This group is divided into two teams. Each team chose a different path to get to Koto Jolang (first settlements). Koto Jolang is estimated to be in *Pakan Labuah* Jorong Tigo Baleh (named Jorong Tigo Baleh in accordance with the number of *ninik mamak* manaruko at Nagari Kurai). Because Koto Jolang can not accommodate all the groups, and the available land is still quite large, the thirteenth *ninik mamak* agreed to expand occupy five *jorong* (village / hamlet) in its environment. Six *ninik mamak* downstream and seven *ninik mamak* to homecoming. This deployment can be seen in Figure 2.



Figure 2. Expansion of Settlement Koto Jolang to Surrounding Jorong
Source: Illustrated writer of LKAAM In the End of 2011

After the group spread out and occupy the new settlement, the *ninik mamak* agreed to unify the fifth *jorong* into nagari, because the requirement for the establishment of *nagari* already owned (minimum consists of four tripe/ ethnic; have the customs hall, mosque, roads, public toilets/ sanitation; arena/ field; and funerals). The name for new nagari that agreed is Nagari Kurai V Jorong (Tambo Nagari Kurai V Jorong; Achir, 2011). An approximately the wide of Nagari Kurai V Jorong is equal to eksisting of Bukittinggi City wide (base on manuscript *Kayu Bulek* signed May 29, 1947, about the returns boundaries and wides of Bukittinggi accordance with predetermined Nagari Urang Kurai (not by administrative boundaries and wides of Colonial Government Dutch and Japan). Physically boundaries Nagari Kurai V Jorong with its neighboring nagari is to *aur* plant (bamboo). This plant also serves as a fortress in case of war between nagaris. So Nagari Kurai also known as *Kurai Nan Salingka Aur*, which means; Nagari Kurai surrounded Bamboo Tree (Zulqayyim, 2006).

Nagari Kurai V Jorong located at Bukit Barisan, has physiographic basin because it is composed of 27 hills and surrounded by Merapi and Singgalang Mountain. The highest hill called

Bukit Kubangan Kabau where the *penghulu* held a meeting. For economic development, the *penghulu* agreed to open the first *pakau*/ market in *Pakau Labuah* at crossroads. 1700s estimated merchants from India, Arabia, and merchants from the neighboring Nagari Luhak Agam crowded entrance to trade in Nagari Kurai Urang V Jorong. Seeing this development, the *penghulu* consulted to determine the development of Nagari Kurai V Jorong, result of the decision: 1) *Bukit Kubangan Kabau* where the *penghulu* of deliberation renamed with *Bukik nan Tatinggi* and later became Bukittinggi City. The name of Bukittinggi refer to Nagari Kurai V Jorong. Residents Nagari Kurai V Jorong called *Urang Kurai* that being a native of Bukittinggi City. 2) The *penghulu* agreed to set up the *pakau*/ market in a *Bukit Kubangan Kabau* with the market on Saturday. The name of this market is named *Pakau Kurai*, so *pakau* in *Pakau Labuah* moved to *Pakau Kurai*. Caused the people that come to *Pakau Kurai* very crowded (population around Nagari Kurai included into Luhak Agam), then *pakau* is often referred to as *Pakau Rang Agam / Koto Rang Agam*.

In addition to the transactions (exchange of goods), the *pakau* used to share the stories, is about the traditional story, dissemination of knowledge, social interaction (vertical and horizontal, and to build connections from the outside (Hadler, 2008 and Fuadi, 2008). Along with time, *Pakau Kurai* become centers of Nagari Kurai V Jorong (not in *Koto Jolang / Pakau Labuah* again). In the originally of nagari, market/ *pakau* and arena/ field (which is intended for practice *pencak silat* and *culture* events) placed on the outskirts of nagaris; border land and hills, between the highlands and the coast or border ecological zones (Dobbin, 1992 and Perret in 1999 in Fuadi 2008). However, the famous and important market placed in the central area. These cases occurred in Nagari Kurai V Jorong, which make the *pakau* as a center of nagari.

All residents in Minangkabau embrace Islamic, Minangkabau people who are not Muslim are not considered as *urang minang*. The other religions that grow are Christian Catholics, Protestants, and Buddhists held by migrants from Batak, Java, India, and China. Perang Padri that occurred in West Sumatra called as Islamic purification movement (Hadler, 2008; Dobbin, 2008). Since the Perang Padri matrilineal culture faded, although not fully walking but until now still survive. The inherent strength of Islamic law and is deeply embedded in the life and governance system in Minangkabau, one of them in the establishment of districts that require own mosque.

There are five Mosque in Nagari Kurai V Jorong that distributed to each Jorong. Uniquely all Jamik Mosque was built close to the river/ *banda/ tabek* (river / artificial irrigation channels / pool). The mosque used as a center for religious education, most water sources that include toilets for the nagaris. The water is allowed to flow (*aia pincuran*). *Balai adat* is located not far from the Jamik Mosque. Education at this time together with the mosque / *surau* and more focused on religious issues (reading and writing Al-Quran) and the education here is connected with Mecca, Medina, and Aceh. At that time, slogan *alam takambang jadi guru* broaden the younger generation to be a cultural reformer matrilineal. The existence of market / *pakau* is not exactly in minang adage as a condition for the establishment of nagari. However, every nagari certain have *pakau* as a wheel of economic life. The difference is in the scale of *pakau* services (depending strategic location).

During the pre-colonial development, Nagari Kurai V Jorong has been thinking far away with the environmental considering aspects (suitable development), seen from the following passage: *pangambangan nagari disesuaikan dengan struktur alam jo pintalak tanah masing-masing suku*, which translates the development of nagaris adapted to the natural structure and the physical limits of each tribe land. This means that the development of nagaris should pay attention to nature, not destroy the nature, and should not be out of the physical limits of land owned. In the development of Nagari Kurai V Jorong, there are some land should be protected. This land is *tanah ulayat*/ customary land as *sawah paduan harus barai* and functioned as rice paddies and fields to fund cultural activities / *Alek Nagari Kurai* as well as land banking for the descendants Urang Kurai (Interview with Dt. Panduko Bases Jorong Tigo Baleh, July 14 2016).

Transformation Nagari Kurai V Jorong into Bukittinggi City

Transformation Nagari Kurai V Jorong into Bukittinggi city not be separated from the role of the Dutch colonial government. Dutch (VOC) entered into West Sumatra in 1641 after successfully captured the fort of Malacca from the Portuguese over Coastal areas, namely the Cingkuk Island near

Painan and in Padang, Netherlands in 1666 build fortifications on the Cingkuk Island and Padang. The name of West Sumatra in Dutch is *de Weskust van Sumatra* or Sumatra's *Weskus*. November 1795 the Dutch (VOC) ends in West Sumatra and was replaced by the British Government. Dutch and British position in West Sumatra only on coastal areas, has not penetrated into inland Sumatera. 1818 recorded Thomas Stamford Raffles conduct scientific journey into inland of Sumatra (Citra Sumatera Barat dalam Arsip: ANRI, 2006 and Reid, 2014). Dutch controlled West Sumatra for the second time in 1819. At this time the West Sumatra dominated overall, since the arrival of fourteen *penghulu* representing the King of Minangkabau to ask for help Dutch combat religious groups (Padri) by offering Minangkabau Kingdom in return. The Padri war began in 1821. The Netherlands go into the highlands Agam 1823 (Citra Bukittinggi dalam Arsip; ANRI, 2015). Netherlands estimated go into Nagari Kurai V Jorong in 1823 and start to introduced a system of supra-village to sidelining the autonomous in Nagari Kurai.

Dutch penetration has changed the face of Nagari Kurai V Jorong overall, except for cultural and religious issues. Nagari Kurai V Jorong has a strategic location geographically (the intersection of trade routes plateau area), located at an altitude (780-950 M above sea level), and producing regions of cinnamon and coffee, have a natural cool (surrounded by 27 hills and surrounded by Mount Merapi and Mount Singgalang). The position and condition prompted the Dutch to make fortifications and Nagari Kurai V Jorong as the resting place for his soldiers. In 1825-1826 Dutch built fortress Fort de Kock in Bukit Jirek, about 300 meters from the Pakan Kurai with obtained the land from *penghulu* Nagari Kurai. The Dutch agreement will help the *penghulu* if having trouble building Nagari Kurai. Netherlands expansion by borrowing and buying the land from the *penghulu*. After building a fort in Nagari Kurai, the Dutch built a hospital, barracks, house officer, cemetery, stations, churches, and schools. Bukittinggi development starts from the north as the center of city (castle and market). Because of the northern is hilly region, urban expansion is directed to the south that has a flat topography. Development of the South includes offices and military barracks, military courts, stations, churches and educational facilities.

Pakan Kurai as the center of Nagari Kurai V Jorong taken over management by Netherlands on 1 April 1825. In this year Luhak Agam (including Nagari Kurai) has 15 markets (Kielstra, 1887 in Zulqayyim, 2006). Netherlands sets tax policy 5% of any price merchandise. Tax collection is done by the Chinese through tender process. This policy didn't long, because in 1829 the *penghulu* rejected the tax policy and doesn't accept the Chinese. The Chinese who attract a large tax were expelled and murdered. 1831 management of *pakan* returned back to the *penghulu* nagari. In 1833 the Dutch colonial government build Lembah Anai road to the highland Minangkabau along 17 km which resulted in increased trade in *Pakan Kurai*.

Pakan Kurai has a service area up to Nagari Agam and its surroundings. In the Netherlands Government *Pakan Kurai* developing and growing. Physical construction on a large scale for the *Pakan Kurai* is done by Controleur Westenenk from 1856 with the approval of the Head of Laras Kurai, the Head *Penghulu*, the Tribe *Penghulu*, and the other of *Penghulu* Nagari Kurai. Market development is done in a way to lend the land to the Dutch around Nagari Kurai includes 7 (seven) hills, namely Bukit Jirek, Bukit Sarang Gagak, Bukit Malambuag, Bukit Parak Kopi, Bukik Cubadak Bungkuang, Bukik Bulek, which later evolved into the center of Bukittinggi (Hadjerat, 1947 in Zulqayyim, 2006). The first attempts were made was flattening the peak of the hill and building a network of roads and ditches around Bukittinggi Market. The first Malaische school was founded in Bukittinggi in 1843, with the main goal to socialize cultural values and lifestyle of the west (Netherlands) to the children of Minangkabau (Grave, 1991 in Zuqayyim, 2006). Malaische school is known as the School of Nagari. His students come from children's of *penghulu* and merchant in Nagari Around Bukittinggi. 1856 established "Kweekschool" or "Normalschool" (teacher school) that cover school education in Sumatra area, so do not be surprised if his students are from outside of West Sumatra.

The Netherlands claimed territory on Nagari Kurai V Jorong / Bukittinggi in 1888. The Dutch government set a boundaries of Bukittinggi unilaterally and feel sovereign to develop Bukittinggi. The boundaries is based on the Besluit Gouverneur Generaal No. 1, December 1, 1888 (Zulqayyim, 2006). Dutch Colonial conduct the first population census in Bukittinggi in 1905, with the results as follows: the total population as 2,239 people, made up of the indigenous population 1,439 people,

the population of Europe 258 people, the population of China 347 people, and the population of the Middle East as 195 people. Until 1935, recorded population growth Bukittinggi as Figure 3.

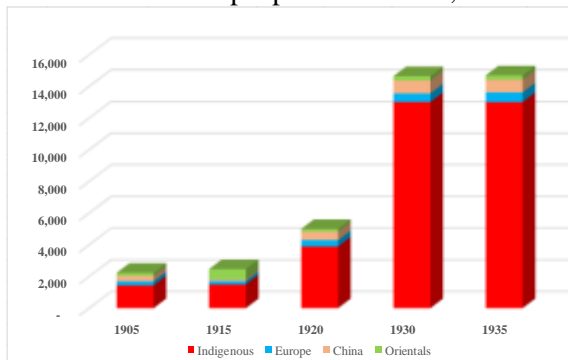


Figure 3. Graphic of Population of Bukittinggi City in 1905, 1915, 1920, 1930, 1935

No.	Etnis	Gender	Population (People)				
			1905	1915	1920	1930	1935
1	Indigenous	Male	-	-	2,423	7,218	7,220
		Female	-	-	1,476	5,797	5,792
		Sum	1,439	1,500	3,899	13,015	13,012
2	Europe	Male	-	-	225	266	310
		Female	-	-	174	281	310
		Sum	258	215	399	547	620
3	China	Male	-	-	319	473	461
		Female	-	-	214	339	328
		Sum	347	100	533	812	789
4	Orientals	Male	-	-	90	147	147
		Female	-	-	83	136	136
		Sum	195	650	173	283	283
5	Sum	Male	-	-	3,057	8,104	8,138
		Female	-	-	1,947	6,553	6,566
		Sum	2,239	2,465	5,004	14,657	14,704

Sources: Koloniaal Verslag (1907); Volstelling (1920); Volstelling (1930); Volstelling (1935) in Zulqayyim, 2006

After building the urban elements, set the boundaries, and conduct population census, the Dutch colonial government made Nagari Kurai V Jorong / Bukittinggi as the city administration / *Gemeente* through *Staatsblad van Nederlandsch-Indie No. 310 in 1918*. A year later assigned land rent regulations in Bukittinggi that encourage high urbanization and made Bukittinggi as *rantau* area for the surrounding nagari. Regulation of the land rent opportunities for immigrants to own land and build a house in Bukittinggi. Bukittinggi urban development by the Dutch colonial government, particularly in education and trade, and strategic location of Bukittinggi makes this city more have an important role in West Sumatra. Critical community and forward-thinking (open and connected to the outside world, especially with Mecca and Java) make this town grow. The rapidly development of Bukittinggi create Netherlands expand Bukittinggi of up to 5.2 km² (520 ha) in 1930. In 1935 the role of Bukittinggi City became the capital of Afdeeling Agam, by serving Onderafdeeling Oud Agam, Maninjau, Lubuk Sikaping, and Ophir through *Staatsblad van Nederlandsch-Indie No. 450 in 1935*. Bukittinggi enhanced status from *gemeente* into *stadsgemeente* (city council) in 1938. Until the end of the Government Colonial Dutch in Indonesia (1942), Bukittinggi still plays an important role in West Sumatra.

CONCLUSION

The conclusion The Transformation Of Nagari Kurai V Jorong Into Bukittinggi City includes all the variables studied, that is the space of structure, spatial pattern, fabric, and culture. Following the conclusion of the research. 1) There is a similarity in structure between Nagari Kurai V Jorong to Bukittinggi result form the Netherlands: the concentric models. The market became the center of nagari / city. 2) The pattern of urban sprawl in Nagari Kurai from South to North direction (based on the origin of the village), while urban sprawl Bukittinggi by the Dutch from North to South (political interest). 3) Size Nagari Kurai V Jorong much larger than the city of Bukittinggi result form the Netherlands. Size Nagari Kurai at that time equal to the area of Bukittinggi is currently based Script *Kayu Bulek*. 4) In the spatial patterns Nagari Kurai V Jorong, *tanah ulayat* including protected areas that serve as a source of financing of nagaris and land reserves for posterity urang Nagari Kurai (Land banking). During the Dutch rule protected areas are out of town and the northern part of Bukittinggi city that has a more bumpy morphology. 5) There is a difference forming elements between nagaris and cities. Elements Nagari still exist in the Age of the Netherlands, but not be the focus of development, except the formal market and educational facilities (not in the mosque / surau). 6) Islam and culture as the foundation of life matrilineal Minangkabau society still held firm (before the PerangPadri). After the Perang Padri and the entry of the Netherlands to Nagari Kurai, matrilineal culture began to fade (effects of war vicar who want the purification of Islam). 7) Transformation Urang Nagari Kurai be Bukittinggi is urban stage (stage aeopolis). Although Nagari in Minangkabau kingdom has a hierarchy and the broader meaning of the village.

Table 1 Conclusion Transformation Nagari Kurai V Jorong into Bukittinggi City

No.	Variable	Period Pra Kolonial	Kolonial
1	the structure of space		
	• Form	Concentric, <i>pakan</i> as the center of nagari	Concentric, the market as the center of city
	• Concept	The development Nagari follow the: <i>struktur alam jo pintalak tanah masing-masing suku</i> From the south to north (from the origin of nagari)	<ul style="list-style-type: none"> • The development of spatial structure following the political interests of the Netherlands (from North to South) • More organized structure space
2	Land Use		
	• Protected area	<ul style="list-style-type: none"> • Tanah ulayat maintained, including sawah paduan should not be traded as high pusako for land banking and Kurai future offspring • Forest • Ladang Aua surround Nagari Kurai 	<ul style="list-style-type: none"> • Tanah ulayat can be sold / leased • Greening the city through a park
	• Cultivation area	<ul style="list-style-type: none"> • Divided over old and new settlements • trade zone in Bukik Kubangan Kabau (bukik nan Tatinggi) • Agriculture and farm 	<ul style="list-style-type: none"> • There is a separation of the designation of indigenous settlements, europe, china, foreign east • Agricultural Region / ladang are outside the city
3	Fabric/ elements	<ul style="list-style-type: none"> • Balai Adat • Mosque • Street • Environment sanitation • Arena / Fields • Funeral • Market • Settlement 	<ul style="list-style-type: none"> • Fortress • Market • Hospital • Dutch Settlement • Settlements: indigenous, China, foreign east • Government • Church • stations • Tangsi / Prison • Education facility
4	Culture		
	• Religion	<ul style="list-style-type: none"> • 100% muslim population of Minangkabau • Community Non muslim come form Chinese, Japanese, and Indian 	<ul style="list-style-type: none"> • 100% muslim population of Minangkabau • Community Non muslim increase every year
	• Matrilineal	• Matrilineal. Culture still strong	<ul style="list-style-type: none"> • After Perang Paderi, matrilineal culture is still running but faded • contrary to the religion began to be abandoned • collide with the demands of space loosened.
	• Leadership	Tungku Tigo Sajarangan: <ul style="list-style-type: none"> • Penghulu • Alim Ulama • Cerdik Pandai 	<ul style="list-style-type: none"> • Penghulu Bersurat (which recognized the Dutch colonial government) is appointed and given a salary • Alim ulama and Cerdik pandai still exist but decrease in governance.
	• Slogan	Adat bersandi Syarak Alam Takambang jadi Guru	Adat Bersandi Syarak, Syarak Bersandi Kitabullah
	• government system	Decentralization (autonomous)	Introduced system of sub-district government to marginalize decentralization

Source: Authors in 2016

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REPRODUCTION HEALTH OF FEMALE DIAMOND MINERS IN CEMPAKA SUBDISTRICT, BANJARBARU

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ABSTRACT

This study aimed to analyze the impact of diamond mining activities on the reproduction health of female miners in Cempaka Subdistrict. This location was chosen because they are few female miners working in Cempaka diamond mining. This study was conducted in June 2015 using a qualitative approach. Data collection techniques were observation, interview and documentation. Data were analyzed with descriptive analytic method. The results showed the lack of understanding about reproduction health of female miners. This has implications for their neglect of the threat of disruption to the reproduction system when mining. Most female miners had experienced health problems for their reproduction organ. However, they have decided to continue to work because the demands of the family economy.

Key words: Reproduction Health, Female Miners, Diamond Mining.

INTRODUCTION

Community development requires the participation of various segments of society in order to achieve optimal results. Public services as part of the development task must touch all parties thus helping in the public welfare. One effort to improve the welfare of society, especially in South Kalimantan is to improve the quality of citizen life. The emphasis of this target is on aspects of health, education and social and economic life. The health aspect is a matter of priority that should be of concern the responsibility of all parties, both government and society. Health problems in the community will lead to huge economic losses for the country. The fact indicates that the degree of public health caused by the difficulty in accessing health services. The inability of economic thought to be one factor driving.

In areas where poverty rates are quite high, the tendency disregard for the health factor tends to be high anyway. One of the areas in South Kalimantan which included within this group is Cempaka Sub district which is famous for its traditional diamond mining. Diamond mining is a poor local people depend hereditary since many years ago. In the context of poverty, Cempaka diamond mining was not able to uplift the local community economy until now. The traditional diamond mining has been exist until nowadays. In various aspects of these activities, it turns more negative impacts. One of the impacts of the mining activities is health disorders. Health problems that can occur in the miners can be sourced from quarries water pollution as well as the dust generated.

One thing that is interesting from Cempaka diamond mining is the existence of female miners who come to work in the mining area. Work situations that require them always interact with wastewater excavation indicates a high likelihood of reproduction health problems that could occur. This study intended to explore the understanding of reproduction health of female miners. Moreover, this study will explore the impact of diamond mining activities on the reproduction health of the female miners.

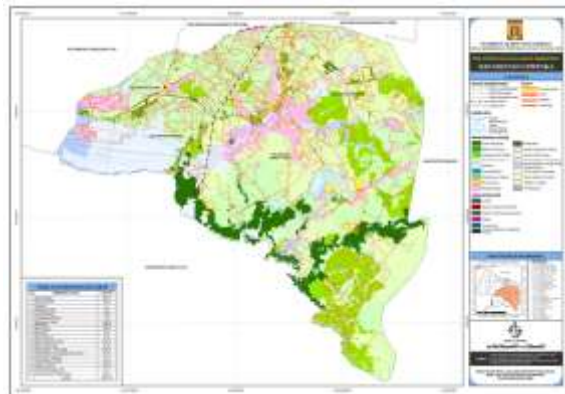
METHODS

The approach that used in this study is a qualitative approach with ethnographic technique. Researchers explore the understanding of female diamond miners about reproduction health of female miners and assess the impact of diamond mining on female reproduction's health. The location of this study is in Cempaka Subdistrict, Banjarbaru, South Kalimantan. The location was chosen because there is a traditional diamond mining (artisanal mining) that still involves female as workers. Data were explored in this study including primary and secondary data. Primary data is sourced from the miners female who work in the local diamond mining community. Secondary data were extracted from this study collected from the environment, and socio economic residents who work as diamond miners at the sites. Data were collected through interview, observation and documentation. Interviews were conducted to female diamond miners. Observation and documentation based on activities performed by female diamond miners at the mine site. Data were analyzed with descriptive qualitative approach.

RESULTS AND DISCUSSION

Geographic and Demographic Conditions of Cempaka Subdistrict

Cempaka Subdistrict as sub center has a function as an area of mining, trade, agriculture, tourism and housing. Cempaka Subdistrict has an area of \pm 14 670 ha (39.50% of the area Banjarbaru), which is divided into 4 sub-districts and 102 Neighborhood (RT). People population in 2014 was 31.036 persons. More clearly, the picture of the location of the research can be seen on the map as follows:



Picture 1. The Map of Cempaka Subdistrict. Source: BPMPKB of Banjarbaru, 2012.

Diamond Mining Impacts on Reproduction Health

Mining activities by female worker may cause disruption of the reproduction organs because they're wading in water murky and dirty along mining activities. Female miners are likely to be impaired even infection in the reproduction organs, to the skin and other body members. This happens because of the humidity and air circulation in the vaginal area are not awake thereby stimulating the growth of harmful bacteria. Based on research, the stagnant water contained in a public restroom alone contains 70% of the *Candida Albicans* Fungus; the cause of vaginal discharge and itching in the vagina up can caused inflammation especially submerged in murky water at diamond mining sites.

Based on Health Ministry Rule Number 416, 1990 explained that the muddy water is harmful to health, nor the degree of acidity of the water will have an effect on health. According to the study, in the water, whether it is clear or dirty, contained a wide variety of bacteria will get into the human body when water is consumed. Oregon State University wrote that there are some bacteria contained in the water, such as *Coliform Bacteria*, *Giardia lamblia*, *Cryptosporidium* and *Helminths* (www.merdeka.com, 06.22.2015). Bacteria or parasites contained in the dirty water, among others *Clostridium Botulinum*, *Campylobacter Jejuni*, *Vibrio Cholerae*, *Escherichia Coli*, *Mycobacterium*

Marinum, Shigella Dysenteriae, Legionella Pneumophila, Leptospira, Salmonella, Salmonella Typhi, Vibrio Vulnificus, Vibrio Alginolyticus, Vibrio Parahaemolyticus and many another. According to interviews with female miners, they mention that most of them had experienced health problems for reproduction but decided to continue to work because the demands of the family economy. Cost limitations make them just treat disorders that occur with treatment potluck.

Education of Female Diamond Miners

Female's education in Cempaka Subdistrict is categorized at low level, mostly only primary school education (SD). This is because of the inability of economic society for continuing education. This is due to the inability of those unable to pay are considered expensive and access to continuing education that is difficult to reach at the time. From interviews with the female miners, the lack of education causes a lack of understanding of the importance of maintaining reproduction health, especially during mining activities. They are also not able to counts the negative impact of mining activities. The low level of education also contributed to the limited skills possessed so it does not attempt to create better jobs.

CONCLUSIONS

The conclusions of this study are: (1) the understanding of female diamond miners that working in Cempaka diamond mining on reproduction health is still low. Poor understanding makes them tend to ignore the threat of disruption to the reproduction system when mining; (2) health problems for reproduction ever experienced by female as a result of miners working in the diamond mining area. The disorder is treated with medications sober, but did not stop them to keep working as a miner.

Some recommendations from the research include: (1) the need for an effort to transform the paradigm and healthy behavior mining community in the context of sustainable use of the environment for the welfare by providing socialization of female's reproduction health to the public; (2) The need for empowerment programs to empower them through the formation of self-reliance and creativity in processing the natural surroundings in addition to being miners. Local authorities should formulate relevant policies combined with action applicative aspects of economic institutions.

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HUMAN RESOURCES IN PUBLIC HEALTH SERVICES IN REMOTE AREAS

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ABSTRACT

Human resources quality and competitiveness is very supportive in promoting awareness, willingness and ability to live a healthy society. The purpose of this study was to analyze the condition of human resources for health sector in Babirik Subdistrict. This study used qualitative approach presented in descriptive explorative. Data was collected through questionnaires, in-depth interviews, direct observations, and documents review. The results showed that there are still some villages that do not have health workers so that health services in the area is still less benefit to society. Health workers in health centers have heavier workload because they also hold other programs. This makes health workers feel overwhelmed and unable to perform their jobs effectively.

Key words: Human Resources, Health Services, Remote Area

INTRODUCTION

Human resources are importance aspects in the provision of health services in the community. Human resources quality and competitiveness is very supportive in promoting awareness, willingness and ability to live a healthy society. Disturbances in the community will lead to huge economic losses for the country, it is the responsibility of all parties, both government and society. Therefore, community development should be based on the insights of health. Lack of public access to health services is due to the inability of the community in terms of economy. This will hamper the achievement of health development. Based on various studies, show that health workers are key for the successful achievement of health development goals. The contribution of health workers in the success of health development reaches the level of 80%. Based on the 2006 of WHO Report, in Indonesia, a country faced the crisis of health human resources in both quantity and distribution.

In an effort to overcome the crisis, it is necessary development of health workers to improve health degree. Because every citizen is entitled to health care to remain healthy, it is therefore necessary to attempt to minimize the public health status gap either by increasing the number of health workers and equitable distribution of health workers in delivering health services. Human resource development is a priority in dealing with problems of health personnel. Meeting the needs of health workers in remote areas sought to be improved, but has not reached expectations. Development of health workers with the availability of health workers is equally sufficient in quantity, type and quality. Development of health workers should also be utilized in accordance with the needs of health development in the area. Therefore, an equalization effort of health workers is an important responsibility of government.

METHODOLOGY

This study used a qualitative approach presented in descriptive explorative. Data was collected through questionnaires, in-depth interviews, direct observations, and review of documents. Primary data collected directly by the respondents through questionnaires and depth interviews with key informants and informant triangulation, while secondary data obtained from the study of documents

and books. This study focused in Babirik Subdistrict, South Kalimantan. This area is chosen because it is geographically categorized as suburb area. The study was conducted in 2014.

RESULTS AND DISCUSSIONS

Babirik subdistrict consists of 23 villages with 104 Neighborhood (RT). Based on the results of population projections in 2013, the population of Babirik Subdistrict is 18.964 people scattered in 4,558 Families, with population density around 245 inhabitants per km² and 4 people per family. Description of the number of people shown in the following tables:

Table 1. The Ammount of Citizens by Gender, Year 2013

Village	Male	Female	Total	Ratio by Gender
(1)	(2)	(3)	(4)	(5)
Murung Kupang	564	555	1 119	102
Babirik Hilir	653	676	1 329	97
Babirik Hulu	305	279	584	109
Sungai Jan jam	274	275	549	100
Sungai Durait Hilir	368	390	758	94
Sungai Durait Tengah	983	1 102	2 085	89
Sungai Durait Hulu	566	591	1 157	96
Hambuku Lima	300	320	620	94
Hambuku Baru	196	195	391	101
Hambuku Hilir	207	237	444	87
Murung Panti Hulu	516	599	1 115	86
Murung Panti Hilir	722	749	1 471	96
Teluk Limbung	234	248	482	94
Sungai Papuyu	370	357	727	104
Kalumpang Luar	222	232	454	96
Kalumpang Dalam	389	379	768	103
Sungai Luang Hilir	417	423	840	99
Parupukan	365	395	760	92
Sungai Nyiur	106	117	223	91
Sunga Luang Hulu	205	246	451	83
Sungai Dalam	446	450	896	99
Pajukungan Hilir	573	281	854	204
Pajukungan Hulu	439	448	887	98
Total	9 420	9 544	18.964	99

Source: Citizen Projection, 2013

Table 2. Death Number by Gender, Year 2013

Village	Male	Female	Total
(1)	(2)	(3)	(4)
Murung Kupang	2	-	2
Babirik Hilir	1	1	2
Babirik Hulu	1	2	3
Sungai Jan jam	-	1	1
Sungai Durait Hilir	1	1	2
Sungai Durait Tengah	3	2	5
Sungai Durait Hulu	2	-	2
Hambuku Lima	2	1	3
Hambuku Baru	1	-	1
Hambuku Hilir	-	2	2
Murung Panti Hulu	3	1	4
Murung Panti Hilir	2	2	4
Teluk Limbung	1	1	2

Sungai Papuyu	1	-	1
Kalumpang Luar	-	1	1
Kalumpang Dalam	1	-	1
Sungai Luang Hilir	-	2	2
Parupukan	1	1	2
Sungai Nyiur	1	-	1
Sunga Luang Hulu	1	1	2
Sungai Dalam	1	1	2
Pajukungan Hilir	-	1	1
Pajukungan Hulu	1	-	1
Total	26	21	47

Source: End of Year Citizen Registration, 2013

Table 3. Numbers of Doctors, Midwife, and Traditional Medicaster, Year 2013

Village	Doctors	Midwife	Medicaster
(1)	(2)	(3)	(4)
Murung Kupang	-	-	2
Babirik Hilir	-	-	-
Babirik Hulu	-	1	-
Sungai Jan jam	-	1	1
Sungai Durait Hilir	-	1	1
Sungai Durait Tengah	-	1	1
Sungai Durait Hulu	-	1	1
Hambuku Lima	-	1	-
Hambuku Baru	-	1	-
Hambuku Hilir	-	-	1
Murung Panti Hulu	-	1	1
Murung Panti Hilir	1	-	1
Teluk Limbung	-	1	-
Sungai Papuyu	-	1	1
Kalumpang Luar	-	1	1
Kalumpang Dalam	-	1	-
Sungai Luang Hilir	-	1	-
Parupukan	-	1	-
Sungai Nyiur	-	1	-
Sunga Luang Hulu	-	1	-
Sungai Dalam	-	1	-
Pajukungan Hilir	-	1	1
Pajukungan Hulu	-	1	-
Total	2	19	12

Source: Babirik Subdistrict, 2013

In the implementation of health services in Babirik Subdistrict, it needed human resources with high qualities to provide health care services properly. In order for health services to be effective. It is necessary to develop and strengthen human resources in accordance with their fields. The survey results revealed that there are still some villages that do not have health care workers / midwife who occupy, so that health services are still lacking in order of the benefit of health services to society. From interviews mentioned that the involvement of midwives and nurses in the implementation of programs in health centers that have a double burden in the execution of their duties, thus directly or indirectly affect the quality of health services in the community. This will affect the effectiveness of work by profession. In human resource management, it can be applied through the improvement of the qualifications, knowledge, skills and abilities. Nurse or midwife is the service provider directly to the public so that they know for certain target in the working area of health centers.

From the research, the health worker at the health center has a heavier workload because they also hold other programs. This makes health workers cannot carry out their jobs effectively, it also

makes health workers feel burdened. The workload is excessive holder will affect the program on his job such as health services for local citizen. From the results of previous studies mentioned that the quality of health care has benefited, but still not optimal in term of Jamkesmas program, it is necessary to the proper management of human resources.

CONCLUSION

From the study, it concluded that human resources quality and competitiveness is very supportive in promoting awareness, willingness and ability to live a healthy society. Therefore, community development should be based on the insights of health. It still lacking in case of health human resources that manage some health Program at Babirik health centers. Program managers have a double work load, which provide health services and manage programs. Utilization of health personnel, distribution and utilization of qualified health personnel are lacking this case due to lack of interest of health workers to be placed in this area. Some of the recommendations by this study are: (1) It is necessary to evaluate policies towards equitable distribution of health personnel so that health workers can provide quality health care and in accordance with the profession; (2) Implementation of the tasks that related to education must be clearly identified, so the responsibility of each officer can be evaluated; (3) If the shortage of human resources for program managers, government can add some contract workers to fulfill the shortage; (4) The need for coaching and quality control of health workers conducted through the commitment and coordination of all stakeholders in the development of health workers.

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COOPERATION BETWEEN REGIONS MODEL FOR CONSERVING WATER RESOURCES AT PAKERISAN WATERSHED, BALI

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ABSTRACT

Tukad Pakerisan is one of great rivers that crosses two (2) districts, covering an area of 1851.83 hectares in Bangli regency (20.37%) and Gianyar area of 7240.06 hectares (79.63%) which is acknowledge as a World Cultural heritage Site. Some problems in the Pakerisan watershed which need to consider are a decrease in water availability, declining water quality, pollution, and state of critical land. Through this thesis, it is expected that the cooperation model between regions right in the management of Pakerisan watershed to find out which models are best applied in Gianyar and Bangli to obtain proper interregional cooperation are presented. Analysis of internal environmental factors using IFE obtained a score of 2.444 while an external factor analysis using EFE obtained a score of 2.777. Total score of multiplying the weight and twigs of respectively internal and external factors put the cell V (keep and maintain) with reference to the results determined Cooperation Agreement or MoU, which refers to the implementation of the program the Management and Development of Watershed Pakerisan with the aforementioned parties

Key words: Pakerisan watershed, interregional cooperation model, Bangli and Gianyar regency

INTRODUCTION

Pakerisan watershed is an area which has been acknowledged by UNESCO as a World Cultural Heritage (WCH). Pakerisan watershed is a cross-district watershed where most of its head is located in Bangli regency while its downstream is situated in Gianyar regency. Pakerisan is one of ten rivers which currently is facing declining water quality. Negative effects caused by the broken watershed damage society life such as create flood, drought, erosion, sedimentation, declining soil fertility, decrease in agricultural productivity, and etc.

A previous research entitled "Society Perception and A Study of Water Quality in Pakerisan River found that water quality in the downstream has become less good or in level 2. The damage found in the watershed need to be comprehensively treated that is by initiating interregional cooperation so that environmental degradation can be minimized thus results in good quality of water, environment, as well as society welfare in the future. Based on the rationale, some research questions in this research can be formulated as follows:

1. How is water resource management of Pakerisan watershed in Bangli regency?
2. How is water resource management of Pakerisan watershed in Gianyar regency?
3. What kind of interregional cooperation which can be implemented between Gianyar and Bangli regency in managing water resources of Pakerisan watershed?

This research aims at describing the suitable interregional cooperation model in the effort of managing water resource of Pakerisan watershed.

LITERATURE REVIEW

Theory of Interregional Cooperation

Collaboration indicates two or more parties which build relationship and interact each other to gain a particular shared goal. In this case, three main elements which always stick to a cooperation are elements of two or more parties, interaction, and shared goals. If one of the elements is missing in a reviewed object, it can be concluded that there is no cooperation in it (Pamudji, 1985). Elements of two or more parties usually illustrate a body of interests which affect one another hence interact to reach a shared goal.

Interregional Cooperation Model in Managing Water Resources

There are many models or interregional cooperation model. These models can be varied or even combined, depends on characteristics of the regions, fields, as well as negotiation between local governments. It is described in the following part.:

- a. *Intergovernmental service contract*
This interregional cooperation model is done where one of the region sell their public services while the other buy them with price and terms condition agreed by the cooperating regions.
- b. *Joint service agreement*
This type of cooperation is based on an existence of regional participation in forms of planning and funding. The model establishes divisions of duty, shared responsibilities, and ownership of the collaborated sectors. A letter of agreement about this cooperation model must be able to accommodate bureaucracy system of the local governments involved.
- b. *Intergovernmental service transfer*
This method of interregional cooperation is conducted by transferring full responsibility from one unit of the government involved.

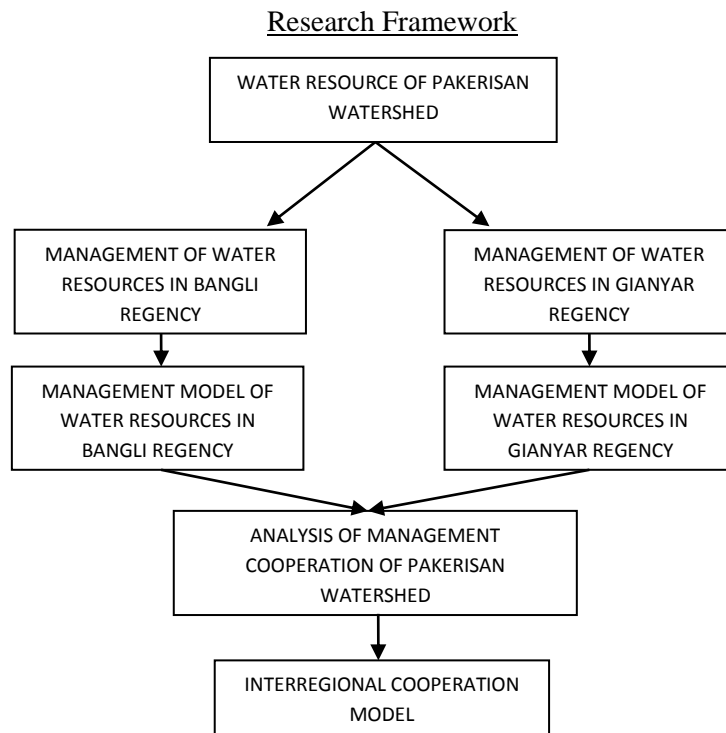
Water Resource Management

Water resource management is an effort of planning, conducting, observing and evaluating conservation of water resource, utilizing water resource, and controlling destructive force of water resource. Some visions and missions of water resource management are attaining advantages of the water resource for welfare of all people and conserving water resource for fairness in fulfilling people's needs. A purpose of water resource management is supporting a sustainable regional and national development. Concept of watershed management is supported by some development namely (1) of human knowledge about hidrology cycle and its roles, (2) rapid population growth which makes needs of water and soil getting bigger, (3) increasing water needs casued by technology development and society living standard, (4) water shortage, flood, erosion, and pollution, (5) the fact that developers begin acknowledging watershed as the best unit for managing natural resources (Sunaryo,2004).

The purpose of managing watershed is to get the best and complete advantage from what it could serve, fulfill varied society needs as the time goes by. It is expected that as watershed is managed (1) not only single but also multiple combination of outcomes are optimally resulted, (2) flexible planning of management which consists of some alternatives (Department of Forestry, 2009). Principally, policy on integrated watershed management is necessary to reduce and overcome problems of water resource either from its quality and quantity. This policy then is an integrated part of environmental policy which is based on academic and technical data, varied environmental condition in some regions, and economic and social development as a unity of regional development. The varied conditions create diverse and specific solution. This diversity needs to be taken into account in planning and making decision to ensure that sustainable watershed protection and usage are in a particular framework.

The importance role of watershed as a comprehensive managing unit is a logical consequence to keep sustainability use of forest, soil, and water resource. Unsuitable planning may create

degradation of watershed which leads to barren land, critical soil or land, and erosion in scarps. In the end, the degradation process causes great flood during rainy season, a very low stream flow during dry season, declining soil humidity around forests which creates forests fire, sedimentation acceleration in reservoirs and irrigation networks as well as declining water quality (Asdak (1999)).



RESEARCH METHODS

Setting of the Research

This research was done in Pakerisan watershed in September to Desember 2015.

Methods and Data Collection Technique

Primary and secondary data were collected to support the problem description. Primary data were gained through direct observation in the field. Meanwhile, there were four methods conducted to collect secondary data namely through observation, questionnaire delivery to respondents, interview, and documentation.

Data Analysis

Data analysis is sequenced activities to manage the collected data from the field to be a set of information or result, either in forms of findings to prove or test truths or knowledge. The data gained from this research were analyzed by using quantitative and qualitative method considering some aspects, namely:

1. Environmental Aspects
2. Economic, Social, and Cultural Aspects
3. Ecological or Administration Limit Aspects
4. Institutional Aspects
5. Technological Aspects
6. Funding Aspects

The Analysis Used in the Research

1. Descriptive Quantitative Analysis

Descriptive Quantitative Analysis refers to giving suggestions or interpretation toward data and information gained in the field so that they can be more meaningful rather than only provide them in forms of numeric data.

2. Analysis of Internal and External Environment Condition

A brief way to identify internal factor is by using IFE (*Internal Faktor Evaluation*) matrix which summarizes and evaluates internal factor i.e. strengths and weaknesses of the regions in functional fields (David Fred,R,2009).

		Kuat 3,0	Sedang 2,0	Lemah 1,0
	4,0 ↓	I	II	III
Kuat 3,0-4,0		Tumbuh dan Bina (konsentrasi melalui integrasi vertikal)	Tumbuh dan Bina (konsentrasi melalui integrasi horizontal)	Pertahankan dan pelihara (perumbuhan berputar)
3,0 ↓		IV	V	VI
Sedang 2,0-2,99		Tumbuh dan Bina (Berhenti sejenak)	Pertahankan dan pelihara (strategi tidak berubah)	Panen dan divestasi (kawasan habis atau jual habis kewaspadaan)
2,0 ↓		VII	VIII	IX
Lemah 1,0-1,99		Pertahankan dan pelihara (diversifikasi dan konsentrasai)	Panen atau divestasi (diversifikasi konglomerat)	Panen atau divestasi (likuidasi)
1,0				

Sumber : diadaptasi dari Rangkuti, 2009

3. SWOT Matrix Analysis

SWOT matrix is an advance analysis of internal and external factor situation where the internal factors (strengths and weaknesses) are combined with external factors (opportunities and threats) and this combination will result in some alternative strategies of interregional cooperation model in managing water resource of Pakerisan watershed which is based on requirements.

IFAS / EFAS	STRENGTHS (S)	WEAKNESS (W)
	Tentukan faktor-faktor kekuatan internal	Tentukan faktor-faktor kelemahan internal
OPPORTUNITIES (O)	STRATEGI SO	STRATEGI WO
Tentukan faktor peluang eksternal	Ciptakan strategi yang menggunakan kekuatan untuk memanfaatkan peluang	Ciptakan strategi yang meminimalkan kelemahan untuk memanfaatkan peluang
TREATH (T)	STRATEGI ST	STRATEGI WT
Tentukan faktor-faktor ancaman eksternal	Ciptakan strategi yang menggunakan kekuatan untuk mengatasi ancaman	Ciptakan strategi yang meminimalkan kelemahan dan menghadapi ancaman

Source : adapted from Rangkuti, 2009

Results of Data Analysis

Results of data analysis are provided formally (in a form of table) and informally (in a form of narration). The analysis used in the research are 1) IFAS and EFAS matrix that will generate grand strategy, 2) SWOT analysis by using diagram that will result in alternative strategies (Rangkuti,2009). In analyzing the data, descriptive quantitative technique through delivering questionnaire to answer research question about strengths and weaknesses as well as opportunities and threats from external factor of the research object was used.

FINDINGS AND DISCUSSION

Biophysic Condition of the Pakerisan Watershed

Administrative Location and Width

Geographically, Pakerisan watershed is located in between 8°16'46,579" - 8°36'50,012" LS and 115°17'50,051" - 115°21'53,445" BT. Administratively, the area of Pakerisan watershed is situated in Bangli and Gianyar regency with the width of 9.091,89 hectares. Spread of the administrative area of Pakerisan watershed is comprehensively described in the Table 3.1 and Administrative Map of Pakerisan watershed is presented in Figure 2.



Figure 2. Administrative Map of Pakerisan Watershed
Source: Analysis Result of Administrative Map, 2015

No.	Kabupaten	Kecamatan	Desa	Luas	
1	Bangli	Kintamani	Batur Tengah	74,81	
			Bayunggede	104,17	
			Sekardadi	382,02	
		Jumlah Kecamatan	561,00		
		Susut	Penglumbaran	391,91	
	Sulahan		284,85		
		Susut	157,45		
		Tiga	456,62		
		Jumlah Kecamatan	1.290,83		
	Jumlah Kabupaten			1.851,83	
2	Gianyar	Blahbatuh	Bedulu	57,45	
			Belega	262,19	
			Blahbatuh	164,48	
			Bona	220,77	
			Buruan	128,53	
			Keramas	424,67	
			Medahan	428,29	
			Pering	651,23	
			Saba	155,85	
			Jumlah Kecamatan	2.493,46	
			Gianyar	Abianbase	211,23
				Bakbakan	310,02
				Beng	80,65
	Bitera	395,17			
	Gianyar	229,02			
	Lebih	128,81			
	Petak	225,38			
	Tampaksiring	Petak Kaja	165,73		
		Samplangan	36,84		
		Serongga	245,23		
	Siangan	438,80			
	Sumita	80,28			
	Suwat	254,46			
Jumlah Kecamatan			2.801,62		
Jumlah Kabupaten			1.944,98		
Jumlah Kabupaten			7.240,06		
Jumlah Total			9.091,89		

Based on Table 3.1, it can be seen that Pakerisan watershed has a total area around 9.091,89 hectares which administratively located in two regions namely Bangli regency for about 1.851,83 hectares (20,37%) and Gianyar for about 7.240,06 hectares (79,63%). In Bangli regency, the area covers two districts namely Kintamani about 561,00 hectares and Susut about 1.290,83 hectares. On the other hand, the area includes three districts namely Blahbatuh for about 2.493,46 hectares, Gianyar for about 2.801,62 hectares and Tampaksiring for about 1.944,98 hectares in Gianyar regency.

Management of the Water Resources (Pakerisan Watershed) in Bangli Regency

Water resource management in Pakerisan watershed is an attempt to administer resources involving many parties which have different interests. Therefore, its succeed is mainly determined by many parties, not only by people on the field but also other parts playing roles in planning, monitoring, and evaluating the program. Society is the main actor meanwhile the government is the authority-policy maker element, facilitator, and supervisor which is represented by sectoral institutions related to watershed management. Stakeholder of the government which can actively involve in the activity of managing water resource of Pakerisan watershed are related institutions in the field of forestry, public works, agriculture, energy and mineral resources, fishery and marine, health, environment, and Regional Development of Planning Agency. Forestry Agency has a role in stewardship of the forests as well as management of conservation and rehabilitation of the watershed. Public Works Agency

plays role in managing water resources and spatial planning. Agriculture Agency is responsible for community building in using agricultural land and irrigation. Agency of Energy and Mineral Resources should take action in regulating ground water along with rehabilitation or reclamation of mining area. Agency of Fishery and Marine manages marine resources while Agency of Environment and Health are responsible in controlling quality of the environment. Local government of Bali Province is a coordinator or facilitator or regulator or supervisor in managing water resource of Pakerisan watershed which is cross-district. Government of Bangli and Gianyar regency with related institutions play role as coordinators or facilitators or regulators or supervisors in managing watershed in the regency area as well as actors in certain activities.

Other parties which support successful watershed management are legislative, judicative, higher education, research foundation, and NGOs. Thus, there are many parties with their own interests, authorities, different duties and tasks involve in managing water resource of Pakerisan watershed, which makes it is impossible to coordinate and control them in one line command. Finally, the developed coordination is based on functional relationship through alignment approach. Among the parties involved, trust, openness, responsibility, and mutual needs are principles which have to be built. It is expected that in the implementation of managing water resource of Pakerisan watershed, there will be a clear authorship and duty of each party. Since Pakerisan watershed is located in Bangli, Gianyar, Klungkung and Karangasem regency, coordination and integration among the local governments, sectoral institutions, and other related parties are extremely important. Based on the data collection by using method and technique of the parties, 26 problems in the Pakerisan watershed were found and they are likely affecting analysis determination, either internal or external factors, and SWOR analysis. They are explained in the following part.

Condition of the Water Resource of Pakerisan Watershed Management in Bangli Regency

The condition of a water resource of Pakerisan watershed in Bangli regency relies on its natural (e.g. forests, soil, and water) and human resource management. The management of water resource of Pakerisan watershed in Bangli regency is considered not optimally done as there are still many damaged areas. Some of the causes are land management which are not based on land and water conservation regulation, villas built around Pakerisan watershed which breaking the boundaries of river and gorge, lack of community understanding about management or conservation of watershed, and etc.

Lack of community understanding about management and conservation of watershed, logging on steep areas, tourist facilities development e.g. hotels and villas, and restaurant on the river boundaries and gorge tend to push the society to think about temporary economic problems without caring and preserving the surroundings. Consequently, the society will use their lands not based on their function or ability (sloping land that should be used for plants that have hydrological functions are used for crops) and massive land conversion. These activities will cause degradation of forestry and land resource, minimum land cover, and insufficient land conservation. Minimum number of land cover causes raindrops fall onto land surface (with big kinetic energy) which may lead to broken soil aggregate and it will be easier to be carried out by runoff. This condition will create high numbers of erosion and sedimentation, landslide, and drought which degrades soil productivity and disturbs waterworks of the watershed.

From economic viewpoints, population density really affects condition of the land since the bigger the population density and distribution the bigger needs of water. Population growth rate in each area should be controlled because each of it will demand more needs for natural resources. Besides, a problem in taking integrated action among varied sectors or stakeholders in the watershed often appears in the management of watershed. It is caused by the unclear duty, authorship, and function of each related institution because of regional autonomy in the regions or cities. Thus, a foundation as a place for coordinating related activities to the watershed is needed. In provincial level, the aforementioned institution has been built and is known as Watershed Forum of Bali Province. But, not all regencies have established this forum.

Policy, Program, and Activity

Based on the data collection method by using in-depth interview with the parties involved in policy making, program, and activity in the plan writing of Pakerisan watershed management, it was found that all parties agreed to join the existing program and activity (RPJM). Therefore, policy of the program and activity which are needed can be seen as follows:

1. A policy that controls the development of tourist facilities (hotels and villas) in the boundaries of the river or gorge comes in forms of spatial regulation and socialization, law enforcement, and strict sanction provision.
2. A policy to enhance community understanding about watershed management by doing socialization; socialization about watershed management and land conservation technique; socialization about soil and water conservation; socialization about plant silviculture; socialization about efficient irrigation technique; strengthening farmers' groups that use well pump system.
3. A policy that optimally governs dam or irrigation channels usage through a program and activity reconstructing dams and irrigation channels.
4. A policy about land conversion through a program preventing land conversion and regulating land usage based on its function by socializing rules of land conversion, space utilization control, making draft of RDTL, RTBL, and Zoning Regulation for some tourism destinations.
5. A policy about conservation and preservation of natural resources and rehabilitation on forest and land through reforestation and soil conservation to increase land cover.
6. A policy that controls erosion and sedimentation through a program and activity of making sediment traps or other trap constructions.
7. A policy about sand excavation through a program that prevents illegal mining (*Galian C*) such as socialization on regulation of the sand excavation, make of sand excavation zone, and law enforcement supported by assertive sanction putting.
8. A policy about boundaries of rivers preservation by replanting hidrologic plants on it as well as on gorge.
9. A policy about managing trash and waste through an environmental sanitary program such as increasing the numbers of society's role-play program in managing trash and waste, doing socialization about green environment, and providing temporary landfills and garbage containers.
10. A policy about managing source of wáter through a program that minimizing conflicts on determining source of wáter by the Water Supply Company (*PDAM*) and irrigation with socialization of wáter use regulation, and making agreement on wáter use and irrigation.
11. A policy about increasing income and participation of the society through a program that improves source of income and society participation in watershed management.
12. A policy and program about Institution Enhancement of Watershed Management: establishing rules about Lake Batur water use specifically for irrigation; establishing rules about forest security; improving coordination of head-downstream parties.
13. A policy that revitalizes local wisdom in managing watershed through an exploration and establishment of local wisdom program, socialization on local wisdom, development and enforcement of local wisdom.

Model of Water Resource Management in Pakerisan Watershed in Bangli Regency

No	Kategori	Aktor	Program	Regulasi	Penanggung jawab
1	2	3	4	5	6
1	Siaga	BLH	Penggiatan Ekohidrisi hutan dan lahan	<ul style="list-style-type: none"> Kelembagaan EHL Penyuluhan hidrologis tanaman Pemanasan bibit tanaman perikanan di sekitar mata air dan jurang Sosialisasi dan pengawasan pemangku lokal pemantauan galian C 	BLH Kabupaten dan Dinas Kabupaten Provinsi
		Pelebaran Uluwatu	Penggiatan penyuluhan pengolahan dan konservasi fauna dan tumbuhan air lahan	Meningkatkan pengetahuan tentang dan kemampuan pemangku air lahan	Dinas PU Kabupaten
			Penggiatan penyuluhan kinerja pengolahan air rumah dan air limbah	Meningkatkan pelayanan parameter dan norma air rumah bagi masyarakat berpengaruh rendah	Dinas PU Kabupaten

Dinas PU	Penggiatan penyuluhan dan kemampuan masyarakat pada sektor pertanian dalam arti luas	Meningkatkan pengetahuan dan kemampuan masyarakat pada sektor pertanian	Dinas PU Kabupaten
	Penggiatan Kelembagaan pangan (Perikanan Pekarisan)	Meningkatkan hasil panen, pascapanen produksi dan produksi dan pascapanen (pascapanen)	Dinas PU Kabupaten dan provinsi
		Kelembagaan jaringan agro industri rumah	
		Pengembangan pemukiman sekitar dan lahan rumah lingkungan	
Kelembagaan	Pemanfaatan potensi sumberdaya hutan	Pengembangan hutan tanaman lindung	Dinas Kabupaten dan provinsi
	Perindungan dan konservasi sumberdaya hutan	Sosialisasi pengetahuan dan pascapanen dalam kelestarian hutan	
		Penyuluhan kondisi masyarakat mengenai dampak pencemaran hutan	
	Pembinaan dan Peningkatan Kualitas Hasil Hutan	Sosialisasi peraturan daerah mengenai pengelolaan hutan hasil hutan	

Source: RPJM of the regency and province as well as interview results with related stakeholders

Management of Water Resource of Pakerisan Watershed in Gianyar Regency

Based on the data collection result by using in-depth interview technique and method with all parties and literature review of *RPJM* in the regency, some strategies to achieve main purposes can be seen in the table below:

No	Masalah	Strategi
1.	Perkembangan fasilitas pariwisata (hotel dan vila)	Sosialisasi peraturan-peraturan yang ada, sosialisasi himbama
2.	Masyarakat kurang pahan tentang kelestarian DAS	Penyuluhan
3.	Rusaknya bangunan bendung irigasi	Perbaikan bangunan bendung irigasi
4.	Alih fungsi lahan	Penataan pemanfaatan lahan, penyuluhan
5.	Degradasi hutan dan lahan	Reboisasi dan penghijauan
6.	Erosi dan longsor	Pembuatan dam, sedimen trap dan penghijauan
7.	Galian C	Sosialisasi peraturan-peraturan yang ada

8.	Penebangan kayu di daerah yang terjal	Penanaman tanaman hidrologis, penyuluhan dan sosialisasi peraturan-perundangan
9.	Sampah dan limbah	Pengelolaan sampah dan limbah, penyuluhan dan sosialisasi peraturan-perundangan
10.	Rendahnya pendapatan dan partisipasi masyarakat dalam pengelolaan DAS	Meningkatkan pendapatan dan partisipasi masyarakat dalam pengelolaan DAS.
11.	Kelembagaan yang belum terkoordinasi	<ol style="list-style-type: none"> Membangun koordinasi kelembagaan antara hulu dan hilir Meningkatkan koordinasi antar lembaga baik di hulu maupun di hilir
12.	Pemanfaatan kearifan lokal belum optimal	Penyuluhan kearifan lokal

Mechanism of Implementation, Funding, and Management Model of the Water Resource of Pakerisan Watershed in Gianyar Regency

Mechanism of program and activity was generated by the stakeholders based on their own duty and functions, also applied for the funding. In line with its purpose, the program and activity which have been coordinated will be about territorial or sectoral authorship which are related to duties and authorships of the Central Government, Government of Bali Province, and Government of Gianyar and Bangli Regency. Thus, duties and tasks which are related to funding come from Gianyar and Bangli regency government, government of Bali Province, and Indonesian National Budget (APBN). It is also possible to gather fund from other parties and it is not binding. The program and activity projection in managing water resource of Pakerisan watershed can be seen in the table below:

No	Kabupaten	Sektor	Program	Kegiatan	Pemanggang Jawab					
1	Gianyar	Dinas P3	Program Konservasi dan Perlindungan Sumberdaya Alam	Pembuatan Sumur Resapan air / lubang biopori Pembuatan Kebun Bibit Desa Pembuatan Hutan Kalijaya	Dinas P3 Kabupaten Dinas Kabupaten Provinsi Bali	Pekerjaan Umum	Pembangunan saluran desasawegrogrog Pengalangan dan pengalangan jaringan irigasi	Membangun saluran desasawegrogrog Mata air dan instalasi saluran irigasi	Dinas PU Kabupaten	
BLH		Program Penghijauan di hulu dan pinggir sungai	Pemasangan bakul dan pohon buah-buahan dalam rangka penghijauan lahan kritis di daerah hulu dan pinggir	BLH Dinas Kabupaten Provinsi Bali	BLH	Pengembangan binaja pengelolaan air rumah dan air limbah Pengembangan binaja pengelolaan persampahan Pengendalian pencemaran dan permasalahan lingkungan hidup Pengalangan dan Rehabilitasi skemata pasir dan laut Pengalangan Karang terbuka hijau	Penyediaan sarana dan prasarana air rumah Mengembangkan sistem pengolahan persampahan Meningkatkan prosedur pemukiman dan SDM dalam pengelolaan sampah Pengalangan sampah dan limbah cair secara terpadu Meningkatkan aktivitas pengawasan pantai Pengawasan terhadap pelanggaran kawasan lindung ditetapkan dalam RTRW	BLH Kabupaten dan provinsi		
Kebudayaan		Program Pemanfaatan Potensi Sumberdaya Hutan	Pengawasan Pengutan dan pengendalian hasil hutan kayu	Dishutban Kabupaten dan Dinas Kabupaten Provinsi Bali						
		Program rehabilitasi hutan dan lahan	Koordinasi penyelesaian reklamasi dan penghijauan hutan							

Source: RPJM of the regency and province as well as interview results with related stakeholders

Choosing Strategy for Interregional Cooperation Model in Managing the Water Resource of Pakerisan Watershed

1. Analysis of Internal Environment of Pakerisan Watershed Analysis in the Water Resource Management: The existence of internal factor of strengths and weaknesses based on IFAS matrix calculation for Pakerisan watershed can be seen in the table below:

No	Faktor-faktor internal	Bobot	Rating	Skor
1	2	3	4	5
KEKUATAN				
1	Adanya Kebijakan Pemerintah	0,151	4	0,603
2	Adanya program pemerintah	0,132	4	0,529
3	Adanya kegiatan pemerintah	0,147	3	0,442
4	Tersedianya penanggung jawab	0,150	3	0,450
KELEMAHAN				
1	Masih kurangnya pemahaman masyarakat tentang pelestarian pengelolaan DAS.	0,138	1	0,138
2	Belum adanya kelembagaan yang secara terpadu mengkoordinasikan pengelolaan DAS.	0,146	1	0,146
3	Semakin rendahnya kesadaran masyarakat dalam penerapan kearifan lokal untuk pengelolaan DAS.	0,136	1	0,136
		1,000		2,444

Source: Results of Research Data (analyzed)

2. Analysis of External Environment of Pakerisan Watershed Analysis in the Water Resource Management: Based on the identification done toward external factors, a grading was done to see degree of interests or effects of each of the factors to the area of Pakerisan watershed as well as giving rating. The matrix EFAS calculation for minapolitan areas can be seen in the table below.

No	Faktor-faktor eksternal	Bobot	Rating	Skor
1	2	3	4	5
PELUANG				
1	Pemasangan bibit kayu di sekitar Debit air	0,095	3	0,284
2	Membuat memperbaiki jaringan irigasi	0,091	3	0,273
3	Pembangunan sarana air minum	0,096	4	0,383
4	Membuat sistem pengelolaan sumber-sumber air dan penyediaan air baku	0,099	4	0,395
5	Mengadakan monitoring dan evaluasi	0,099	4	0,395
ANCAMAN				
1	Adanya alih fungsi lahan	0,073	2	0,143
2	Pembangunan Vila di sepanjang sempadan sungai	0,079	2	0,159
3	Debit air di beberapa tempat menurun pada musim kemarau	0,060	2	0,120
4	Terjadinya bahaya banjir di musim hujan	0,071	2	0,143
5	Terjadinya kekurangan air baku untuk rumah tangga maupun irigasi	0,083	2	0,166
6	Adanya peningkatan pemanfaatan air tanah (Sumur Bor)	0,072	2	0,144
7	Terjadinya pencemaran	0,080	2	0,160
		1,000		2,777

Source: Data hasil penelitian (telah diolah)

Grand Strategy of Interregional Cooperation Model in Managing the Water Resource of Pakerisan Watershed

A theory of interregional cooperation model proposed by Nicholas Henry (1995) i.e. *Joint service Agreement* explains this cooperation model is based on participation of regions which collaborate in planning and funding a program. This model establishes duty, shared responsibilities, and ownership of sectors being managed by the regions. A letter of agreement in this cooperation model should accommodate bureaucracy system of the local governments that are currently cooperating, by referring to data analysis which use internal environmental factor analysis (IFE) and external factor analysis (EFE) and data collection through in-depth interview with related parties and expertise. Finally, a suitable interregional cooperation model for managing water resource in the Pakerisan watershed is generated.

Alternative Strategies for Interregional Cooperation Model in Managing the Water Resource of Pakerisan Watershed

The making of strategy for Interregional Cooperation Model in managing water resource of Pakerisan watershed can be done by considering internal factors such as strengths and weaknesses as well as external factors namely opportunities and threats. It is composed in a form of matrix which generates grand strategy to be then combined into a form of SWOT matrix. In combining IFAS and EFAS matrix into SWOT matrix, four cells which can be utilized as guidelines in determining alternative strategies of Interregional Cooperation Model for Managing Water Resource of Pakerisan watershed. By generating the strategy, it is expected to be suggestion toward related institution hence government's action or strategic plan can be illustrated. Consequently, water resource management in Pakerisan watershed can run and develop smoothly. The SWOT matrix analysis of water resource management in Pakerisan watershed can be seen in the table below.

TABLE 1. SWOT MATRIX

	Strengths (S)	Weaknesses (W)
Opportunities (O)	<p>1. Meningkatkan kualitas sumber daya manusia.</p> <p>2. Meningkatkan kualitas lingkungan.</p> <p>3. Meningkatkan kualitas pelayanan.</p>	<p>1. Rendahnya kualitas sumber daya manusia.</p> <p>2. Rendahnya kualitas lingkungan.</p> <p>3. Rendahnya kualitas pelayanan.</p>
Threats (T)	<p>1. Rendahnya kualitas sumber daya manusia.</p> <p>2. Rendahnya kualitas lingkungan.</p> <p>3. Rendahnya kualitas pelayanan.</p>	<p>1. Rendahnya kualitas sumber daya manusia.</p> <p>2. Rendahnya kualitas lingkungan.</p> <p>3. Rendahnya kualitas pelayanan.</p>

Each strategy produces variety of supporting development program which can be seen in the following part:

1. Strength Opportunity (SO) Strategy

SO strategy refers to a strategy which uses strengths in taking advantage of opportunities as many as we possibly can. According to the IFAS and EFAS matrix, it was found that internal factor has value of 2.444 while the external factor gained 2.777.

The strategy used to develop water resource in Pakerisan watershed through utilization of strengths and opportunities (S.1,2,3,4,5 O.1.2.3.4.5.) can be conducted in some steps:

- (1) Increasing the numbers of planting forestry plant seed around the springs.
- (2) Enhancing clean water services in the cities and towns.
- (3) Increasing the provision of infrastructures and facilities for drinking water.
- (4) Establishing a MoU in water resource management and development program in Pakerisan watershed

(5) Improving cooperation and coordination of all parties in the up- and downstream of the river.

2. *Strength Threat (ST) Strategy*

The finding in this section shows strategy which uses strengths to overcome threats. Looking at the IFAS and EFAS matrix, it was found that the strengths factor obtained 2.024 while threats factor gained 1.401 and thus the value of strengths and threats factor is 3.065.

Strategies to determine the most suitable policy is yielded by using strengths and threats (S.1,2,3,4, T.1,2,3,4,5,6,7). The programs can be seen as follows:

- 1) A policy to control the development of tourism facilities (e.g. hotels and villas) in boundaries of the river and gorge by regulating border area of the river and gorge as well as holding socialization of spatial regulation, law enforcement, and provision of strict sanction.
- 2) A policy to manage springs through conflict reducing program in the spring by regulating water use for irrigation, socializing rules of water use, and making agreement to use the water.
- 3) A policy to manage trash and waste through environmental sanitation program including enhancement of society's role in handling trash and waste, socialization about clean environment, and provision of temporary landfills and garbage containers.

3. *Weakness Opportunity (WO) Strategy*

WO Strategy is a strategy that minimizes weaknesses and makes use of existing opportunities. Looking at the IFAS and EFAS matrix, weaknesses factor has a value of 0.402 while opportunities factor has a value of 1.733. Strategies to create healthy and untainted environment are done by using opportunities to minimize weaknesses (W.1,2,3,O.1,2,3,4,5,) such as the following program:

- 1) Controlling pollution and environmental degradation by integrateing management of trash and liquid waste.
- 2) Revitalizing local wisdom in the watershed management through exploration and application of local wisdom, socialization about local wisdom, and fostering and strengthening the local wisdom.
- 3) Conducting monitoring, evaluation, and performance report of the watershed.

1. *Weakness Threat (WT) Strategy*

This strategy minimizes weaknesses and threats. Based on IFAS and EFAS matrix, it can be known that weaknesses factor gained 0.420 point while threats factor obtained 1.041 point and thus the total is 1.461. Strategies to raise awareness of Pakerisan watershed management by using weaknesses to minimize threats (W.1,2,3, T.1,2,3,4,5,6,7) can be seen in the following part.

- 1) A policy to enhance community understanding about watershed management with some programs and socializations:
 - a. Socialization about watershed management and soil conservation technique.
 - b. Socialization about soil and water conservation.
 - c. Socialization about plant silviculture where left and right part of the river is planted with forestry plant, such as bamboo and banyan, which has strong and deep root to withstand ground movement (e.g. landslide and erosion).

CONCLUSION, RECOMMENDATION. AND IMPLICATION

1. Management of water resource of Pakerisan watershed in Bangli regency involves many parties which have different interests. Society is the main actor while government is an element that holds policy authorship, facilitator, and supervisor represented by sectoral institutions which are related to watershed management.
2. Management of water resource of Pakerisan watershed in Gianyar regency involves Agriculture Agency, Estate Crops Agency, Forestry Agency of Bali Province, Environment Agency, and Public Works Agency.
3. A suitable interregional cooperation model was found. Results of internal environmental factor analysis by using IFE obtained 2.444 meanwhile external factor analysis by using EFE resulted

2.777. Total score of multiplying the weight and twigs of respectively internal and external factors put the cell V (keep and maintain) with reference to the results determined Cooperation Agreement or MoU, which refers to the implementation of the program the Management and Development of Watershed Pakerisan with the aforementioned parties.

B. Recommendation

1. Commitment among policy makers in the regional, provincial, or central level is necessary to make the program and activities can run as expected.
2. Support from institutions in the provincial level for institutions in the regional level specifically when conducting program and activity using Regional Government Budget (*APDB*) of Bali Province as source funding is also needed.
3. The existence of traditional institution in the village potentially supports the effort of conserving water resource in Pakerisan watershed and thus, although in this research no program target and detailed planning was mentioned, many sectors or related field's activities are promoted.

C. Implication

1. This research can be used by related parties such as Water Supply Company in Bangli and Gianyar, Department of Public Works, Department of Central River Management Region Bali-Penida and other parties which have interest in fulfilling water needs so that they can start planning ways to enhance services to the society.
2. The society will enjoy more stable water with its good quality as interregional cooperation is improved through this research.

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THE CHALLENGE OF RURAL-URBAN DEVELOPMENT IN THE SHAPE OF SUSTAINABLE LAND TRANSPORTATION IN INDONESIA

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ABSTRACT

Sustainable development issues especially on sustainable transportation has become global issues. It push every countries to point toward their responsibility, appropriate with their problems and local needs. The measuring of sustainable land transportation indicator in the future, will cover economic, social, environment, technical operation and institutional dimension. Inline with this developing global issues, the urban development in Indonesia, which often analogism with the succesfull on increasing economic indicator, has to attent the indicator of that land sustainable transportation and their challenges on implementation. The measurement result of gas emission from transportation at 5 cities in the blue sky programe at 2011 for Surabaya, Medan, Samarinda, Makasar and Batam, indicate tend to increase in HC emission (55%), Nox (36%), and CO (49%), comparing with the data at 1992 and 2000. Base on the causal multi regression analysis on that gas emission measurement result, indicate signifikan relation with sustainable land transportation indicator, especially for Ind(1) Transportation volume relative to GNP, Ind(17) Fair Quality of road pavement, Ind(18) Total Road length (each mode) and Ind (19) Road density (Km/Km²). Cross analysis result on any transportation policies in the rural-urban development give indicate that future challenge to shape sustainable land transportation is needed special attention on the institutional dimension, social and technical operation especially in human resources development.

Key words: Rural-Urban Development, Economic Indicators, Land Transportation, Sustainable Land Transportation indicators

INTRODUCTION

Regional development in Indonesia, often analogized with economic growth, which push to increase of transportation demand. The growth of vehycle ammount increase very fantastic, but it is imbalance with the growth of transportation infrastructure at city or district level area, even at province, and national level. That all problems can not untight from the unplanned transportation planning as comprehensive and continuing plan at the past. The transportation problems will not become worst if since the early the government at the national level or local level would be apply *sustainable transport system*. *Center for Sustainable Development* (1997) has define the sustainable transportation system as a system who deserve access to the individual basic needs or abroad people in save way and consistent tighten relationship with people health and the sustainabillity of the ecosystem, and judge to the people, for now and the future. Reach to Finance, efficient in operation, preparing alternate modal choice and supporting economic growth at all condition.

The concept of sustainable transport has implemented in policy form. That policy obiter are improving on regional accessibility, improving on transportation productivity, improving on efficiency of transportation activity, improving on capacity of transportation institution, improving on transportation safety, and managing on negative transportation externalities to the environment. So sustainable transportation has to attend *global sustainability*, which consist of three important components, that are: 1) Accessibility: force by transportation network planning and diversity of transport mode with high level integration among each other; 2) Equality: force by transportation services which reach for any level of people, transport with high supporting to the competitive health

business, and spatial uses distribution and using infrastructure judgeable and transparent in any policy decision; 3) Environmental impact: begin by force reduction on negative impact by using friendly environment of energy, using transport mode with minimize pollution and planning on safety priority.

So that, in order to realize sustainable transport has to analyst and special seriously attention to the environment side, social and economic. Economic indicator is the indicator aim to people welfare, commonly in relation with wage increasing, welfare, employee, productivity and social welfare. Economic indicator in the reach of transportation sustainability as a comprehensive economic action in relationship with others indicator in the reach of transportation sustainability. The role of economic indicator in sustainable transportation is very big so it become special attention in the reach of sustainable transportation, but the heavier attention of regional development more force to economic, and did not accompanied with the social and environment will causes obstructed the development of sustainable transport which is become “world trending topic now”. Considering this condition, it is need to study the threat of regional development in Indonesia in the shape of sustainable land transportation.

The objectives of this activities are:

1. To capture the economic, social and environment condition an area, in relationship head to sustainable land transportation.
2. Analyzing to get a comprehensive base relationship among sustainable land transportation indicators for that area.
3. Giving a propose economic, social and environment policy alternatives to realize a sustainable land transportation for this area;

Beneficiary of this study is:

1. An early identification sample of economic, social and environment problem at the area to realize sustainable land transportation;
2. Capturing an early policy of economic, social and environment at the area from the transportation view to realize sustainable land transportation;
3. Denote an early step to create a national policy to realize sustainable land transportation.

METHODOLOGY

This study will be completed by deductive approach, that is partial analysis to the phenomena of the economic, social, environment and land transportation indicators at Surabaya, Medan, Samarinda, Makasar and Batam area, get valid conclusion and then generalized the effectuation. Variables measured appropriate with economic, social, environment and land transportation indicators which commonly uses by national and international, so it will be easier to understand as indicators relate to the sustainable land transportation. This steps work completion can be seen at Figure 2.1.

To support this study, need to collect an amount of data, as well primary data and secondary data. The data and data source can be seen at appendix 1. Base on data has collected, then compile the measuring variables of economic for sustainable transportation. Analysis that compilation result to analyze the relationship of Economic indicators in the exertion of the sustainable land transportation. The models of analysis will be used in this study is simple regression and multiple regression, and correlation test, continued by analysis and synthesis by quantitative and qualitative model on the relationship between variable indicators economic for sustainable transportation, and then can be make conclusion.

DATA ANALYSIS AND DISCUSSION

The Threat of Global Transportation

The relationship between transportation and environment covered a wide spectrum. The rise impact can be caused by the existence of that transportation infrastructure which physically influence the

environment or caused by operating that facilitation. Factor of level disturbance depend on the uses volume, modes type, and technology which uses. The impact which felt caused by this transportation operation commonly become lenght issues, cause it is continuing develope concomitant with people activities.

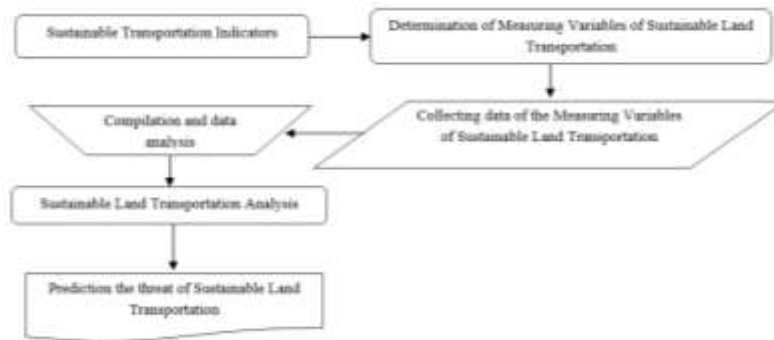


Figure 1. Steps of the Study

In the macroscopic scope, the level and scale of disturbance to the environment caused by transportation, influenced by many factors be related, that is national and global economic, transportation policies (procurement system, environmental standart, etc.), structure of transportation sector (operationalization modes of transport, institutional, government and private involvement, market characteristic, etc), and operational aspects of transportation activities (management system, level of uses, technology applied, etc). In Urban transportation, the air polution from land transport pose the worst problematics, especially at the developing countries where is the infrastructure development still left behind comparing with the increasing demand of transport, which is causes extensive congestion. Beside it, another traffic factors (noise, vibration, physical damage, unsafe/uncomfort), and road factors (visual intrusion/ aesthetic, land divided, land consumption, access change, land value, influence to the natural life, cultural sites, historical) each gives special impact to the around.

Base on experience involve in more than 1.000 projects transportation sector a round the world since 1940 which is covering fund almost 50 bilyun US\$,a (World Bank, 1995 in Ade Syafrudin,2009) has identify the chalenges towards sustainable transportation system. That chalenge consist repairing *unfinished business*, and to anticipate the new problem caused the changing on people aspiration, implication from global competitiveness, and diverse consequence more fast than motorization changing. The chalenge has not yet resolved covered:

1. Improving access and affordability. That are especially inrelationship with the developing country, where is access from rural area which is left behind to the market and others facilities which need to improve. Need give attention focus on rural transportation network and public transport services so that the cost of transport in general can be reduce, as well for freight or passenger.
2. Handling crisis on maintenance. Not yet adequet on maintenance road infrastructure causes very big cost in the form of reducing asset value, and in the longterm will causes increasing total management cost. Any rupiahs to posphone maintenance will cause increasing three times on vehycle operating cost.
3. New chalenge will cover aspecs as like.
 - a. Improvement response to customer demand. Improving people revenue and changing of market characteristic will generate more variaty requirement and better quality of services.
 - b. Adaptation to the global trade pattern. Trade liberalization bring trend higher on goods volume and delivery distance. Developing countries very rely on economic growth through export manufacturing goods.
 - c. To resolve the fastest level of motorization. Cities become as motor for economic development, especially in developing countries, and population in urban area will increase very fast. Accelerate by revenue improvement, vehycle owners in the cities in developing countries increase more faster than proportion of urban space for road.

Land Transportation Challenge in Indonesia

From various environment factors, air pollution is a direct impact factor to human lives, that is various health disruption. Many studies has been done in Indonesia and other countries shown that traffic of motorize vehycle especially in urban area is main source of air pollution. Ade Syafrusin (2009) in his written said, resulting research in the big five cities in Indonesia, that is Jakarta, Surabaya, Bandung, Semarang and Medan, by Lembaga Pengabdian pada Masyarakat ITB (Soedomoet.al., 1992) has reported the contribution of emission HC, NOx, and CO from transportation each reach around 70-88%, 34-83%, and 97-99% from the total of air pollution sources. The magnitude emission contribution this sector not only determind by traffic volume and amount of vehycle, but also by traffic pattern and it's circulation in inner city, especially in the CBD dan trade area. Often happen the congestion in CBD, causes decrease of fuel uses efficiency.

It's condition follows by bigger level of emission, especially CO, HC, and dust. Isnaeni and Lubis (2000) did a simulation to the trend at two bg cities, Jakarta and Bandung, and the impact to air pollution caused by exaust gas. In general that simulation result shown that composition of the main polutan, as an impact by interaction urban transportation system is CO (+ 80%), NOx (+10%), and HC (+ 9%). Meanwhile SO2 and SPM only gave minor contribution. Total emission of exausted gas for Jakarta at 1995 predicted arround 430 tausands ton/year and for Bandung around 150 taousands ton/year. This finding of simulation at Jakarta and Bandung at least gave indication about most signifikan influence from fullfill the needs of urban transport to the environment condition.

Measuring result of gas emission from transportation at 5 (five) area in the blue sky programme at 2011 (5 of 26 cities has been measured at Indonesia), that are Surabaya, Medan, Samarinda, Makasar and Batam city, in average indicate increasing trend on emission of HC(155%), Nox(36%), and CO(49%) comparing to that data at 1992 and 2000. If we associated with economic indicators of sustainable land transportation DPSIR, especially for Ind(1), Ind(17), Ind(18) and Ind(19), shown causal corelation as like (Kementerian Perhubungan RI, 2013):

HC	=	208,153	-	151.621(Ind1)	+	0,005(Ind17)	-	0,037(Ind18)	+	17.472(Ind19)
NO2	=	26456,106	-	25667,321(Ind1)	+	36,374(Ind17)	-	56,910(Ind18)	+	3302,147(Ind19)
CO	=	5647,069	-	1409,631(Ind1)	+	1,411(Ind17)	-	2,375(Ind18)	+	228,432(Ind19)
SO2	=	30,969	-	0,350(Ind1)	-	0,023(Ind17)	+	0,035(Ind18)	-	1,454(Ind19)
O3	=	208,321	-	50,121(Ind1)	+	0,055(Ind17)	-	0,079(Ind18)	+	3,455(Ind19)
TSP	=	194,885	-	52,452(Ind1)	+	0,055(Ind17)	-	0,082(Ind18)	+	2,634(Ind19)

This corellation (R=0,5 up to 0,7) shown that gas emission (environment indicator) trend increase paralel with increasing trend of economic indicators. This trends will continue if we do not anticipate by real action. The congestion wich often occure at the big cities directly causes increase on fuel consumption and vehycle exhausted gas, whereas the transportation sector is one of the biggest fuel consumpshion besides household and industries sector. At Indonesia, in the early PELITA IV (1984), the transportation consume 39,7% of national fuel consumption (Dikun, 1999). At 1996 that ammount increase to 53,5 %, and at 1998 rise more than 60 %. Comparing with Japan energy consumption only 20-25 % of total national energy consumption (Ohta, 1998), the consumption of energy for transportation in indonesia can be said very extravagant. That ammount enough to draw about inefficiency transportation sector in Indonesia.

That above challenges highlight needs to reform transportation policy to support sustainable better quality of life. The essence is how to fullfill the needs of people activities this time without reducing the ability of next generation to fullfill their need.

Sustainable Land Transportation Challenge

The development of Infrastructure for sustainable land transportation is a comprehensive effort from various sectoral dimension, area, actors involvement, and substance. Figure 3.1 shown a propose strategic steps to plan sustainable transportation system. The development of transportation infrastructure is an integrale apart in each embodiment needs of that steps, because it will determine the efficiency and effectivity the uses of existing system. The plan which concern to technology

aspect, regulation, and user behaviour have to give priority. The strategy to implementate must be define to reach more sustainable condition in operationality, availability of more friendly to environment, and resources uses. Public education needs more activated to improve public participation to desireable direction. Indonesia cities relative develope faster than cities in developed countries, mainly in population growth and urbanization which spark growth in needs of social-economic activity, its have no choice look the future, except as soon to response global demand of sustanable urban liveability. A number of basic policies have to formulated that choice direction can be sharply and effectively answering the problems.

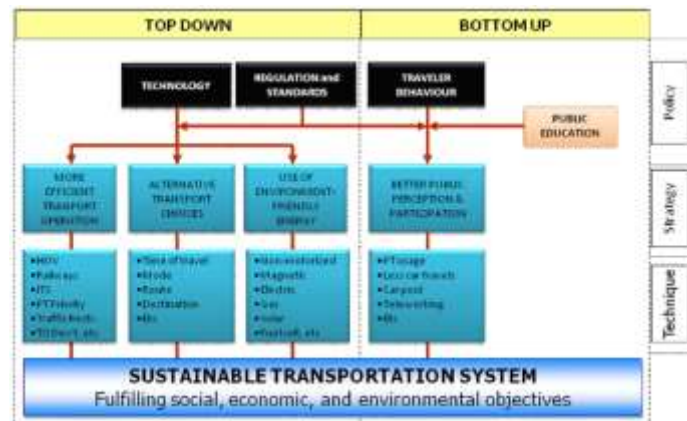


Figure 2. Road map to Sustainable Transportation System (Ade Syafrudin,2009)

To complete that road map, base on DPSIR indicators in several dimension, needs to be especially attent to complete social target, economic and environment, that are:

1. Institutional dimension

The proplem of readines institutional is a one of central issues. How is that related institutional to response the global responsibility – environmental problem rise borderless – but sharply apply appropriate with local problem. Participation from all interest group (*stake-holders*) – government, research institution, and academician, non governmental self-help, law enforcer, communities, profesional and practician – must be improved in determining process of the policies. In the otonomous region context, the role of regional government has to empowering so that regional aspiration can be more expressed. This institutional function will give focus to the policy instruments which will be applied. For example, applied of “technology instrument” to choice technology in reducing environmental impact, “economic instrument” has the shape of fare policy to make people awareness to the cost have to paid (direct cost and impact cost), and “planning instrument” transportation and regional development leads to reduce private vehycle dependency. In relation with institutional is regulation aspect, needs concern as well in planning stage and infrastructure development eventhough operational system. Standart of planning and design must be developed and adapted with future demand about *green infrastructures*. For example, determining of quality standar of environment followed by regulation making to support and consistency law enforce, as well at central or regional level.

2. Social Dimension

Readiness of socialculture also needs to attent. Adapting policies and steps approach will be taken with the problems and local needs become very important. In the transportation context, the problem is how to control the private car dependency and control the demand, and it needs changing in people attitude and perception. The increasing of demand not at all has to fullfill by supply, but must be looking for balancing in harmony between demand and supply.

According to basic principle that transportation is derived demand, so that importance moving is passenger and freight, not vehicle, with the adequate quality of services. Success on applying policy and steps which have choice depend on the readiness of human resources. This human resources directly relate to all process: determining policy, planning, and implementing. In the transfer of technology, for example, the readiness of human resources has to be developed in sustainability, because the dependency of the undeveloped country, including Indonesia, to developed countries is very big. Step by step the role of human resources hope to improve local content and technology which will be used and at once reduce the dependency to other countries.

3. Technical Operational Dimension

Every step will be done insist an integrated planning. Integration an urban transportation system at least looked from policy, plan and programme sides, funding, and services. Integration of that system directed to improve accessibility of the people as user, improving efficiency on resources uses, improving interaction among area, improving public participation including private role, and reducing environment pollution, and accident level. All stakeholder need to do an effective coordination to reach that condition. Planning, programming, and activating do appropriate with that institution responsibility. In funding matter, even fund resources and allocation for each programme, made in transparent and accountable at all process. Also must get attention is that steps what we have discussed at the above have to support by research in every related field. Applying research products which have developed by other countries can be done in order appropriate with climate condition, geographic etc. Various knowledge disciplines insist to give positive contribution in the framework to fit up each others. In this context, research institution, higher education, and industrial have together responsibility to answer that various challenge in systematically and sustainability.

CONCLUSION AND RECOMMENDATION

From the above discussion can be given some notification for rural-urban development in the shape of sustainable land transportation in Indonesia, as like:

1. Policy in handling of rural-urban transportation problem must be approached as well from supply side and demand side. Nothing 'panacea' which by one action can be resolve all of transportation problem, but need some integrated and sustainable action. Transportation demand management is a practical action which need to be sought more intensive in order to optimize the resources uses.
2. That methods which are proven effective at developed country not necessarily give same result if applied at Indonesia remember citizen condition. Because that implementation policy which taken in Indonesia have to be appropriateness with the existing condition.
3. The sustainable development issues and especially sustainable transportation has become global issue which every countries insist to show their responsibility appropriate with problem and locally demand.
4. Indonesia as apart of global community immediately must show response to sustainable challenges. Anticipation steps realized by readiness what needed in institutional aspect, social culture, regulation and law enforce, and technical operational aspect especially related with the development of human resources which all arranged through integrated planning framework.
5. Looking from economic indicator for sustainable land transportation by DPSIR, the effort to increase mass public transport uses in rural-urban area absolutely have to push to decrease HC, NOx, CO gases etc, and reducing burden of develop cost and road maintenance.
6. Uses of vehicle with fossil fuel have to be substituted, change with non fossil fuel vehicle and renewable (as like hybrid vehicle, electric vehicle, etc) as well for freight and passenger transport.
7. Mainly the spatial approach as like optimization rural-urban space to increase the density of road infrastructure, in order to reduce: travel length, cost of road network development, cost of people transportation, etc, which very related with sustainable land transportation.

8. Adding and improving road network in good condition, including the completeness of sign and road markers, law enforce on safety and traffic security to push level of traffic accident which increasing trend in line with economic increase.

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APPENDIX

Annex Table 2: The Full List of Transport Sustainability Indicators Extracted from European and International Indicator Initiatives

INDICATORS	Theme	EC SDG	EC ESD	EC- EEA TERM	Europe	OECD	UN EFA	World Bank	UNICEF	VIR	WFP
ENVIRONMENTAL											
Volume of transport relative to GDP	Transport demand and mobility	*	*	*	*						
Road transport (passenger and freight)		*	*	*	*	*	*	*	*	*	*
Railway transport (passenger and freight)		*	*	*	*	*	*	*	*	*	*
Airway transport (passenger and freight)		*	*	*	*	*	*	*	*	*	*
Waterway transport (passenger and freight)		*	*	*	*	*	*	*	*	*	*
Intermodal transport		*	*	*	*	*	*	*	*	*	*
TECHNOLOGICAL AND ENERGY											
Low transport expenditure (vehicle parking, roads and public services)	Technological and energy	*	*	*	*	*	*	*	*	*	*
Motor vehicle fuel prices and taxes (gasoline and gas diesel)		*	*	*	*	*	*	*	*	*	*
Energy used per km by road (passenger transport)		*	*	*	*	*	*	*	*	*	*
General cost of transport (airline companies, express cargo, rail) (cost by transport mode) (high and passenger)		*	*	*	*	*	*	*	*	*	*

INDICATORS	Theme	EC SDG	EC ESD	EC- EEA TERM	Europe	OECD	UN EFA	World Bank	UNICEF	VIR	WFP
Implementation of urban development of economic policy with a focus on cost for marginal external cost of the use of different transport modes	Transport costs			*	*						
Incidence of transport				*	*						
System of vehicle use vehicle use				*	*						
Incidence on transport infrastructure to road		*	*	*	*	*	*	*	*	*	*
Road quality – paved roads, air good condition		*	*	*	*	*	*	*	*	*	*
Time length of road by mode			*	*	*	*	*	*	*	*	
Quality of infrastructure			*	*	*	*	*	*	*	*	*
SOCIAL											
Average passenger (average time)	Accessibility and mobility	*	*	*	*	*	*	*	*	*	*
Average passenger (average length per mode)		*	*	*	*	*	*	*	*	*	*
Quality of transport per (average passenger (airline, city, bus, train, etc.))		*	*	*	*	*	*	*	*	*	*
Physical ability (step or wheel) (average) and (average) on legs to (average) (average)		*	*	*	*	*	*	*	*	*	*
Physical ability to (average) (average)		*	*	*	*	*	*	*	*	*	*
Physical ability to (average) (average)		*	*	*	*	*	*	*	*	*	*

INDICATORS	Theme	EC SDG	EC ESD	EC- EEA TERM	Europe	OECD	UN EFA	World Bank	UNICEF	VIR	WFP
Exposure to traffic noise by motor transport and by mode (associated with health and other effects)	Health impact				*	*	*	*	*	*	*
Level of vehicle registration (class, license, roadside regulatory control, safety, etc.) and pressure (air quality, noise, etc.) (average)					*	*	*	*	*	*	*
Availability (person of household, access distant to transport)					*	*	*	*	*	*	*
Contribution of transport (air) to health or employment growth	Healthcare				*	*	*	*	*	*	*
ENVIRONMENTAL											
Emission of air pollutants (SO ₂ , PM ₁₀ , PM _{2.5} , NO _x , CO ₂ , water pollution)	Transport emissions	*	*	*	*	*	*	*	*	*	*
Expenditure per distance (km) and (km)		*	*	*	*	*	*	*	*	*	*
Energy consumption by transport mode	Energy efficiency	*	*	*	*	*	*	*	*	*	*
Fuel consumption		*	*	*	*	*	*	*	*	*	*

INDICATORS	Theme	EC SDG	EC ESD	EC- EEA TERM	Europe	OECD	UN EFA	World Bank	UNICEF	VIR	WFP
Airline cost (average) (average)	Transport emissions			*	*	*	*	*	*	*	*
Cost (cost by transport mode) (average)				*	*	*	*	*	*	*	*
Following (airline, road, air and water)				*	*	*	*	*	*	*	*
Airline transport (average) (average)	Accessibility			*	*	*	*	*	*	*	*
Use of (average) (average) (average) (average)				*	*	*	*	*	*	*	*
TECHNICAL AND OPERATIONAL											
Capacity (use of passenger vehicle)	Capacity of transport			*	*	*	*	*	*	*	*
Level (capacity of freight transport) (LRT, ADT)				*	*	*	*	*	*	*	*
Average age of vehicle fleet	Technology level			*	*	*	*	*	*	*	*
Proportion of (average) (average) (average) (average) (average) (average) (average) (average) (average) (average) (average) (average)				*	*	*	*	*	*	*	*

INDICATORS	Theme	EC SDG	EC ESD	EC- EEA TERM	Europe	OECD	UN EFA	World Bank	UNICEF	VIR	WFP
ENVIRONMENTAL											
Use of (average) (average) (average) (average) (average) (average) (average) (average) (average) (average) (average) (average)	Accessibility			*	*	*	*	*	*	*	*
Use of (average) (average) (average) (average) (average) (average) (average) (average) (average) (average) (average) (average)				*	*	*	*	*	*	*	*
Use of (average) (average) (average) (average) (average) (average) (average) (average) (average) (average) (average) (average)				*	*	*	*	*	*	*	*
Use of (average) (average) (average) (average) (average) (average) (average) (average) (average) (average) (average) (average)	Technology level			*	*	*	*	*	*	*	*
Use of (average) (average) (average) (average) (average) (average) (average) (average) (average) (average) (average) (average)				*	*	*	*	*	*	*	*

MEASURING E-GOVERNMENT READINESS USING CAPABILITY MATURITY MODEL: CASE STUDY OF TEMANGGUNG LOCAL GOVERNMENT

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ABSTRACT

E-Government is a strategic solution from government to provide good services to the society, and also expected to improve organization efficiency and performance. Due to the implementation of E-Government, the government needs to consider some aspects to support successful implementation strategy. One of this important aspect is the readiness of local government in adopting E-Government. Usually, local government implements the E-Government system by built and adopt some information system to support business process. Without sufficient planning, it will lead into unstructured and poor planned system development. When the government wants to adopt E- Government, they should recognize the existing condition and the expected condition that they want to achieve. It lead us to the idea how we can ascertain the local government's capability in term of E- Government implementation. It can be done by conduct the specific research. According to this opportunity, we conduct the research to uncover the E- Government capability as a parameter to measure E-Government readiness. We conduct the research to asses the Temanggung Local Government using "Capability Maturity E- Government Framework" by Iribaren [et.al](#) (2008), which measure the capability using 4 leverage domains. They are E-Gov Strategy, IT Governance, Process Management and Organization, and People Capabilities. Then each domain divided into 3 or more sub domains, such as for E-Gov strategy then divide into vision, strategy and policy, enterprise architecture strategy, and IT management and organization. The results of this study concluded that Temanggung has been in "Ready" level to adopt E- Government. Because they already have adequate data governance management, and resource management. Although it is still necessary to improve their network resources that include the availability/ coverage of the internet and network security, and provision of Data Center and Data Recovery Center. By, provide these conditions, they will provide supports for sustainability of the E- Government System that will be planned.

Key words: Capability, E- Government, Measurement, Capability Maturity Model

INTRODUCTION

In the midst of the rapid development of ICT and the Internet of things in the world and also Indonesia, Indonesian local governments do not want to miss as to pursue technology. Every local government has been compete to develop e Government as its main service lines to sustain and support the efficiency and effectiveness of their services for the public which demanding on good service, transparency and efficienc. But the fragility of the risk of failure of an e-Government development program bring the necessary for an analysis for the readiness of pre-development and implementation of e-Government. In this way the failure of the development can be reduced because the gap between the reality and the design has been pressed. Cabaility Maturity Model-based gap analysis is a framework that is applicable and feasible to use as a model for assessment prior to the development of an e-Government program because it contains measurement that clearly based on real-world case study by using design-reality gap approach to reduce risks in an e -government development project.

E-GOVERNMENT READINESS

E-government Strategy

According to the World bank website (2005) e-Government can be defined as: “information technologies... that have the ability to transform relations with citizens, businesses, and other arms of government ... [and] can serve a variety of different ends; better delivery of government services to citizens, improve interactions with business and industry, citizen empowerment through access to information, or more efficient government management...benefits can be less corruption, increased transparency, greater convenience, revenue growth, and/or cost reduction.” EGovernment is the term that reflects the use of information and communication technology (ICT) in public administration to change structures and processes of government organizations (Lenk and Traummüller, 2000)

Risk and Gap Analysis in e- Government

Central to e-government success and failure is the amount of change between 'where we are now' and 'where the e-government project wants to get us'. 'Where we are now' means the current realities of the situation. 'Where the e-government project wants to get us' means the model or conceptions and assumptions built into the project's design. eGovernment success and failure therefore depends on the size of gap that exists between 'current realities' and 'design of the e-government project'. The larger this design-reality gap, the greater the risk of e-government failure. Equally, the smaller the gap, the greater the chance of success. (Heeks, Richard, 2003)

E-GOV READINESS MEASUREMENT USING MATURITY MODEL

Maturity Model

We can define maturity model as There are many e-government maturity models in the literature. Maturity models are defined as: “A method for judging the maturity of the processes of an organization & for identifying the key practices those are required to increase the maturity of these processes”. (Windley, P., 2007)

Maturity Model for e-Government

Capability Maturity Models (CMMs) provides five maturity levels for software development. Each maturity level indicates process capability & contains a number of key processes directed at achieving (SearchSoftwareQuality.com).

E-Government maturity level can be used to identify the capabilities of local governments in implementing E-Government system. E-Government capabilities are used to determine the extent to which the organization or government has the potential to run a system of E-Government. One approach in the measurement capabilities of the E-Government refers to the model of maturity (Maturity Model) that maps every aspect into 5 stages / level:

- 1. Initial** (initiative conducted reactively, not planned), the initial conditions.
- 2. Repeatable**, that process is already well documented so it can be replicated over and over to other processes.
- 3. Defined**, the process is already well defined and expressed as business processes strand.
- 4. Managed**, quantitatively managed process, quality can be measured by specific measurement standards.
- 5. Optimizing**, the process is well managed, and efforts to increase and improvements are already thought out and implemented.

In relation to the system of E-Government, maturity model to determine the level of organizational capabilities can be decomposed into 17 area primary domain (key domain area) are grouped into four domains, namely the strategy of e-government, governance E-Government, Process Management, and HR as well as the organization. For each of these domains, each domain derived primary as in table 5.11 (Iribarren, M. et al, 2008):

Table 1. E- Government Capability Measurement Parameter

Domains Group	Main Domains	Parameter of Observation
Strategy	Vision, strategy and policy	<ol style="list-style-type: none"> 1. The extent to which stakeholders are involved collaborate to build the vision, strategy and IT policy for e-gov 2. The level of alignment between the vision of e-gov and business strategy 3. The level of alignment between the vision of eGov and national policies E-gov 4. Alignment level between IT strategy, human resources, and strategic economic resources with national eGov policy.
	Enterprise Architecture	<ol style="list-style-type: none"> 1. There is existence of enterprise architecture 2. There is a consistent implementation strategy 3. Alignment with the reference model 4. The level of reuse service components 5. The definition of business architecture
	IT management and organization	<ol style="list-style-type: none"> 1. The existence of a continuous monitor the technology trends for designing and build an adequate IT strategy and that create new business opportunities. 2. The existence of a plan to create and support the IT infrastructure and to build eGov 3. The existence of an organizational structure with positions and responsibilities are expressly 4. The presence of IT processes including interactions between organizations
IT Governance	IT Architecture :	<ol style="list-style-type: none"> 1. Develop level technical architecture that supports e-gov including applications, technology, networking and security. 2. The extent to which the method of service in place and the necessary data entities
	Portfolio and risk management:	<ol style="list-style-type: none"> 1. How organizations manage projects and new programs 2. The ability and knowledge of the organization to manage risks of eGov project to ensure a smooth transition. 3. The existence and action plans to reduce or mitigate the risk
	IT service delivery	<ol style="list-style-type: none"> 1. The strander which ensures uniformity of quality IT services and support for both residents and internal users 2. Management and alignment with the pre-defined SLA. 3. The existence of formal procedures to manage changes to the configuration of the infrastructure that supports the critical process of implementation of the service.
	Asset Utilization	<ol style="list-style-type: none"> 1. How does the organization made the decision to hold a new ICT resources and priorities 2. Experience organization to carry out application development projects and procurement of hardware by inhouse development or outsourced 3. The level of compliance with a predefined acquisition procedure 4. The level of use of e-procurement 5. The level of usage of ICT assets are effective and efficient
Process Management	Business Process Management	<ol style="list-style-type: none"> 1. The existence of a mechanism to transform the process of implementation of services into the business model of the E-Gov characterized by continuous improvement cycle.
	Performance Management	<ol style="list-style-type: none"> 1. The existence of a mechanism to measure, assess and learn from the feedback on the effectiveness of the services received from consumers. 2. The existence of objective measurements and balance the costs and benefits of E-Gov initiatives
	Service to the Community and Business Performer	<ol style="list-style-type: none"> 1. Documentation and business process modeling that supports the implementation of the public service and government organizations 2. Build a quality measurement system on the implementation of services for citizens and organizations.
	Interoperability	<ol style="list-style-type: none"> 1. The level of integration between business strategy and processes between the units of work done in each unit. 2. Establish the level of semantic interoperability that allows the system to combine internal and external information to process them more meaningful. 3. The existence of technical interoperability covering major aspects such as open interfaces, interconnection services, data integration and middle ware, presentation and data exchange, Accessibility, and security services.
	Compliance with The standards	<ol style="list-style-type: none"> 1. The level of compliance with the rules inside and outside, policies, rules of procedures related to the E-gov

Domains Group	Main Domains	Parameter of Observation
		<ol style="list-style-type: none"> The existence of adequate resources to ensure and facilitate compliance with internal and external regulations. The existence of adequate incentives to promote compliance with internal standards and external.
	Security and Quality Assurance	<ol style="list-style-type: none"> The existence of a formal quality assurance system based on the specific standards that meet your business goals and promote continuous improvement of services. <p>The existence of a formal information security management based on certain quality standards.</p> <ol style="list-style-type: none"> The level of implementation of a structured program to measure the quality of service and service support tools.
Human Resource and Organization	Infrastructure and E-gov Tools	<ol style="list-style-type: none"> Availability of tools and technology of e-Government fundamentals (such as workflow, electronic document, electronic signature, intranet, etc.) that support organizations in the design, implementation and operation of the directives eGov. The availability and level of use of tools that provide added value such as Business Intelligence, CRM, ERP and others The availability and use of hardware-related infrastructure such as online datacenter, network computers, servers, and others.
	Knowledge Management	<ol style="list-style-type: none"> There is a procedure to access, store, share, use and update knowledge related to IT and E-Government. The existence of adequate ICT infrastructure to manage knowledge.
	Human Resources	<ol style="list-style-type: none"> The existence of a mechanism to ensure the availability of competent human resources to support e-gov initiatives Consistency between competence predefined by the employee selection process required ICT organization. The existence of a scheduled program and procedures to train and educate employees ICT and non-ICT within the organization to ensure the development of human resources professionals.
	Change Management	<ol style="list-style-type: none"> How does the organization governing the management of change and its impact on culture. Planning to reduce resistance to change and how the organization is to facilitate the use of systems and new technologies.

MEASURING E-GOV READINESS IN TEMANGGUNG

Research Tool

Table 2. Illustration of Question Per based on Domain Change Management

Change Management	
Question	Score
How does the organization governing the management of change and its impact on culture.	<ol style="list-style-type: none"> Changes and procurement of an e-governance program / software development is done abruptly to respond to the needs of the organization For the e-Government program / development of software to support the service and performance of the organization are documented and it can be used as reference. The process of e-Government program development at the local level have been defined and become the procedure Each e-Government programs are well monitored . Program Quality are always monitored and assessed using standard. Each phase and process e Government program has been well managed, and there is always effort to increase and improvements to the program, the process of development, implementation and improvement of e-Government further program.
Planning to reduce resistance to change and how the organization is to facilitate the use of systems and new technologies.	<ol style="list-style-type: none"> Sometimes there are follow-up from the top level management within the government when there is resistance to the use of e-government system and the implementation of new IT technologies There is a business related documents / plans to reduce resistance organization, personnel and effort to implement the systems and technology Any attempt to reduce resistance in the environment of the organization towards implementation of e-Government is already considered to be the operational standard.

	<p>4. Any attempt to reduce the resistance to e-Government within the Organization can be measured by the standard already owned</p> <p>5. Any attempt to reduce personal resistance, organization and implementation of e-Government programs already are managed properly, and made efforts to continuously improve the plan in any case</p>
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Scoring value range was between 1- 5 to measure maturity level for each domains, for example: For change management domains : 1 2 3 4 5. When respondent choose 1 or “initial” it means : there is initiative conducted reactively, but not planned), which means there are in the initial conditions. Or they choose 2, it means theres : exist an initiatives, existing processes and documentation, but the documentation is not complete, there is consistent implementation strategy. So the total score for them is : 1,5 (1+2 = 3 : 2). Then we interpret each score as:

Research Method

We used a sample of 25 departments in Temanggung district administration, then distributed the questionnaire to each of the department. Each organization is represented by three respondents, which comprised of the management unit, IT department managers, IT operations staff. With details of the profile of respondents as follows:

Position :

- A. Head of Departments : 25 respondents
- B. Responsible IT per Departments : 25 respondents
- C. IT Staff Operations Section : 25 respondents

Years of service :

- <3 Years : 12 respondents
- > 5 Years : 33 respondents
- > Year 10 : 30 respondents

Education:

- Based IT Major : 32 respondents
- Non IT Based Major : 43 respondents

To facilitate the questionnaire will be made code for each questionnaire on the following code :

Table 3. Codification Table for Each Domain on CMM for Temanggung Local Government

Domain Groups	Domain	Statement Number
Strategy (S)	Vision, strategy and policy	SV1, SV2, SV3, SV4
	Enterprise Architecture (EA)	SEA 1, SEA 2, SEA 3, SEA 4, SEA 5
	IT Management and Organization (M)	SMO1, SMO2, SMO3, SMO4
IT Governance (IG)	IT Architecture (A)	IGA1, IGA2
	Portfolio and risk management (P)	IGP1, IGP2, IGP3
	IT Service Delivery (S)	IGS1, IGS2, IGS3
	Asset Utilization	IGU1, IGU2, IGU3, IGU4, IGU5
Process Management (PM)	Business Process Management (B)	PMB1
	Performance Management (P)	PMP1, PMP2
	Service to the Community and Business Performer (S)	PMS1, PMS2
	Interoperability (I)	PMI1, PMI2, PMI3
	Compliance with The standards (C)	PMC1, PMC2, PMC3
	Security and Quality Assurance (Q)	PMQ1, PMQ2
Human Resource and Organization (HR)	Infrastructure and E-gov Tools (I)	HRI1, HRI2, HRI3
	Knowledge Management (KM)	HRK1, HRK2
	Human Resources (HR)	HR1, HR2, HR3
	Change Management (CM)	HRC1, HRC2

Based on the characteristics of maturity in each of the main domain, and then we do the assessment on the conditions that currently exist there. The graph in Figure V.3 presents a picture of the condition of the primary domain capabilities E-Government in the Local Government of Temanggung.

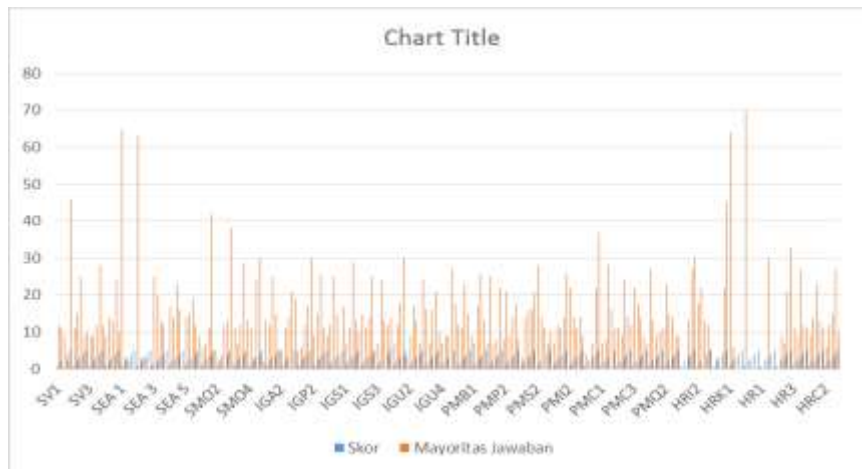


Figure 0-1. Capability Maturity Level Measurement of E-Government in Temanggung Local Government

The figures show that, from the amount of the distribution of assessment that score 4 and 5, there are in the code: SV1, SM2, SM4, SM3, IGP1, IGS2, IGU1, IGU2, IGU4, PMS1, PMI1, HRC2PMI3, HR2, HRI3, and HRI1. Mit means in terms of governance, process management and human resource management has been in good condition. Opportunities for improvement and enhancement strategies can include the domain as well as several sub-domains in the process, especially the quality assurance process and data integration.

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CHALLENGES AND OPPORTUNITIES OF ENERGY-HELPSSELF VILLAGE PROGRAM IN MALANG REGENCY

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ABSTRACT

A broad range of different global energy scenarios confirms that the use of renewable energies play a key role in reaching global CO₂ reduction targets (Prewitt, W and Nienhaus K, 2009), its proved that renewable energy is one of important sector to reach the Millenium Goals Development. Renewable energy also make a major contribution to energy security at global, national and local levels (UNEP, 2011) actually on developing countries. Indonesia is one of the developing countries which has reserve per capita oil gas and coal under the average countries in the world, however has a high potential of renewable energy (LEMHANAS, 2012). As a developing country, Indonesia has a large rural area which have potential in developing renewable energy so that the government introduced the energy-helpself village program. According to Energy and Human reseources Ministry Policy, Energy-helpself village is a village that can satisfy the 60% needs of energy by using renewable energy based community. One of energy-helpself Village program is on Malang regency which has a potential renewable energy resources actually on biomass but not developing yet because the lack knowledge of villagers and highly cost of biodigester. This study aimed to identify opportunities and challenges in the development of Energy-helpself village and to address the impact of infrastructure development and its conflict in society. We found the potency is on the number of the livestock in Malang Regency. However, many challenges are exist. Just a few villagers know about the use of biomass and Energy-helpself village program. Government needs more efforts to spread the information to the villagers and also give subsidy for this program. If the program can be implemented correctly, economic opportunity and energy sufficient can be obtain at same time.

Key words: Renewable Energy, Energy-Helpself Village, Challenge and Opportunity

INTRODUCTION

One production factor which currently important in developing the productivity level is energy. The function of energy has become more strategic, not only as a source of state income but also can serve as catalyst economic growth and even as important aspect that determines the resilience of a country (*Dirjen ESDMP Bappenas, 2012*). Many countries still recovering from economic crisis see immense opportunities in the development of a renewable energy sector, with a potential to increase income, improve trade balance, contribute to industrial development and create jobs (IRENA, 2014). Based on the Blueprint of National Energy Management 2005-2025 data (*Dirjen ESDM, 2005*), issued that Indonesian deposit's oil in 2004 is expected to be discharged in the past 18 years with reserve ratio/production in the year. While gas is expected to be discharged in the past 61 years and coal 147 years.

Table 1. Backup of Energy Resourches in Indonesia

Type of Fossil Energy	Cad/Proud	
	Indonesia (Years)	Dunia (Years)
Oil	18	40
Gas	61	80
Coal	147	200

Sumber: Dirjen ESDM (2005)

With these conditions, we need to develop the energy sector by increasing the reserve fossil energy, renewable energy development, and also recovery ecological functions and energy resources conservation (PP Nomor 79 tahun 2014). Indonesia itself has large enough potential of renewable energy, but the use of potential of renewable energy as water, wind, biomass, geothermal, solar energy, until now is not optimal. For example in the case of energy water, in 2004 the installed capacity of the use of water power only 4.200 MW of 75,67 MW its potential, or just 5,55 % (*Dirjen ESDM, 2005*).

Table 2. Potential of Renewable Energy in Indonesia

Energy Sources	Potential (MW)	Installed Capacity (MW)	Utilization (%)
Water	75.670	4.200	5,55
Biomass	49.810	302,4	0,67
Geothermal	27.000	800	2,96
Microhydro	458,75	84	18,30
Solar Energy	156.487	8	0,005
Wind Energy	9.286	0,50	0,005
TOTAL	318.711,75	5.391,9	27,427

Sumber: Blueprint of National Energy Management 2005-2025 (*Dirjen ESDM, 2005*)

One of the Government's programs to solve the problems and take advantage of the potential that exists is Energy-Helpself Village Program. Energy-Helpself Village Program is a village which have community that has the ability to sufficient more than 60 % energy needs (electricity and fuel) by using renewable energy which resulted from utilization of local potential resource. Energy-Helpself Village Program Development is depart from the fact that 45% from 70 thousand village in Indonesia categorize on underdeveloped villages with minimal infrastructure and other facilities (KESDM, 2008). To progress, Energy-Helpself Village Program began to use renewable energy technology as mikrohidro , wind power and solar system as power station alternative energy. Several villages that developed renewable energy successfully got an award in ASEAN, such as PLTMH Cicurug Garut and PLTMH Malang. Renewable Energy Viilage is beginning of Energy-Helpself Village development program (KESDM, 2008).

In Malang Regency, there are several potential that supporting a Energy-Helpself Village Program. Based on the data from Energy and Mineral Resources Agency of Malang Regency, there are some river which potential to Microhydro Power Station development. In addition , the population of cows are high (225.000 tail) that is still possible to build 60.000 biomass digester (Malang Department of Energy and Mineral Resources, 2014). Besides having potential energy that is big enough, there are some energy problem in Malang Regency, one of them is the population which is quite high that energy needs will also high. In addition, the area of Malang regency are big enough (353.486 ha), with mountainous and a hilly condition that complicate in providing and equity energy supply. In other hand, energy consumption is still dominated by resources that rely on fossil energy supply and quotas from the government so it is vulnerable to extinction of energy. Another problem is ineffective the use of the dirt cattle as alternative energy sources in rural areas.

To overcome the problems, Malang Regency Government have a program which one of them is to build the Energy-Helpself Village based the potential of local village to meet the needs of energy itself from renewable energy source, creating jobs and reduce dependence on fossil fuels. The program are:

1. Determine Wonoagung Village on Kasembon District as Energy-Helpself Village based Biomass through Malang Regency Major Decree Number. 180/366/Kep/ 421.013/2012
2. Determine Bendosari Village on Pujon District as Energy-Helpself Village based renewable Energy through Malang Regency Major Decree Number 180/363/Kep/ 421.013/2013
3. Determine Panggungrejo Village on Kepanjen District as Energy-Helpself Village based Microhydro Power Station through Malang Regency Major Decree Number 015/2014/421.117/2012

From the progra, it can be seen that the government of Malang Regency is currently implement a policy in energy sector which one is Energy-Helpself Village. The study is aim to know opportunities

and challenges of Energy-Helpself Village development in Malang Regency especially associated with the development of biomass.

MATERIALS AND METHODS

The approach for this research was mainly qualitative. A set of literature reviews was done by descriptively analyzing secondary data from the local government as well as related previous research. In addition there are also an analysis in order to see opportunities and challenges of the Energy-Helpself Village with SWOT Analysis. This study discussed the use of renewable energy in Malang Regency, which use 12 village that have most livestock production. This study aimed to identify the challenges and opportunities about Energy-Helpself Village development program including the policies and government programs and plans which relate to the Renewable Energy Development.

RESULTS AND DISCUSSIONS

Malang Regency Profile

Malang Regency is consisting of 33 district that manages 12 Urban village and 378 village (Badan Puda Statistik, 2015). Based on the geographical size, Malang Regency having the boundaries of as follows:

- West-east side : Lumajang Regency
- South side : Hindia Ocean
- West side : Blitar Regency
- West-north side : Kediri Regency and Mojokerto Regency

Malang Regency located on highland, it concerns Malang Regency are surrounded by some mountain and the lowlands or the valley. The condition of geology in Malang Regency specifically at the region of the south as the areas with infertile land, while in the region of the north fertile relative. Malang regency is drained by 18 river. The condition of the surface water in Malang Regency consisting a river that flows along Malang Regency, like Brantas River, Konto River, Lesti River, and so on. The condition of climatology in Malang Regency, the average air temperature is relatively low, ranged from 17°C until 32,5°C.

The total area of Malang Regency is 174.511 Ha which use broad land for settlement area of 6.729 Ha, paddy fields area of 49.519 Ha, Moor / garden Area of 98.685 Ha as well as the area of plantation area of 19.578 Ha (Badan Puda Statistik, 2015). Malang Regency has rapid development every year .The existence of facilities and infrastructure is one important element that must be considered in a spatial planning. According to the susenas results, Malang Regency population in 2014 were 2.527.087 person. The number is consisting of 1.269.609 male (50,24 percent) and 1.257.478 female (49,76 percent). Overcrowding of Malang Regency in 2014 reached 880 people/km. Overall, the population of Malang regency having low disparities index with value of Gini about 0,1313 (Badan Puda Statistik, 2015)

Profile of Energy Sector on Malang Regency

In 2012, Malang regency has 186 village that doesnt served with electricity with a total 10.215 families (Badan Puda Statistik, 2015). The growing of population also caused increase in the need for energy. The area malang district is big enough (353.486 ha) with geography the mountainous and difficult to supply and equity energy. Energy consumption is still dominated by resources that rely on fossil energy supply and quotas from the government so it is vulnerable to extinction of energy .The use of dirt livestock as of alternative energy sources also not yet made, while Malang Regency has large enough of livestock. The population and livestock production in 2014 generally increased. Main

livestock of Malang regency include both dairy cows and beef. The population of cattle from year to year is increasing.

Table 3. The number of livestock development in Malang Regency

Jenis Ternak	2011	2012	2013	2014
Cow	315.326	334.738	261.362	275.136
Buffalo	2.421	2.445	1.394	1.266
Sheep	194.269	203.932	225.374	235.121
Chicken	15.153.846	15.779.730	18.186.653	19.758.902
TOTAL	15.665.862	16.320.845	18.674.783	20.270.425

Sumber: Malang Regency in figures, 2015 (processed)

Although having high potential of livestock, the utilization of biomass is still not optimal, handlers and utilization of the dirt is still limited, sparking health problem, environment and sanitation. Besides that, the problem is mostly livestock potential located on villages that far and quite difficult to reach and often also face the problem of energy. With the existence of this condition, then Malang regency Government implement the programme development as many as 1.710 biodigester units in order to realize Energy-Helpself Village (Malang Department of Energy and Mineral Resources, 2014).

Analysis Supply Demand Energy

The Energy-Helpself Village could be divided into two concept, the first Energy-Helpself Village which developed with energy non fuel energy such as using solar energy and biomass. The second concept is using both of biofuel and renewable energy (Purnomo, 2011). The analysis biomass covered analysis of energy supply, analysis of energy demand and also analysis of energy supply biomass with energy demand. The criteria of Energy-Helpself Village if the village use amounted to 60% of the energy demand by renewable energy (PP Nomor 79 tahun 2014). In Malang Regency, there are 12 village with the largest number of livestock then selected to the research. From the data has obtained in 12 the village, got that some villages has reached a target for developed as Energy-Helpself Village. Following the results of which is due to rural development in Malang Regency:

Table 4. Supply Demmand Analysis of Energy-Helpself Village in Malang Regency

No	Village's Name	District	Existing Condition		Fulfillment
			Energy Supply	Energy Demmand	
1	Sumbersuko	Wagir	1.004,60	1.779,74	56%
2	Sukoanyar	Wajak	3.489.715,73	519.165,39	672%
3	Balesari	Ngajum	717.917,04	691.941,84	104%
4	Dalisodo	Wagir	911686,05	328513,14	278%
5	Bambang	Wajak	1014,67	1991,952	51%
6	Jambesari	Poncokusumo	418975,47	528406,12	79%
7	Karangnongko	Poncokusumo	1998278,64	663840,78	301%
8	Weinginanom	Poncokusumo	1598165,6	469684,4	340%
9	Kemiri	Jabung	1209484,44	581629,52	208%
10	Sumberputih	Wajak	1081448,28	445957,16	243%
11	Dawuhan	Poncokusumo	4045905	622961,71	649%
12	Petungsewu	Wagir	571.590	369.953,42	155%
AVERAGE			1.337.098,79	435.485,43	261%

Sumber: Analysis Result, 2013 (processed)

From the table above, from 12 number of villages were only two villages have not meet the criteria as Energy-Helpself Village while 10 other villages already meet the criteria as Energy-Helpself Village

with an average the fulfillment of reached 261 %. This indicates that in Malang Regency has the potential to developed the Energy-Helpself Village program based on the number of livestock and the fulfillment of energy needs that is.

An analysis of energy policy in Malang Regency

The Medium Term Development Plan of Malang Regency

Based on a review Medium Term Development Plan of Malang Regency year 2010-2015, the development in the field of energy and mineral resources forward in line with the vision of Malang Regency which says: Achieve Malang Regency independent, agamis, democratic, productive, forward, safe, order and competitiveness might be called “madep manteb”. The missions is accelerate the economy and infrastructure, through the guidance and supervision mining sector, control people activities potentially damage the environment, guidance and develop the ketenagalistrikan , management and supervision of oil , training and development of renewable energy and energy conservation , the provision and raw water treatment, development, management and conversion river, lakes and other water resources. From trouble abov, the barrier and driving affecting reach vision and mission.

Malang Regency Spatial Plan

The purpose of Malang Regency Spatial Planning is to realize safe space areas, comfortable, productive, and based on insight and sustainable of national security. Direction development for energy sector will further investigated energy infrastructure system network, covering of power and use of other energy (renewable energy) as a source of energy with the process of conservation. To optimize its potential energy and mineral resources, funds must have a minimum the aspect of environmenta , and do conservation mineral resources.

Strategic Plan of Malang Regency Department of Energy and Mineral Resources

In order to achieving the objectives and targets , the strategy took by by the department of energy and mineral resources was to accelerate achieving the objectives and targets set based on vision , mission set forth in policy and program in 2011-2015. The strategy are:

1. Manifesting resources management and keeping mining and geology resources capacity that beneficial for public welfare sustainably
2. Manifesting renewable energy development which independent and sustainable;
3. Electircity formation of development and energy development;
4. Realization of guidance and supervision / distribution operation of oil and gas;
5. Formation of infrastructure development clean water supply to prone to water.

SWOT ANALYSIS

SWOT analysis is an analysis aimed at understanding of all the information contained in a case, know the issue of what is going on, and decide what that must be done to solve a problem. SWOT Analysis can be used in plan a strategy, policy and work programs with regard to the situation and environmental conditions internal and external. From the analysis supply demmand and policies that there, then tranfered into the SWOT matrix to determine the opportunity and challenges of Energy-Helpself Village Program in Malang Regency.

SWOT		INTERNAL		
		Strength	Weakness	
		<ul style="list-style-type: none"> • The high number of livestock in Malang Regency • The results of the analysis supply demand showing that the village in Malang Regency enough to fulfill the criteria of Energy-Helpself Village • Related policy that support renewable energy development and program in Malang Regency 	<ul style="list-style-type: none"> • The absence of related biomass management potential in malang district • The village still have not served with electricity. 	
EXTERNAL	Opportunity	<ul style="list-style-type: none"> • There was a policy from the central government related to Energy-Helpself Village Program • Help from private sector related to the development of renewable energy infrastructure 	STRATEGY S-O <ul style="list-style-type: none"> • The determination of Energy-Helpself Villages which already meet the criteria as government programs • Cooperation with other stakeholder related to Energy-Helpself Village Program 	STRATEGY W-O <ul style="list-style-type: none"> • Assistance of facilities and training in the management of renewable energy to bring Energy-Helpself Village • Infrastructure development of renewable energy electricity to the fulfillment of villages have not been served
	Threat	<ul style="list-style-type: none"> • The use of fossil fuels increases with the number of the availability of as it 	STRATEGY S-T <ul style="list-style-type: none"> • Diversion of conventional energy use to renewable energy for common facilities in Malang Regency 	STRATEGY W-T <ul style="list-style-type: none"> • Give explanation about energy use to optimize the use of renewable energy

CONCLUSIONS

From the identification, known that opportunities and challenges related to Energy-Helpself Program in Malang Regency associated with some things. Opportunities come from the analysis supply demand that indicating potential of biomass energy in Malang Regency high working with 261 % average. In addition of policy analysis, there are also chances of the policy and government programs support the renewable energy and Energy-Helpself Program in Malang Regency. The challenge is a lack of knowledge the public related to use of renewable energy and therefore this potential energy that there still optimized in fact there are still many villages have not served by electricity. An potential owned by Malang Regency should can be used as solution in dealing problems inequality energy supply because opportunities derived from inside and outside of related to the fulfillment of energy needs .When expansion energy infrasturcture plans that was carried out well particularly relating to renewable energy source of energy and achieved by a Energy-Helpself Village Program. Second of issues about that deals with conditions of the community , should the government could provide counseling and training related to the use of renewable energy , so public can manage and develop the resources that they have in order to realize the Energy-Helpself Viilage Program.

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CONTRIBUTION OF SOCIAL NETWORK TO THE CREATION OF INNOVATIONS IN CRAFTING INDUSTRY IN TASIKMALAYA REGENCY, INDONESIA

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ABSTRACT

Nowadays, micro, small and medium enterprises (SMEs), particularly in developing countries, face difficulty to achieve business sustainability due to several factors such as lack of human, lack of access to capital resources and technology (Adiningsih,2001). Networking is important to encourage transfer of knowledge in order to create innovative ideas, which in turn increase added value of the business. According to Rothwell and Dogson (1991) exogenous innovation becomes critical factor to improve business competitiveness. In this regard, networking among various stakeholders will produce innovations that will further contribute to the local economic development. This study takes place in Tasikmalaya Regency that has long been known for its creative craft products, which are produced and owned by local people. Crafting industry in Tasikmalaya is a representation of typical SMEs in developing countries that was originally developed based on extended family networks. Therefore, this case study provides valuable lessons on how innovations are created in local business and how networking process between various actors contributes to it. Semi-structured in-depth interviews and questionnaires as well as secondary data collection from related agencies are applied to gather relevant information from related actors. Using qualitative analysis, the case of crafting industry in Tasikmalaya shows that social network contributes to the creation of innovation through the process of sharing ideas, knowledge, and individual preferences. However, the role of these networks in allowing the innovations to happen is not only a matter of access to information and channels, but more importantly is the capacity of individuals to absorb new information and transform it into knowledge and products.

Key words: SMEs, social network, innovations, collaborations

BACKGROUND

Small and medium enterprises are the backbone of global markets and play an important role in developing countries (Ardjouman,2014) and so in Indonesia economic activity. When economic crisis hit Indonesia in 1998, SMEs in Indonesia withstand the economic decline and not affected by crisis. Moreover, SME contribute 60,34% of national GDP and contribute 15,8% of national export value. (Kemenperin, 2016). Until 2015, there are 3,3 million units micro scale industries and 283.022 small scale industries in Indonesia (BPS,2016). Therefore, SMEs existence are necessary for national economy.

However, SMEs are susceptible to several problems such as inadequate access to capital, legal problems since most of SMEs are in informal sectors, uneducated labors, limited access to markets, and mealy research and development. (Andang, 2007). Most of SMEs produce conventional product with modest technology. Therefore, it takes effect on product quality and quantity. In contrast, industries from developed countries are oriented to sophisticated technology and quality-controlled mass production. Consequently, SMEs are not able to compete with larger industries. Indirect benefit of technology also prevent technological use and adaptation in SMEs. According to

Premkumar & Robert, 2010, in Ardjouman, (2014) there are several factors that cause SMEs unaware of technology ; uncertainty of technology benefit, lack of guidance and unfamiliarity with technology. In Indonesia, SMEs are the subject of National Law number 20/2008 on Usaha Mikro, Kecil dan Menengah (Small and Medium Enterprise). SMEs are classified based on net assets value and net annual sales which shown in Figure.1

Figure 1. SMEs Classification based on National Law umber 20/2008 on Small and Medium Enterprise

	Micro enterprise	Small enterprise	Medium enterprise
Asset value excluding land and properties value	< Rp.50.000.000	Rp. 50.000.000 < net < Rp. 500.000.000	Between Rp. 500.000.000 and Rp. 10 Millions
Net Annual Sales	< Rp. 300.000.000	Between Rp. 300.000.000 and Rp 2.5 Millions	Between Rp. 2,5 Million and Rp. 50 Millions

Crafting industry is one of eligible SMEs sector according to Keputusan Presiden (Indonesian President Decree) number 21/2001 on Small, Medium and Large Enterprise classification, which classified 19 main sectors of SMEs. According to Industrial Ministry of Indonesia, crafting industries is the second largest contributor in national economy (24,8%), just behind fashion industries (44,3%) (Ministry of Industry, 2016). Tasikmalaya Regency is the home of crafting industry in Indonesia. It has long been known for its crafting industries. There are diverse kind of SMEs industry in Tasikmalaya, but crafting is the most prominence industries.

Nevertheless, crafting in Tasikmalaya is almost not involved in the innovation process, so that the economic contribution tends to stagnate. Actually, this industry can take on a more significant role in the economy of Tasikmalaya Regency to increase added value and new ideas through innovation and knowledge transfer. Recently there are communications between economic actors, involving home industries, which began to discuss the development of business and the use of technology. Some proponents, such as universities and local governments, also helped this process. Only, it is not clear the extent to which this communication towards the establishment of a network that supports process innovation and knowledge transfer between actors.

This study aims to describe the process of networking and interaction of various actors in creating innovation in the crafting industry in Tasikmalaya regency to stimulate local economic development. The objectives of this study are as follows 1) Identifying the actors who have a role Tasikmalaya crafting industry 2) Analyzing actors network in crafting industry in Tasikmalaya regency and 3) Identify the creation and diffusion of innovation that is formed from the network of actors in the crating industry in the district of Tasikmalaya.

METHOD

This study use case studies approaching), is an empirical investigation to contemporary phenomenon by numerous data from various source. Data which are eligible to be used as source, according to Yin (2006) consist of; documentary, recording archives, interviews, primary observation, secondary observation and hardware. Basically, there are three main principals in data collection; various data sources, creating basic data for case study, and maintain series of proof. Data collection mainly rely on collecting primary data using in-depth interview method as this method are suitable for obtaining detailed information about the behavior of crafting industries in Tasikmalaya. In-depth interview is suitable to dig profound and detailed information from actors. In order to select the actors, we used the combination of purposive and snowball sampling. Purposive sampling is used to identify stakeholders based on several criteria which related to crafting industries along their hypothetical roles in crafting c, as well their motives and relation with other actors. Stakeholders are identified based on several criteria which related to crafting industries along their hypothetical roles in crafting industries, as well their motives and relation with other actors. Figure 3 shows the snowballing process carried out in this research.



Figure 3. Snowball Sampling Process

Data collection is conducted mainly by using in-depth interview which is suitable to dig detailed information. Each of interview are transferred as transcript interview. These transcript, afterwards, analyzed using content analysis method. Content analysis is a method to summarize content by counting elements of the content to create valid conclusion by interpreting and coding textual material from provided text such as documents or transcript. This study used semi-structured in-depth interview to collect data which are designed to capture information about connection and networking among actors to generate innovation in the industries. Motives, goals, channel of interaction and perception to other actors are the information that being asked to informants. Frequency and quality of interaction also being asked to measure how strong the bonds between actors, along the information flows in the proxies to identify dominant and influential actors. Qualitative method using content analysis is applied to pull out the key insights and findings both from secondary and primary data.

Social Network, Innovations, and Collaborations in Small-scale Enterprises

Jacobs (1969, p.57) defines innovation as the process by which new work is added to old divisions of labor, thus creating new products, processes, or ideas, and thus also new divisions of labor. In the same line, Feldman adds that "innovation is the novel application of economically valuable knowledge" (2000, p.373). In other words, innovation is a process of creating new, profitable products and ideas by incorporating observations or insights taken from elsewhere into the work one had previously been doing (Desrochers, 2001, p.378).

Building on this definition, innovations occur when individuals with high degrees of existing knowledge make novel and creative combinations of this knowledge with new insights observed or learned through spillovers (Desrochers, 2001). Individuals require a high degree of existing expertise to engage in innovation for a number of reasons. First, an extensive and sophisticated knowledge of the current work will provide insights into how to create new combinations when new observations arise through spillovers. Clearly, if one has only a superficial knowledge of the initial, current, work it will be less obvious how to make interesting departures from that work or important additions to it. Cohen and Levinthal (1994, page 227) note how this phenomenon exists at the firm level, referring to a firm's ability to leverage its installed base of expertise to sift through and take advantage of the signals it receives from the outside as the firm's 'absorptive capacity'.

After all, innovation adoption will lead to improved or new output which may be sold to more dynamic markets. It is argued that technological change requires more than the general forms of collaboration discussed above (Sandee, 1995). Technological change may require more explicit collaboration with small producers working together 'for specific purposes' (Schmitz, 1997 p.10). Such collaboration is often not confined to economic relations only, and it may encompass also social relations. This is most likely to be the case in rural industry clusters. Extended family networks are especially important when small-scale enterprises are all located in specific hamlets where certain families have been living for generations (Weijland, 1999). Collaboration is based on both economic calculations and social obligations. Whereas many earlier work has focused on the importance of

spillovers between firms as the important driver of regional growth, more recent findings have shown the importance of the connections between individuals and have suggested that the diversity of those connections is a more important factor. The encounters that create these individual connections are more likely to occur in a region with higher density.

The past decade has witnessed an increased interest in the concept of social networks after the seminal theses of Coleman (1988) and Putnam (1993). An area that has attracted a great deal of interest is the value of social networks in small-scale enterprise development. Revived by Coleman's (1988) and Putnam's (1993) theses, the social network concept has since attracted wider application in various development policies and programmes (Fafchamps, 2001; Jack, 2005; Katungi et al., 2007). The central tenet underpinning the social networks discourse is that it is a conduit of beneficial information to economic agents (such as small-scale enterprises) in achieving their economic goals.

An Overview of Crafting Industries in Tasikmalaya Regency

Tasikmalaya Regency is famous for its crafting industries and already has national markets. It is located in West Java Province, proximately 252 Km from Jakarta Special Capital Region and claim 2.712 km² of land in the southern part of West Java along other regencies ; Garut, Ciamis and Pangandaran. Tasikmalaya is a home for 1.8 million population (BPS,2013) where Agriculture is the basic sector of Tasikmlaya since it contribute to 41% of annual GDP alone, in 2014 (BPS, 2015). Local government have establish five featured industries based on its performances. They are Embroidery Industry, Bamboo industry, Blacksmith, Mendong Industry and Pandan Industry. Figure 4 show information about these featured industries including number of their center of distribution, number of production units, and number of workers, investment value, and production value. Embroidery Industries generate the most investment and production value along provide the most.

Figure 4. Data of Featured Industries, 2014

	Embroidery	Bamboo	Mendong	Pandan	Blacksmith
Number of Center	90	44	29	28	4
Number of Production units	2.233	1,509	1,647	841	323
Number of Workers	18.915	17,084	7,376	15.442	1,664
Value of Investment (Rp)	17.013.196.000	4,384,717,000	3,082,922,000	3.861.066.000	1,369,615,000
Value of Production (Rp)	1.078.155.000.000	307,576,000,000	103,168,800,000	316.176,000.000	112,320,000,000

Source : Department of Trading and Industries, Tasikmalaya Regency, 2016

All of featured industries in Tasikmalaya are family legacy which are passed from generations to generations. The bamboo industry, for example, which run the business solely without any serious competitor, got the business form his parent after his father passed away in 1999. He is the fourth generation to run the bamboo business which was established before Indonesia independence wars. Other example is the main producer in *Mendong Industry* which also possess the business from older generation. Their family have become the only dominant player in Mendong industry. Even nowadays, most of actors in *Mendong Industry* cluster are blood related. Each featured industries has its own cluster from raw material process to marketing and distribution. Chain production of each featured industries shown in Figure 5 to 9 respectively.

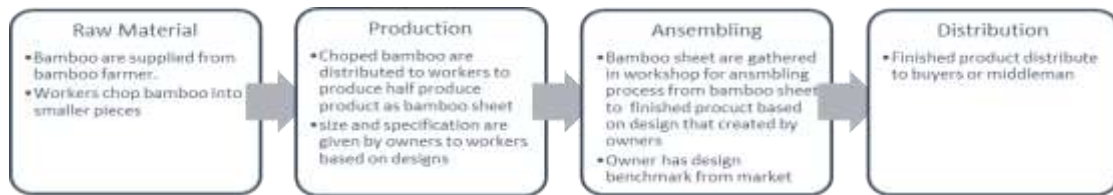


Figure 5. Bamboo Industry Process



Figure 6. Blacksmith Industry Process

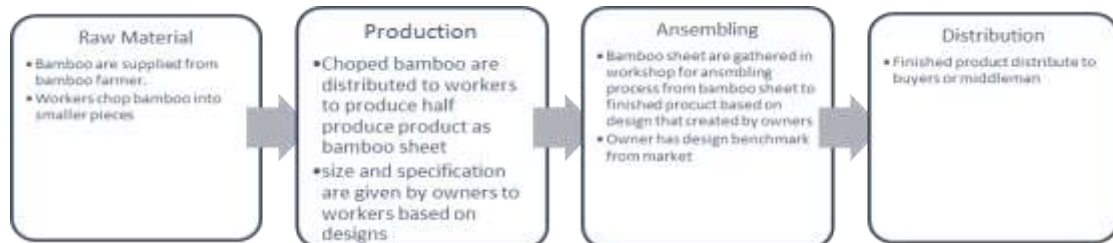


Figure 7. Mendong Industry

Network, Collaboration, and Innovation in Crafting Industry in Tasikmalaya Regency

Social Network, Channels, and Family Ties

Crafting industry in Tasikmalaya Regency has long been developed from family business. It is characterized by the entrenched kinship within limited family circles in specific area that has been there for generations. Therefore, it is very common among crafting industries in Tasikmalaya, especially among producers belonging to the same extended family or social group. Most producers can easily point out a number of relatives who are also involved in crafting production. In the last decade, there has been an increasing interest to develop industry clusters especially for small-scale enterprises in order to 'stay on board' along with the increasing regional competition and industrialization. Clustering crafting industry in Tasikmalaya is mainly based on the agglomeration of similar products that belongs to the certain extended family. It is rather established through a bottom up process taken places for decades. One of most established clusters is Creative Kampong Sukaruas, where *mendong* and *pandan* crafters and enterprises are located. Main producers are from the same extended family that have been living there and running their business for generations.

Some producers are also affiliated to the certain organization and/or community related to their business. However, there two type of participation, the first is that of supporting their business and the second is part of social obligation. The first type is regarded as a means to share information supporting their business such as exhibitions, raw materials suppliers, current trending design, market dynamics, etc, as well as promoting their products. There appear to be a relation between the networks built from this type of organization with the producers' education background and interests such as college friends and ethnic groups. In this regard, social media such as messenger and chat groups is most effective for this type of community. Due to its shortcomings in generating direct impact to the business, there is a trade-off between participating in the socially obliged organization and focusing on developing their business alone. One example is Association of Creative Kampong of Sukaruas or PKKS, that is an organization created by the extended family who has long been running crafting industry made of *mendong* and *pandan* in the sub-village of Sukaruas. Two respondents admitted that PKKS does not directly benefit to their business but they feel like they are obliged to participate

because the founders are their relatives. On the contrary, one of the founders think that establishing an organization is the best strategy in order to capture the bigger market and gain more collective benefits. However, this type of organization is exclusive to certain groups, that are family member and/or main producers who have direct access to the regional and/or international market.

Cultivating personal connection resulted from customer satisfaction has brought up small-scale producers' confidence in running their business alone. Crafters and small-scale business are usually not affiliated with formal organization. They build network with the buyers and other producers through an informal and personal connection. One cleaver crafter in Galonggong Village expressed his disinterest in joining such organization because of two factors : low trust in other producers and satisfaction in his own channel and network. In addition to kinship networks, there appears to be religion factor affecting business management. Tasikmalaya has been known for its religious culture where many religious boarding schools or *pesantren* are located. This influences how some producers manage their business. In Creative Kampong of Sukaruas, there was a debate when one of the biggest bank in Indonesia offered a sizable loan to support their business. The decision had been made by PKKS that loan from conventional bank is not allowed by Islamic system, so it was declined. And instead of using funding from banks, they collaborate to utilize capital, access the bigger market, and sometimes provide funding within their community. In this regard, family ties implied as social obligations that producers have to take, although it might be not in their short-term interest, but will be paid off at a later stage.

Without kinship networks, crafting industry community in Tasikmalaya is hard to maintain due to the lack of trust and different vision among its members. A key factor exhibiting this is the negative perception of some respondents towards other producers within their disbanded organization related to high self-interest and low work ethic. A more soft opinion coming from a respondent saying that it is just because of different orientation that their organization finally met its end. Support agencies play important role in channeling the producers to the bigger market, as well as facilitating collaboration between producers. We find that support agencies contributes to the creation of innovations and collaborations through inviting producers to visit exhibitions, raw materials suppliers, facilitating multi-stakeholders dialogue, providing trainings on new technologies and accounting system, etc. This often involves collaboration with universities and companies who have resources to provide such activities. However, some producers implied that although some trainings are useful, the government and universities need to identify the ultimate needs of the producers. Sub-district and village government also play a role in channeling the district government and buyers with the producers within their administrative area.

It is found that exhibition, especially organized by national government, play a central role in channeling the producers across regions that further creates collaboration and innovations in their products. Many big producers benefited from such exhibitions in terms of expanding networks among producers as well as suppliers, and accessing bigger markets. Through these exhibitions, they observe other products and share knowledge with other producers and suppliers, which later generate new ideas on their own products. Many of this process continue to be a collaboration and/or partners throughout the production processes. As a result, many designs and product are created and continue to evolve along with the market dynamics.

However, this channel is limited for big producers whose products has been registered in the government database or those who have channels to the inside government agencies. Support agencies rely on the database to deliver information as well as facilitate support to participate in such events. Accordingly, this bring out negative impression from those who are excluded from this circle. One respondent chose to bypass the district government in order to access support, by cultivating his network in national government.

Innovation, Internet Evolution, and Market Dynamics

Innovation emerges mainly in the downstream process, such as design and product diversifications. There is not so much changes in the raw materials. Problem identification, research, and problem solving process conducted independently by individuals with the help of family members. These individuals hold high degrees of existing knowledge resulted from their long experiences. As a result, creative combinations with new insights observed or learned elsewhere are often reflected in their

products, such as design and diversity of products. For the most part, innovation process is driven by the market dynamics in the form of market taste and preference which often influenced by national and international trends. During the crisis in 1997 and 1998, traditional crafting industry had experienced a significant decreased of demand of its products, which were deemed outdated. This has pushed the producers and crafters to adapt with the market preference. Competing with the incomparably cheap products from China, Thailand, and India, Indonesian crafters, especially in Tasikmalaya Regency have learned very quickly to meet the market demands through evolution in the design and modern product function. Aware of this situation, support agencies also provide trainings and various supports to improve SMEs' capability, emphasizing on technological use and product improvement.

Internet evolution is inevitably important to this process. Many design are adapted from the internet, with combination of existing traditional materials and design. Producers then create a prototype to measure the market response through their customers. Accordingly, they produce it massively when market responded well. To add more flexibility, most small-scale producers now apply customization of design proposed by the customers. It is not only benefited the customers, but also the producers in terms of new ideas of design. The evolution of internet created new opportunities for small and medium enterprises (SME), among which are social networks. Social media is becoming an increasingly important part of crafting industries' marketing and client development website platform. The perception of social media marketing has shifted quickly and no longer is viewed as a trendy or passing fad. It's now having flexible and well managed presence among the users of internet.

The most prominent use of online media in crafting industry in Tasikmalaya is product-client interaction type applied for marketing purpose, such as facebook. The online media functioned for research and advanced marketing/divulcation has not been popularly used. Technological barriers appear related to the age and education background. However, due to strong family ties, old producers are helped by their children to utilize online media in their business. Craftsman and producers who have long been in the business already aware of the pattern of market demand and have control over supply to the potential market. Channeling with the sellers is useful to identify changes in market preference. One bamboo craftsman respondent has been able to adjust its production along the year to meet market demands in any seasons within the year such as Eid season, new year, Christmas, elections, Independence day celebration, various festival in specific regions, etc. This pattern is gained through his experience over decades, as well as his networks across regions.

CONCLUDING REMARKS

Many earlier works emphasized innovation as a result of technological and knowledge spillover among firms. Although recent research found that individual connection play important roles to drive the innovation process within and across regions, our knowledge regarding the nature of social networks and how it works in supporting small-scale enterprises development is still limited. Despite there being consensus that social networks influence innovation and collaboration processes in many ways, there still is a scarcity of critical studies that demonstrate how these networks operate in the activities of small and medium enterprises. From the case of crafting industry in Tasikmalaya, it is found that social network contributes to the creation of innovation through the process of sharing ideas, knowledge, and individual preferences. However, the role of these networks in allowing the innovations to happen is not only a matter of access to information and channels, but more importantly is the capacity of individuals to absorb new information and transform it into knowledge and products. The question remains to be investigated in the future research is, if the supporting sector is to fully contribute to the socio-economic and regional development, what factors constitute this individual capacity to create innovation?

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RURAL WATER SUPPLY AND SANITATION IN NIGERIA: A CASE OF LOCAL EMPOWERMENT AND ENVIRONMENTAL MANAGEMENT PROJECT (LEEMP) IN ADAMAWA STATE

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ABSTRACT

Access to clean water supply and hygiene has effect to the wellbeing and sustainable rural development, by preventing waterborne illness to the people. Reasonable access of rural water supply and sanitation has not been attained in some African nations. Integrating the community based management project in rural water supply and sanitation strategies seems to be the best approach to run the scheme. This study used both qualitative and quantitative research techniques to obtain data on the implementation of LEEMP (local empowerment rural water supply and sanitation project) in Adamawa State of Nigeria. The result shows that the Project has impacted positively to some rural communities. However, there are still problems, low community participation, inadequate distribution and access to water and toilets, environmental contaminations, and prevalence of illness This paper implies that effective incorporation of rural communities in the implementation strategies require full community participation. This requires collective action, which ties them on sustainable maintenance of infrastructures, and improvements, in cultures, of personal hygiene as well as facilities improvement and benefits into rural water supply and sanitation, with balancing the aim of sustaining water supply and wellbeing of rural dwellers with sustainable development.

Key words: Community, Water supply, Sanitation, Participation.

INTRODUCTION

Community water supply and sanitation empowerment emerges as a result of failure of existing neo-classical development models to address issues, such as, inadequate access to clean water and lavatory facilities, outbreak of water bone diseases and indiscriminate open field defecation among rural dwellers and disparity in access to environmental hygienic. Others are inefficiency of popular participation, and Environmental contamination. Many studies have been described as a mean of achieving water supply and sanitary needs and individual's cleanness and not just in terms of higher national water supply and hygienic indices alone [1]. Rural communities in developing nations have suffered increased Marginalisation of distribution of water supply, sanitation and hygiene delivery, which led to the incidence of outbreak of epidemics, child and maternal death, low productivity, and out migration of youth population which have endangered the fabrics and structure of rural areas Provisions of adequate water supply and environmental hygiene of both rural and urban dwellers remain a serious problem in developing nations[2]. Water and sanitation issues leading to environmental pollution has not been properly address in the rural areas., and they are roots caused to outbreak of waterborne diseases, child and maternal mortality and morbidity cases, Thus, provision of reasonable rural water supply and lavatory needs in Nigeria is a great task as 60% of the 80 million people living in rural areas are poor [3]

THE CONCEPT OF RURAL WATER SUPPLY SANITATION AND HYGIENIC DELIVERY IN DEVELOPING COUNTRIES

Rural water supply and sanitation distribution in developing nations depends greatly upon funding and administration of various States and Local governments, while charitable societies, non-governmental organisation (NGO'S) International aids and grants supplemented the effort of these institutions, with provision of water supply and sanitation, in rural communities, the water supply and sanitation establishments are tasked with provision of water supply services and environmental hygiene needs of these agencies are enormous and their effort are often seriously under delivered and ill-equipped particularly in remote rural areas. The effort of governments in addressing deficiencies of water supply and hygiene provision in developing countries remain an enormous task, due to low beneficiaries' participation in the management process of *those* agencies. Despite the concept of community water supply and environmental hygiene as widely sponsored to be the Participatory development model, the project did not live up to expectation by involving the community stakeholders in the implementation of the rural development projects [4].

The objectives of this study is to provide sustainable rural water supply and hygiene delivery in Adamawa State of Nigeria, through public participation and environmental cleanliness. The failure of successive generations of imported western development strategies to deliver water supply and environmental hygiene problems in rural areas of developing countries has motivated a deep inquisitive of performance of western concepts and Methodologies of the rural water supply and environmental hygiene in the developing nations.

LEEMP Rural Water Supply and Sanitation Delivery in Nigeria

In 1990s, there was paradigm shift of rural water supply and sanitation enablement that incorporate water supply and sanitation programme with community empowerment. The local empowerment and environmental management project, (LEEMP) was introduced in Nigeria to empower local communities to co- design, finance and implement project of their own needs. It recognized sustainable water supply and sanitation delivery as the pre-requisite for achieving wellbeing and attending social strata in the society [1]. The issue of marginalization of rural areas, public institution capacity, accountability and transparency has been the serious concern in project planning of Nigeria. The main challenge is poverty alleviation and alarming rate of deterioration of rural water supply and sanitation programmes. un even distribution of rural water supply and hygiene outlets, Lack of continuity in policy from one government to another, low implementation of water supply and sanitation strategies, and poor management of scares resources for water supply and sanitation delivery. Improper-participation of the communities in the projects. Gleitsman *et al* (2007) revised that: governments at various level has realized the important role communities play in implementation of water supply and sanitation strategies, however insufficient community capability and inconsistency in government policies are set backs recognized in community participation.[5] Others are inadequate skilled personnel and support, reliance on volunteers, for water supply and sanitary interventions in rural communities, which have been verified as problems hindering effective implementation. Some experts have analysed the reasons for poor performance of this sector, on low level on technical knowhow in engineering and technical enterprises, improper planning for water supply and sanitation services for developing countries. The technical design provisions have been controlled by the donors and supporting countries, while the receiving communities have been typically left out of this critical design and planning phase for supervision of these projects [5].

Minimise Inadequate Distribution of Rural Water Supply and Sanitation Facilities

The LEEMP in Nigeria is targeted to address challenges in the rural water supply and sanitation as well as poverty alleviation through the construction and rehabilitation of industrial boreholes, hand boreholes, dug wells public toilets, and incinerators and economic empowerment strategies to improve the access of rural water supply and community hygiene. Adekola *et al*, (2015) describes water as the essential mineral nutrients necessary for survival of the humanity.it comprises of the

75% of the body weight, while its deficiency leads to the hypertension, and cholesterol. However, providing portable drinking water in rural areas is one developmental challenge facing governments in developing countries [6]. Kaiyatsa (2015) described water as basic domestic needs necessary to all communities. The water resource is essential for wellbeing and sustainable development. Although the water is necessary for human existence, majority of rural population in developing countries are denied access to safe drinking water. By tradition many rural societies in developing countries depend on surface water for their domestic services [7]. The community water supply management, requires the social involvement of all the community members as stakeholders in the rural water supply and sanitation programme. As a result, there is a need to provide appropriate technology transmission to the rural areas for effective service delivery. Adherence to community water supply and sanitation empowerment strategies in the rural areas requires sufficient empowerment of rural communities to address the problems of the inadequate distribution of water supply and sanitation projects in the rural areas. Dinkelman (2010) decried that ineffective distribution of rural electrification in developing countries, as a main problem of ineffective performance of water and sanitation facilities in those countries.[8]

Improve Access of Rural Water Supply and Sanitation Delivery

The rural water supply system consists of delivery systems consisting of basic facilities which serve as sources of water supply. They include wells, boreholes, and pipe-borne water, streams, rivers and dams while the pipe-borne water is occasionally provided in developing countries. Kaiyatsa (2015) studied that globally 1.1 billion people rely on unsafe drinking water sources for their domestic services, which is associated with the incidence of waterborne disease in their areas [6]. Rural water supply, and Sanitation are closely related components to rural development, and they constitute of the basic necessity of health [6]. Bakobie *et al*, (2015) revised that rural people relied on poor quality of surface water for their domestic activities, he warned that the lack of portable drinking water and sanitation system had rendered 70% of public ailments in the developing countries. The number of cases related to water and sanitation hazards are population pressure, poverty, cultural taboo, and environmental contamination. These are interrelated factors which are increasing over time with resultant effects of ineffective water supply and hygiene among rural people [9]. A study has indicated a critical relationship between the poverty and water supply and sanitation issues in developing countries such as population and water quality and hygiene problems. Majority of the rural population are living on unhygienic water sources, around marginal farms lands of low productivity and high vulnerability to environmental hazards. [10] In African countries a very strong connection has been confirmed between the rural poverty and the rural water supply and hygiene deprivations. For instance, water and sanitation deprivation in rural settlements led to the manifestation of illness and liability of diseases which also led to the outcome of natural incapacity of individuals, with less chance of working to earn their daily livelihood. [11] On his own contribution, Manila *et al*, (2014) argued that electricity is necessary for sustainable water supply, environmental management and socio-economic development [12].

Decentralize the management of rural Water Supply and Sanitation delivery

The LEEMP water supply and sanitation delivery programme is the community-driven intervention, (CDI) water supply and sanitation project in Nigeria, where the (CDI) is being undertaken at a household level. The CDI approach is to enable the community to take charge of the process of planning and implementing the intervention project and they work in collaboration with rural water supply and sanitation agency to manage their rural water supply and sanitation project. This was a follow-up of the implementation of the global focus of community participation in water supply and environmental management, reached at an International conference of water supply and environment held in Dublin in Ireland, in 1992 [13]. The role of the water supply and sanitation experts is to manage the service intervention of this programme at community level and provide guidance for the thriving of the rural water supply and programme. The LEEMP also encourages the community participation in the implementation of water supply and sanitation strategies and

enlightened rural people in the importance of sharing the responsibility of backing the water supply and sanitation programme. Agence Française pour le Développement (2013) argued that: community participation in rural water supply and sanitation project is a policy structure, involving the community and experts to assess the community water and hygiene needs to be pursued as means of improving their water supply and sanitation delivery programme [14] while Murtinho, (2016) revised that: community participation is inspired out failure of centralized government programmes, to deliver water and sanitation needs of the rural people. The decentralized water supply and hygiene programme assisted in cooperating the citizenry to participate in the design, evaluation and implementation of the rural water supply and sanitation programme. It is useful mechanism for providing sustainable, efficient and dynamic rural water and hygiene programme across communities, which enhance their socio economic development [15].

STUDY AREA

This study area covers Adamawa state, of Nigeria, one of the (9) nine States participated by LEEMP project in Nigeria, Adamawa State is located in the north eastern part of Nigeria, it lies between latitude 7° N and 11° N of the equator and between longitude 11° E and 14° E of the Greenwich meridian. Consisting of (9) nine local governments area of the State. Namely: Fufere, Ganye, Girei, Lamurde, Madagali, Maiha, Michika, Shelleng and Song, which were selected as (3) each in the 3 senatorial districts of the State. It is characterized by high population growth of 3.6% and rapid urbanization of about 7%. [16]. Based on 2006 population census, the study area has population of 3,178,950 people. About 70 % of the water supply and Sanitation facilities are made from local structures. The distribution of these facilities varies according to the local governments and geographical area. The spatial pattern of dispersal of these facilities fall within the mean working radius between 0.5-1.5 km to a water source and sanitation facility in local government areas of the State.[17]. Incidentally the rural areas with sparse population distribution are those with low index of accessibility of water sources and sanitation facilities, considering the tough topography of these rural communities and the needs for thin capital investment in those areas. The water supply and sanitation schemes are run separately between the local and the States governments, and they are lowly funded and ill managed. Moreover the water supply and sanitation facilities are extremely inadequate in the State .In spite of the distribution of abundance surface water throughout the State The mean monthly rainfall run off and discharge of River Benue at Yola is between 0.19- 3.8 /10m³ annually [18]. There is visible mixed stratification of the livelihood systems. The peasant farmers and sedentary pastoralist lives in same communities in most of the rural areas, while the farmers practice sedentary rain-fed farming, the pastoralist follow the traditional pastoral route from north to southern blocks in the dry season for seeking of greener pastures. The mean annual rainfall of the study area is between 700-900 mm at present, while the mean annual temperatures is 26 c° and relative humidity is below 70%, and the vegetation cover is savannah. In improving rural water supply and sanitation, the LEEMP and Ministry of Rural development encourages the rural communities to participate in rural delivery programme.

METHODOLOGY

The study used data from both primary and secondary sources, to study the rural health care management under the LEEMP project in Adamawa State, Nigeria. Data on the distribution of the LEEMP community water supply and sanitation infrastructures, in Adamawa state, and the distribution water sources and sanitation facilities and rural water supply and sanitary indices in the State were from secondary sources such as Adamawa State local empowerment and environmental management agency, Adamawa State water and sanitation agency as well as Adamawa State Ministry of water resource and the participating local government areas. While data on bio- data of respondents, community participation, management of rural water supply and sanitation programme and access to community water and sanitation services were obtained from primary sources.

Primary data

The primary data was obtained through household study, the data include data on back ground of the household, community participation, distribution of water supply and sanitation projects and water supply and sanitary indices among rural communities. Total of (500) respondents were designed for this study. A stratified random sampling was used and questionnaires were administered proportionately to (9) local government areas participating in LEEMP project in Adamawa State, Nigeria being the study area. Also sample with the study are staff of water and sanitation agency in the State. Interviews were held with the head of the households of the selected compounds across the rural communities in the study area. A total of (500) household heads were sampled, and this is supplemented by focus group discussion, and stakeholder analysis. All the respondents are concerns with the inadequate distribution of water supply and sanitation infrastructures in their areas which; they attributed as main causes of the prevalence of waterborne diseases being experience in the State

Secondary data

The secondary data has been sourced: from Adamawa state LEEMP as well as Ministry of water resources and State water supply and sanitation agency, and the rural water supply and sanitation divisions in respective local governments. The data included the distribution of LEEMP community water supply and sanitation projects in Adamawa state. The community water supply and sanitation data include funding and procurements, distribution of rural water supply and sanitary infrastructures, others are community sanitation programme, personnel entitlements, and privileges. These data were analysed from the previous records of LEEMP and the State water supply and sanitation agency.

DISCUSSION OF FINDINGS

The data and findings of this study is presented using descriptive analysis. The study results, shows that the. The community water and sanitation empowerment under the LEEMP experienced low participation and hence with low community contribution, with an accounts of 44% in the State. Some stake holders decried of exclusion from the implementation of community empowerment programme, other finding was, although the project had covered only nine local government areas. Distribution of water and sanitary facilities has improved by 36% and 33.6% respectively. There was also, 36 % increase in access to water supply and public toilets The aggregate of water sources shows that 23.2% fetch water from wells 10.4 % from streams , springs , ponds and rivers While 33.6 % are either obtaining water from pipes or hand boreholes The average walking radius to water facilities and public toilets has also reduced by 30% However still (39%) of the citizens has to trek a distance of 0.9- 1.5 km to water sources, distribution of incinerators in the State, had increased by 20% of the survey .Incidence of water borne disease had dropped by 35% after the project .

Table 1. Educational Background

Status	frequencies'	Percentage (%)
Adult education	100	20
Primary education	130	24
Secondary education	150	30
Tertiary education	120	26

Source: field work 2015

In Table 1, 26% of the respondents attended primary school education only, while 30 % had secondary school certificate, and 24% attended tertiary institution. However 20% of the respondent attended adult education only.

As indicated in Table 2, all respondents replied that there was no community water supply and sanitation facilities (0%) before LEEMP in Adamawa State, while 180 respondents representing 36% replied having community water supply and sanitation facilities in their communities after the project Respondents also indicated there was (22%) having access to public toilets before the LEEMP project. and they were increased to (44%).There was no one (0%) participated in the management of

these facilities before LEEMP, however ,after the introduction of the project 44% of the respondents admitted participating in the management of community water supply and sanitation programme .

Table2. Availability of Water Supply &Sanitary Facilities and Participation

Item	Before		After		Progress
	Frequency	%	Frequency	%	%
Availability of Community Water Supply and Sanitary Facilities	0	0	180	36	36
Community Participation	0	0	220	44	44
Availability of Public Toilets	200	40	220	44	04

Source: field work 2015

As indicated in Table 3, 100 respondents replied that they had daily access to water supply and sanitation facilities accounting (20%) before LEEMP in Adamawa state, while 280 respondents representing 56% replied having daily access to community water supply and sanitation after LEEMP. 120 respondents also indicated they were having access of water supply and public toilets on average five times in a week representing (24%). before the LEEMP project. However with the introduction of LEEMP 130 of the respondents representing 26% admitted having at least five days access of community water supply and sanitation facilities. Other category are those who are having access, of four days a week where 280 respondents accounting for (56%) replied having access to clean water and toilets before LEEMP .While only 90 respondents representing 18 % replied still having access of only four days weekly

Table 3: Accessibility to Water Supply and Sanitary facilities

Weekly water supply and lavatory access	Before LEEMP		After LEEMP		Progress
	frequency	%	frequency	%	%
Accessible in everyday	100	20	280	56	36
Accessible in five days in a week	120	24	130	26	02
Accessible in four days in a week	280	56	90	18	68

Source: field work 2015

Table 4: show that 64% of the respondents obtained domestic water supply from wells before LEEMP While only 40.8 % respondents are still sourcing their water from wells On the other hand 30.4% obtaining the water from either streams, ponds or rivers before the intervention and currently only 20% are obtaining water supply on the same sources

Table 4. Sources of Water for Domestic services

Water Sources	Before LEEMP		After LEEMP		Progress
	Frequency.	%	Frequency	%	%
Wells	320	64	204	40.8	23.2
Streams/ Ponds/Springs / Rivers	152	30.4	100	20	10.4
Pipes / Hand Boreholes	28	5.6	196	39.2	33.6

Source: field work 2015

Table 5: shows that 40% of the respondents were trekking a distance between 1.0-1.5 km to the water sources and public toilets before intervention, and they were reduced to 20% of the respondents after the project. 23% of the respondents indicated that they were tracking a distance of 0.9-1.4 km to the water facilities and public toilets, while 32 % of the respondents take the same distance to water sources and public toilets after intervention. Other category is those who were trekking a distance of 0.3-0.8 km to water sources and public toilets, they were (37%) before LEEMP, which were increased to (48%) after the project.

Table 5: Walking distance to Public Water Sources and Public Toilets

Distance to water Sources and public toilets	Before LEEMP		After LEEMP		Progress
	frequency	%	frequency	%	%
1.0- 1.5 km	200	40	100	20	20
0.9-1.4 km	115	23	160	32	10
0.3-0.8 km	185	37	240	48	11

Source: field work 2015

As Table 6, illustrates, 300 respondents (60%) replied that they had no access to basic refuse collection facility before intervention, which has been reduced to 200 respondents (40%) without access even after LEEMP. Other analysis is, 150 respondents (30%) indicated they have access to 1-2 incinerators around their neighborhood before LEEMP, which has been enhanced to, 220 of the respondents (40%) after intervention Other sorting are those who were with 3-4 incinerators around their compounds where 50 respondents (10%) before intervention, Which has being improved to 100 respondents (20 %) having prompt access to incinerators after the LEEMP.

Table 6: Distribution of Incinerators around Neighborhood

Number of Incinerators	Before LEEMP		After LEEMP		Progress
	frequency	%	frequency	%	%
Not available	300	60	200	40	20
1-2 Incinerators	150	30	200	40	10
3-4 Incinerators	50	10	100	20	10

Source: field work 2015

Table 7: Prevalence of waterborne diseases

Monthly Incidence of waterborne Disease	Before LEEMP		After LEEMP		Progress
	frequency	%	frequency	%	%
Dysentery	250	50	150	30	20
Bilharzia	150	30	100	20	10
Typhoid	45	09	20	04	05
No incident	55	11	230	46	35

Source: field work 2015

As indicated in Table 7(50%)of the respondents replied experienced dysentery due to depending on polluted water supply sources before LEEMP, which is reduced to (30%) after the project, Other category of (36%) replied experience of bilharzia before LEEMP , which were reduced to (20%) after the project Result also indicated there was (09%) incidence of typhoid before the LEEMP project. and they were reduced to only (4%).There was only (11%) with no incidence before LEEMP, however ,after the introduction of the project the percentages increased to (46%) of the survey.

Feedback from the Community in a Focus Group Discussion

In a focus group discussion, the staff of LEEMP reported low communities' participation in the water supply and sanitation empowerment projects in the state. The participating local governments' areas have the obligation of approving the community development project in their areas. On the other hand, the rural water supply and sanitation staff of local governments has received training from LEEMP and they signed the memoranda of understanding with the LEEMP for smooth implementation of the rural water supply and sanitation empowerment projects in their areas. The project suffered setback in the hands of communities as well as the local governments. Most of the communities did not raise their counterpart funding for the implementation of the projects. Likewise some projects were abandoned due to communal disputes, some local government cannot even sustain some regular upkeep of these projects. [19] It was reported that some of the facilities constructed by

LEEMP and were handed over to the communities and their respective local governments, do not undergoes daily operation by the communities due to lack of fuelling. A Community leader has decried inadequate of personal hygiene for the users of toilets facilities, while a staff has complained of Lack of financial autonomy of local Areas and low remittance of internally generated revenues has hindered support for effective maintenance of the communities' facilities.

MANAGEMENT AND POLICY RECOMMENDATION

Attempt to address the situation of inadequate distribution and access to rural water supply and sanitation delivery by rural communities needs to be supported. Community leaders and stakeholders must remain dedicated and response to the contribution and management of rural water supply and sanitation empowerment. The rural water access and hygiene dispossession is real with serious consequences on rural economy; although the results indicated that there are improvements in the distribution and access to rural water supply and sanitation delivery respectively. However, the community water and sanitation empowerments covered only some villages in 9 local governments of the study area. While the community participation in the project is low. The study recommends the following items, Creation of the department of the community water and sanitation empowerment in State agency for rural water supply and sanitation, in Nigeria. With a unit of a similar functions at primary health care departments of local governments areas. This unit will strengthen the local water and sanitation empowerment at rural areas, and building the capacity of the people for self-sufficiency in rural water supply and sanitation delivery.

CONCLUSION

The Community water and sanitation empowerment programme in Adamawa State, Nigeria has given some rural communities almost control of the implementation of the rural water supply and sanitation delivery programme, in their villages. The community participation under LEEMP intervention was intended to improve the outcomes of water supply, sanitation and wellbeing of the rural people. However despite some improvements recorded in some rural areas, still a lot of effort is needed to improve the programme. The failure of this self-help project to sustain for concentrated coverage of water supply and sanitation delivery could be attributed due to the, insufficient funding, rural poverty, inadequate water supply and sanitation infrastructures distribution in the State , A holistic approaches in desired in order to set standards in community water supply and sanitation delivery project A study has observed a strategy of improving community-based water supply and sanitation scheme through creating of enabling environment by provision of a mutual space shared by common way of live, and collective action among the rural people who overcome small difference to recognized a common goal in building their own, social capital and community capacity, sustainable economic development with a task for improving their own wellbeing , and cultural orientation common to all the community.[20].

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FISCAL DECENTRALIZATION, GOVERNMENT QUALITY AND SPATIAL INEQUALITY IN PENINSULAR MALAYSIA

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ABSTRACT

Fiscal decentralization has been widely deliberated as the panacea to the economic performance of a country, hence reduce the inequality between territories through effective and equitable service delivery by the subnational governments (Rodriguez-Pose and Krøijer, 2009; Rodriguez-Pose and Ezcurra, 2012; Martinez-Vazquez, 2011). Fiscal decentralization is significant in filling the gap of economic growth and municipal services between regions (Saavedra, 2010). Therefore, this paper substantiates the correlation between the capacity of local government and the occurrence of spatial inequality between areas in Peninsular Malaysia, which might influence by the practices of fiscal decentralization. Spatial inequality in this paper refers to the gap in standard of living. The fundamental research question in this research is how far the inter-governmental fiscal relations in Peninsular Malaysia can catalyse the existence of inequality between local areas through the government structure. This research will use correlative and descriptive analysis from the empirical evidence of selected local government, based on three (3) variables (i) Malaysia Local Government Star-Rating System as indicator for local government performance; (ii) legislative framework as fiscal decentralization's mechanism; and (iii) Gross Domestic Product (GDP) per capita as indicator for spatial inequality. *Majlis Bandaraya Shah Alam* and *Majlis Bandaraya Alor Setar* have been selected to gain empirical evidence from stakeholders. The finding of this research will either verify or refute the earlier suggestion that fiscal decentralization may influence the quality of local government in fulfilling its social obligations; which contribute towards the occurrence of spatial inequality between local areas.

INTRODUCTION

Fiscal decentralization has been vastly debates and explores lead by World Bank [1] which described it as transference of authority between multi-tiers of governments involves fiscal management. In other words, subnational government will be given autonomy to manage both their revenues and expenditures hence encourage efficient public services and better decision-making made by local government [2]. Fiscal decentralization has been broadly deliberated its effectual factor and panacea to the economic performance of a country hence reduce the gap between regions socially and economically [2]; [3].

Thus, there are many researches done in order to evaluate and determine the impact of fiscal decentralizations in filling the gap of economic growth and basic municipal services between regions [4]; [5]. There are also scholars who look at the connection between the quality of government and the disparities of spatial development [6]. However, there have been less extensive of research been touched on the impact of the fiscal decentralization towards the quality of the government which contribute to the occurrence of spatial inequality between regions. Presently in Malaysia shows that subnational government especially at local level face difficult task in fulfilling their duties which resulted imbalance of both socio-economic development between local areas [7]. As a result, little progress has been made by the government to reduce the socio-economic gap between these local areas which saw Malaysia recorded as one of the highest income gaps in Asia [8]. Thus, reducing disparity between local areas and equality has become one of the key objectives during the Ninth Malaysia Plan (RMK-9) until current Malaysia Plan (RMK-11).

The purpose of this research is to substantiate the correlation between the quality of government and the existence of spatial inequality in Peninsular Malaysia. This research also sought explanation whether this correlation may have related with the practices of fiscal decentralization by the government. Spatial inequality in this paper refers to the gap in standard of living. The fundamental research question in this research is how far the intergovernmental fiscal relation in Peninsular Malaysia can catalyse the existence of inequity between regions through the government structure.

This research focus on the empirical approach with both *Majlis Bandaraya Shah Alam* [9] and *Majlis Bandaraya Alor Setar* [10] has been selected as study areas to represent the local government system of *Selangor* and *Kedah*. This selection of city councils is based on the Malaysia Local Government Star-Rating System (SSR-PBT) [11] as indicator to measure the quality and performance of local government. A correlative analysis has been conducted based on two (2) variables; (i.) Malaysia Local Government Star-Rating System (SSR-PBT) as indicator for local government quality and (ii.) Gross Domestic Product (GDP) per capita as spatial inequality's indicator. Furthermore, this correlation is robust through the intervening of fiscal decentralization related variable and has been analysed descriptively. The findings of both correlative and descriptive analyses have either verify or refute the earlier suggestion that fiscal decentralization may influence the quality of government in fulfilling its social obligations, thus contribute towards the occurrence of spatial disparity between regions.

This paper is organized as follows; the second section covers on the literature review of the connection between government quality, spatial inequality and fiscal decentralization. Next section focuses on both the correlation and descriptive analyses of those three (3) variables; follows with the findings and discussion based on the analyses and its findings. The conclusion to this research is the final section of this paper.

LITERATURE REVIEW

Government Quality and Spatial Inequality

Local government as one of subnational government is a public institution that provides range of services as well as accountable to its stakeholder including Federal and State governments which provide fiscal grant and contribution. A quality government is not merely about delivering services, but also opportunity for public participation, sustainable environment and offering quality of life to its locals [12]; [13]. Quality of government can be defined as institution in a country which going through these practices; (i.) electoral process of government, (ii.) government's capacity in formulating and implementing policies and (iii.) public participation and accountability towards the government [14].

In providing facilities and services, local government depend on its fiscal capacity which based on revenues that can be generated both internally and externally within its jurisdiction area. Fiscal capacity may influence the quality of the government to meet the local communities need for better wellbeing [15]. There are number of factors that can affect the revenue of local government, hence influence its fiscal capacity. One of the factors is the way a local government manage its fiscal which suitable with the size of area under its jurisdiction, economic conditions, demographic structure and level of urbanization [16]. Spatial development such as commercial and industrial activities also contributes to more potential revenue resources [17].



Figure 1. The Benefit Principle of Municipal Finance [16]

Therefore, subnational government such as local government with greater fiscal capacity can encourage economic growth through reducing spatial inequality between local areas [4]; [18]. This is based on the assumption that local government can efficiently and effectively manage their resources to suit to the local preferences and needs [18]. Spatial inequality refers to the unequal distribution of resources and the existence of gap in standard of living between regions [19]. It has been widely discussed and debated by scholars and politicians for these past decades together with the progression of globalisation. This growing interest among scholars and politicians have been related with the fact that spatial inequality has been used as indication in measuring both stability and growth of social and economic development in a country, region and even individual [20]; [21].

Theoretically, spatial inequality is influence by the resources endowment and location-oriented decision made by firms and households where both entities naturally seeking for better environment that can offer better social and economic opportunities. Firms tend to choose locations that able to provide maximum profits while similarly households in search of better standard of living [6]; [22]. As governments play imperative role in providing and managing spatial development between regions, hence the quality of the government especially at subnational level play influential role in ensuring equity spatial development thus reducing the gap between regions [6]; [23]. Poor subnational government with lower fiscal autonomy may struggle to meet the need of firms and households which result them unable to compete with better subnational government. This will indirectly become the “push factor” for firms and households to move to better regions that can finance better municipal services and spatial development thereby contribute to urban-rural gap [19]; [24]; [25].

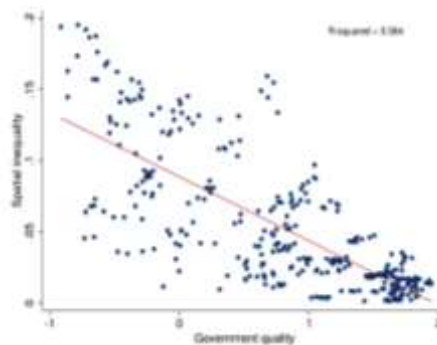


Figure 2. Spatial inequality and government quality, 1996- 2006 [6]

Study made by Rodriguez-Pose and Ezcurra [6] which based on 46 countries between period 1996 – 2006 indicated significant correlation between the quality of government and the scale of spatial inequalities. Figure 2 indicates that government that has better quality record lower level of spatial inequality whereas the quality of government has been measured based World Bank’s Worldwide Governance Indicators. However, this correlation has been proved only through the inclusion of additional explanatory variables such as GDP per capita and size of government which displays the fundamental role of government in reducing the spatial gap between regions [6].

Consequently, spatial inequality has become significant challenges for the government in many countries especially to the developing countries which recorded higher disparities compared to the developed countries. The finding from the study by Rodriguez-Pose and Ezcurra [6] indeed has substantiated the relationship between the quality of the government and the existence of spatial inequality. Thus, distribution of authority and fiscal resources between multi-tier governments has been pondered as solution to the spatial inequality. Fiscal decentralization has been widely discussed by scholars and politicians as medium in reducing the gap in standard of living between regions through effective and equitable service provision by subnational governments hence promote greater economic growth of a country [2]; [3].

Fiscal Decentralization and Government Quality

Fiscal decentralization refers to the structure of intergovernmental fiscal relations between central government and subnational governments. Fiscal decentralization comprises of four (4) main elements that form main structures of fiscal management system which are; (i.) assignment of expenditures responsibilities, (ii.) allocation of revenue sources, (iii.) intergovernmental transfer and (iv.) structure of subnational borrowing [26]; [27]. Theoretically, there are numbers of inconclusive arguments in regards the correlation between fiscal decentralization and the quality of government where it have been split into two (2) perspectives, one which support the existence of correlation between both variables while the other reject such connection. From the positive point of view, the implementation of fiscal decentralization has provide more employment opportunities in public sector at subnational level in order to ensure effective and sufficient administration and enforcement by local government in managing both its revenues and expenditures [28].

The benefit of distributing the fiscal autonomy to the local government will improve the delivery of municipal services and also reduce the information and transaction cost in providing these services [29]; [30]. This leads to another impact of fiscal decentralization through enhancement of consumer efficiency which encourages interjurisdictional competition between local governments. Households and firms as consumer and tax payers to the municipal services can evaluate the performance of the local government, in a same time compare with neighbour regions [16]; [24]. Unequal distribution of access to basic necessities and economic opportunity can be related with migration which saw people move between regions pursuing for better well-being [19].

In addition, fiscal decentralization encourage public participation in decision-making hence contribute to better transparency and accountability of the local government [5]; [31]. In other words, fiscal decentralization plays significant role in encouraging good governance and preventing corruption. According to Faguet [22], economically, fiscal decentralization will attract more firms and investors move in a region that has better resources and services as a result of this good governance. Better well-being and government quality will encourage willingness to pay for the municipal services among the local communities, hence improve the revenues and fiscal capacity of local government in managing its resources to the interest of the communities [5].

The demands and needs between regions are varies based on the local preferences which related to culture, economic and social structure and also resources available. Therefore, through fiscal decentralization, local government have the autonomy to diversify and expand their municipal services as they are better informed of the needs in their jurisdiction [26]. Based on the public finance principle of subsidiarity, local preferences are best met by local government rather than central government as such information can be gathered more accurate and less cost as local government is closer to the local [30]. Conclusively, from the positive perspective, fiscal decentralization contributes in improving not only the efficiency and performance of the local government; it also improves the economic growth through closing both municipal services and economic gap between regions [4]. In contrast, there are also studies that indicate the potential deficiencies of fiscal decentralization towards the government quality especially in developing countries. Some of the issues that have been inflicted by this intergovernmental fiscal relation are deficit increasing by subnational government, poor decision making, increased influence of interest groups and increase of inequalities between regions [15]; [32].

Fiscal decentralization has indirectly causes high dependency of subnational government towards the central government in a form of intergovernmental transfer such as grants and contributions thus result unsustainable fiscal management among subnational governments. Subnational government such as local government depend heavily on central government to assist in their liabilities as a result from their increased deficits [30]; [32]. Furthermore, the interjurisdictional competition between local governments to attract households and firms into their region may force some of the uncompetitive region unable to compete for fiscal capital and enforce the fiscal legislature especially in collecting taxes. The inability of poor-level local government to compete thus result them to rely heavily on central government contributions and supports rather than commit to their fiscal legislatures and policies [25]. By way of means, it is naive to expect that all local governments have satisfactory level of capacity and required good governance to manage greater fiscal autonomy

as a result of fiscal decentralization, as most of local governments in developing countries struggle to effectively manage such sovereignty [18]; [33].

In addition, policy maker usually less likely focus on the implementation of decentralization programmes and strategies which in the end cause difficulties for this intergovernmental relation to be successfully executed [34]; [35]. In developing countries, the reformation of decentralization in government structure often suffers from poor coordination, discrepancies of policy and resistance from key stakeholders, including central government which management issues are critical at both central and subnational levels [33]. Comparatively, fiscal decentralization has been proved a success in developed country rather than in developing and transitioning country government as implementing decentralization policies has been substantially difficult and need strong institution framework at all tiers as it requires sufficient capacities at all tiers to achieve the efficiency of fiscal decentralization [4]; [33]. According to Fjelstad [33], a proper establishment of fiscal decentralization should be based on three (3) main pillars which are, (i.) the needs to clarify the role and function of each government tiers including fiscal management, (ii.) the need of autonomy given to subnational in fiscal management and (iii.) institution structure which refers to sufficient capacity owned by subnational comprises of administration, fiscal and technical management in order for subnational to carry out their responsibilities effectively.

All shortcomings mentioned may contribute to intervention by central government, as a result of incompetency and dependency of subnational towards central government. Interventions by central government including through fiscal decentralization are indeed necessary at developing country as a way to prevent from fiscal failures by subnational government and also to ensure greater standard of living and economic growth [36]. Unfortunately, uncontrolled intervention by central government will eventually diminishing the fiscal autonomy, hence capacity of subnational governments to efficiently fulfil its role and function towards the local communities [37]. The autonomy possessed by subnational in managing its tax revenues may allow them to be independence and innovative in generating their own “good local tax” and managing a good tax system rather than allowing central government to take control and interfere in managing subnational revenues. The limitation of fiscal autonomy will therefore affect the quality and capability of the subnational government especially local government in reducing the spatial disparity between regions which left poor region unable to compete with rich region in attracting resources and developments [37].

ANALYSIS

This section starts with the selection of two (2) city councils as study areas in order to gather empirical evidence and data required. Selection of study area is based on the Malaysia Local Government Star Rating System (SSR-PBT) [11] as indicator for local government’s performance and quality. The selection of city council as study area for this research is based on the hierarchy-tier of local government system, including the stature of city council as capital city for a state with population more than 500,000 and annual revenue above than RM 100 Million [38]. Therefore, it indicates the level of spatial development and fiscal capacity of a city council, which made it suitable to exemplify the standard of living at both local and state level. An analysis of correlation between government quality and spatial inequality of two (2) states has been done as the primer analysis to meet the purpose of this research.

While the data and empirical evidences gathered were descriptively analysed to support the finding of the correlative analysis between government quality and spatial inequality. There are two (2) secondary analyses made in this research based on both data and evidence collected; (i.) legislative analysis of legal framework related to fiscal decentralization in Peninsular Malaysia and (ii.) trend analysis of fiscal management by selected city councils. The findings from these secondary analyses have either verify or refute the finding of primer analysis.

Table .1 Malaysia Local Government Star Rating System for City Council (SSR-PBT), 2009

State	City Council	Marks	Star Rating
Selangor	Majlis Bandaraya Petaling Jaya	80.50	4/5
Selangor	Majlis Bandaraya Shah Alam	80.10	4/5
Johor	Majlis Bandaraya Johor Bahru	79.40	4/5
Melaka	Majlis Bandaraya Melaka Bersejarah	77.40	4/5
Terengganu	Majlis Bandaraya Kuala Terengganu	76.90	4/5
Perak	Majlis Bandaraya Ipoh	70.85	3/5
Kedah	Majlis Bandaraya Alor Setar	62.05	3/5

Source: [11]

For the purpose of gaining empirical evidence and data, *Majlis Bandaraya Shah Alam* and *Majlis Bandaraya Alor Setar* as the highest and the lowest ranked city councils in Malaysia Local Government Star Rating System (SSR-PBT) in Peninsular Malaysia have been selected (**Table 1**).

Government Quality and Spatial Inequality

Subnational government especially local government play vital role in providing and managing spatial development in effort to close the spatial gap between regions including inter-state and intra-state. Therefore, the quality government play influential role in ensuring equity of spatial development [6]; [23]. In order to substantiating this connection, two (2) variables have been selected; (i.) the average rating for local government which represents the quality of government and (ii.) the GDP per capita [39] as living standard's indicator. As a result, the average rating for local government and GDP per capita in both Selangor and Kedah have been analysed based on the selection of both *Majlis Bandaraya Shah Alam* and *Majlis Bandaraya Alor Setar* as study areas and representatives of both states (Table 2).

Table 2. Average Star Rating (SSR-PBT) Award to Local Government and GDP per capita by States, 2009

State ^a	Average Star Rating ^b	GDP per capita ^c (RM)
Johor	2.5	18,878
Kedah	2	12,481
Kelantan	1.5	8,421
Melaka	3	25,397
Negeri Sembilan	2	25,595
Pahang	2	20,548
Pulau Pinang	3.5	30,098
Perak	2	15,809
Perlis	1	15,186
Selangor	3	28,468
Terengganu	2.5	19,102

^afocus on local government in every state in Peninsular Malaysia excluding local government from Wilayah Persekutuan Kuala Lumpur, Putrajaya, Labuan, Sabah and Sarawak as these states using different local government act.

^brefers to the average Star Rating awarded to the local government which comprises City Council, Municipal Council and District Council in a State

^cdata are based on the Malaysia Economic Time Series 2015 published by Department of Statistic, Malaysia [39]

Figure 3 indicates that government that recorded better rating has registered higher GDP per capita, with Selangor rated higher in local government's quality compared to Kedah. Concurrently, Selangor recorded higher GDP per capita than in Kedah, which suggested that households and firms in Selangor have better standard of living and greater economic growth. The existence of spatial gap between both states perhaps correlated to the difference of governance's performance in Selangor and Kedah. However, this correlation has been substantiated only through the inclusion of additional variables that intervene between government quality and spatial inequality. These variables justify the effect of fiscal decentralization towards the role of local government in reducing the spatial inequality between states. The inclusions of these variables are through secondary analyses.

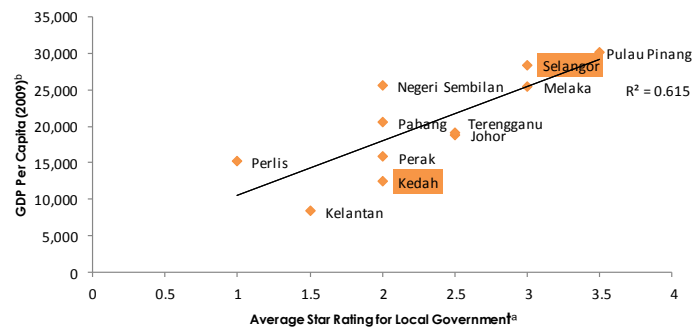


Figure 3. GDP per capita and Average Star Rating for Local Government, 2009

^ause as variable to indicate the quality and performance of local government in Peninsular Malaysia based on the Malaysia Local Government Star-Rating (SSR-PBT) 2009

^buse as variable to indicate the performance of economic and average standard of living for a state in Peninsular Malaysia which can be used to identify disparities between states

Both secondary analyses (legislative analysis and trend analysis) have been analysed descriptively using the data and experiential evidence collected from *Majlis Bandaraya Shah Alam* and *Majlis Bandaraya Alor Setar* as study area for this research.

Legislation Framework

The purpose of legislation framework analysis in this research is to determine the effect of current fiscal decentralization related legislature practice by government in Peninsular Malaysia towards the fiscal management of subnational government; especially at local level. In this research, legislation framework as fiscal decentralization's mechanism has been introduced by policy-maker to improvise the structure of intergovernmental fiscal relation between central government and subnational government. Three (3) legal mechanisms have been focused;

Federal Constitution 1957 [40]

Ninth Schedule **Article 4** Limitation of fiscal autonomy for local government as local government is under State Government jurisdiction.

Tenth Schedule **Article 1** Annual grant has been given directly by Federal Government (*KPKT*) without going through the State Government because of frequent *delay* in distribution which affects the fiscal capacity of local government especially the one that has small capacity.

Tenth Schedule **Article 2** Amount of road grant receive by local government is unpredictable where the amount of road grant received by State Government before it is been distributed is unknown. Thus, it indicates lack of transparency between government tiers in intergovernmental fiscal transfer.

Tenth Schedule **Article 7** This article highlights a form of intergovernmental fiscal relation between State Government and local government whereas State Government responsible in monitoring the revenue management of local government.

Tenth Schedule **Article 109** Amount of grants received by local government will be decided by the State Government. Presently, it has been directly distributed by Federal Government (*KPKT*) as a result of delay in distribution and lack of transparency by State Government.

State Grants 1981 (Act 245) [41]

Article 2	Grant for local government is calculated using a specific formula which has not been explained to local government. Thus, this lack of transparency has resulted local government unable to properly estimate their annual budget.
Article 3	Local government bound to follow its pre-estimated budget and need to submitted audit report of their annual fiscal report to the <i>KPKT</i> to be audited by Federal government. Practically, local government did not have the flexibility in utilizing the grant in order to optimize their fiscal capacity.
Local Government Act 1976 (Act 171) [42]	
Section 39	Both City Councils depend heavily on assessment tax as annual revenue compare to other sources. In addition, <i>Majlis Bandaraya Alor Setar</i> also depends on the grants to support their annual expenditures which indicate their lack of fiscal capacity.
Section 41	Local government did not fully utilize their right to use loan as one of revenue source. This might be related with the incapability of local government to make use the loan for other purposes than what have been stated in Section 41.
Section 46	Local government aware of their right to make loan or borrow from any legislatively permitted agency especially fiscal institution to finance any development within their jurisdiction and function. Local government also aware that they are bound to any requirement or condition that comes along with the loan made.
Section 55	Both city councils have to submit their incoming revenues and expenditures allocation to State Government for approval. Approved estimation of finance will be used by both city councils in managing their finance for following year. This will provide opportunity for State Government to intervene in local government budget management, hence influence local government in independently estimate their annual budget.
Section 57	Common scenario where the estimated budget for local government exceeds shows the lack of efficiency in managing and estimating budget by local governments. Besides, it also indicates the inability of local government to independently estimate their annual budget without the interference from State government.
Section 107	Both city councils have the right to utilize the usage of licensing and permitting as mechanism to generate revenues in a form of non-tax based source. However, license and permit is understood to contribute small amount of revenues to local government. It is related with the inability of local government to optimize the function of this revenue raising mechanism and also the lack of spatial development which can contribute to other sources of revenue such as charge and fee.
Section 127	City councils did not have the autonomy to freely change and increase the rate of assessment tax for their jurisdiction area which indirectly proves the intervention of State Government in city council's tax management.

Fiscal management Trend

In this section, comparative analysis between *Majlis Bandaraya Shah Alam* and *Majlis Bandaraya Alor Setar* is purposely to compare the trend of fiscal management between both city councils. Through this analysis, researcher able to identify the surplus and shortage of these two (2) city councils in managing its finance, thus influential to the performance of both city councils. This analysis focus on the average distribution and allocation of both revenue and expenditure sources for both city councils based on fiscal statement from 2000 till 2010 [9]; [10].

Figure 4 and figure 5 show vast gaps in both average tax and non-tax based revenues collected between *Majlis Bandaraya Shah Alam* and *Majlis Bandaraya Alor Setar*. Experientially, it is understood that these gaps might be related to the different of land regulation and spatial planning policy by both Selangor and Kedah. Most of lands around *Alor Setar* have been preserved as paddy cultivation areas which paralleled to the resources endowed and economic activity of Kedah as one of main paddy's producer. Thus, it restraint any potential spatial development in *Alor Setar*, hence effect the amount of both tax and non-tax based revenues that can be generated and utilised. Theoretically, both revenue sources generated from spatial development such as new residential and commercial areas; which attract households and firms to move in to the region.

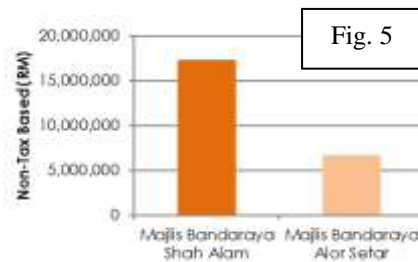
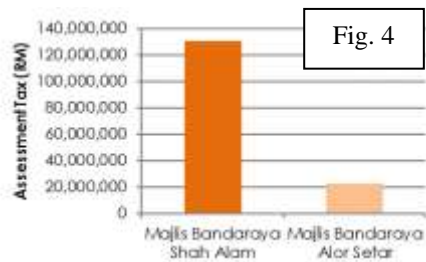


Figure 4. Comparative of Average Tax-Based Revenue (2000-2010)
 Figure 5. Comparative of Average Non Tax-Based Revenue (2000-2010)

Meanwhile, *Shah Alam* as capital city of Selangor and home for industrial and commercial based development manage to generate larger amount of tax and non-taxed based revenues annually through the assessment tax (RM 13 Million/ Year), rental (RM 9.8Million/ Year) and license and permit (RM 7Million/ Year). Empirical evidences show that in 2010, Selangor continues to become the main contributor in both construction and manufacturing sector to the Malaysia economic [39]. Another source of revenue for both city councils is the government grants (annual grant, road and development grants) which been distributed annually by Federal Government and State Government. The amount of these three (3) grants are varies between city councils based on population, fiscal capacity, and number of road and development projects. Therefore, from the Figure 6 shows that *Majlis Bandaraya Alor Setar* (RM 9Million/ Year) received larger amount of grants annually compared to *Majlis Bandaraya Shah Alam* (RM 8Million/ Year).

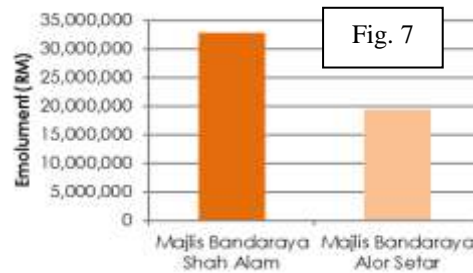
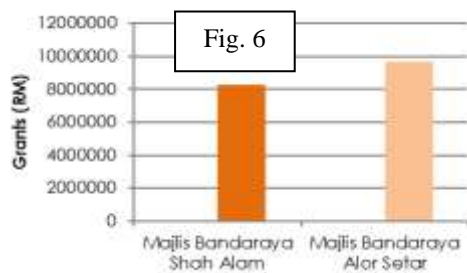


Figure 6. Comparative of Average Grants Received (2000-2010)
 Figure 7. Comparative of Average Emolument (2000-2010)

The differences of amount received by both councils might indicate that the fiscal capacity of *Majlis Bandaraya Alor Setar* is lower than *Majlis Bandaraya Shah Alam*, thus require higher grant to balance the annual deficit. Based on the revenue distribution for both city councils, the percentage of distribution for grants is larger in *Majlis Bandaraya Alor Setar* with average of 21% per year, while MBSA only recorded around 4% per year which highlight the dependency of *Majlis Bandaraya Alor Setar* to this intergovernmental transfer as one of the main sources for its revenue. While for the allocation of annual expenditure by both city councils, in term of emolument shows that *Majlis Bandaraya Shah Alam* spent larger than *Majlis Bandaraya Alor Setar* (Figure 7). This might be related to the territorial size of *Majlis Bandaraya Shah Alam*, which requires more council services to be provided. As a result of increasing of jurisdiction area and demand of service directly increase the number of employee in *Majlis Bandaraya Shah Alam*. This is to ensure that *Majlis Bandaraya Shah Alam* capable to manage and administrate its local area effectively and efficiently.

Maintenance and development expenditure can become suitable indication of spatial development's level in a region which show massive gap between both city councils. In fact, maintenance is the highest expenditures for *Majlis Bandaraya Shah Alam* with an average 48% from the annual expenditure have been allocated for this purpose. While for *Majlis Bandaraya Alor Setar*, the service and maintenance expenditure are lesser (Figure 8). From the empirical evidence, there is connection between the high allocation of budget for maintenance and service with the need of *Majlis Bandaraya Shah Alam* to increase the provision of services and maintenance around *Shah Alam* and its surrounding area. Additionally, the rapid development around *Shah Alam* such as new

residential and industrial areas require more council services to be provided to ensure equity council services and wellbeing between areas. While for *Majlis Bandaraya Alor Setar*, the indicate low budget allocated for maintenance which can be related with the spatial development around *Alor Setar* which much more slower compared to *Shah Alam* as a result of the spatial planning policy implemented.

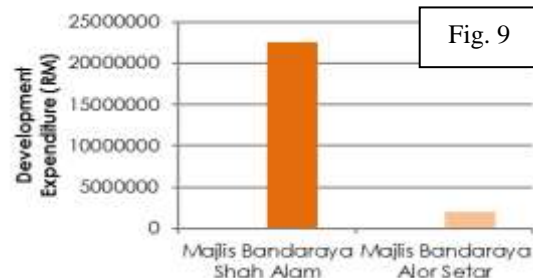
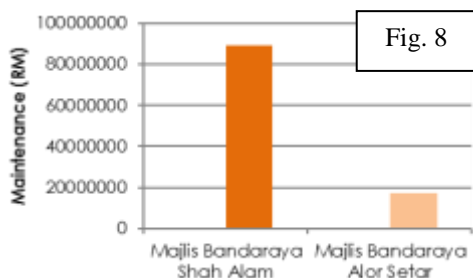


Figure 8. Comparative of Average Maintenance (2000-2010)

Figure 9. Comparative of Average Development Expenditure (2000-2010)

There is a gap in development expenditure between *Majlis Bandaraya Shah Alam* and *Majlis Bandaraya Alor Setar* (Figure 9). It can be associated with the different spatial planning policy and resources endowment between these two States which see Kedah focus more on agricultural related economy and land development, while Selangor emphasize on both manufacturing and service sector. Hence, for *Majlis Bandaraya Shah Alam*, these past ten (10) years have seen many developments approved by *Majlis Bandaraya Shah Alam*, which provide opportunities for more revenues sources to the city council. Besides, the increasing of population in *Shah Alam* indirectly requires more council services to be provided by *Majlis Bandaraya Shah Alam* [9].

FINDING AND DISCUSSION

The findings for this research consisted of issues and problems that have been identified through the supportive analyses of both intervening variables (legislation framework and fiscal management). These findings have supported the influence of fiscal decentralization towards the role of government quality in decreasing spatial inequality between regions (Table 4).

Table 4. Finding for Correlative Analysis and Descriptive Analyses

Correlation Analysis of Government Quality and Spatial Inequality
The presence of spatial inequality between both selected states correlated to the governance's quality in Selangor and Kedah
Descriptive Analysis of Legislation Framework
<ul style="list-style-type: none"> ▪ State government intervention – monitor local government's fiscal and grant management ▪ Lack of fiscal autonomy by local government ▪ Lack autonomy to increase rate and introduce new revenues ▪ Frequent delay in grant distribution to local government – effect poor local government ▪ Dependency on tax-based revenue - <i>Majlis Bandaraya Alor Setar</i> depend on grants indicate lack capacity ▪ Lack of Innovative on Non-tax based revenue ▪ Less dependency of non-tax based – lack of spatial development by <i>Majlis Bandaraya Alor Setar</i> ▪ Unknown amount of grants and contributions -lack of transparency between government-tiers ▪ Fiscal deficit - inefficient in managing budget and expenditure
Descriptive Analysis of Fiscal management Trend
<ul style="list-style-type: none"> ▪ Large gap of tax and non-tax based revenue generated by both city councils – related to spatial planning policy and land regulation by State Government ▪ Different of Gross Domestic Product and economic activity – related to resources endowment and spatial planning policy ▪ <i>Majlis Bandaraya Alor Setar</i> recorded grant as one of main revenue sources – indicate high dependency on Federal and State Government ▪ <i>Majlis Bandaraya Shah Alam</i> allocated more budgets for emolument and maintenance which indicate the

level of services and development administrated by this city council.

- Connection between level development and degree of services and maintenances provided - *Majlis Bandaraya Shah Alam* recorded higher.
 - Low development expenditure by *Majlis Bandaraya Alor Setar* related to the land regulation and spatial planning policy of Kedah Government.
-

From the correlation analysis between the quality of government and spatial inequality, it shows that Selangor which recorded greater local government quality register higher standard of living compared to Kedah (Figure 3). The connection between these two (2) variables is robust through the inclusion of intervention variables that function as fiscal decentralization's mechanism which related with the connection of both spatial inequality and government quality. The variables mentioned are the legislative framework and local government's fiscal management. Similarly to this research, Rodriguez-Pose and Ezcurra [6] through their research provide robust arguments and prove to the existence of correlation between the quality of government and the reduction of spatial inequality, which highlights the role of government in regional growth through spatial equity.

However, the differences between the research done by Rodriguez-Pose and Ezcurra [6] and this research are the variables analysed. Rodriguez-Pose and Ezcurra ([6] using Gini-coefficient as indicator for spatial inequality, while GDP per capita and government size as the mediating variable for the correlative analysis. Whereas in this research, spatial inequality signified by GDP per capita while the mediating variables indicated by both legislature framework and fiscal management of local government. Both variables have been analysed descriptively using the data and empirical evidence gathered; and the findings from these analyses have substantiated the finding from the correlative analysis between quality government and spatial inequality. In other words, there is indeed connection between the performance and capacity of local government, specifically fiscal capacity in decreasing the gap of living standard between states in Peninsular Malaysia. Additionally, this performance and capacity of local government have been influenced by numbers of factors including decentralization related factors.

Based on both analyses, the issues and problems that have been discovered are related to the intergovernmental fiscal relation which currently been practice by government in Peninsular Malaysia. The implementation of legislation documents (Federal Constitution 1957, State Grants 1981 and Local Government Act 1976) as mechanism for fiscal decentralization suggest that policy can affect the government performance - fiscal autonomy and later capacity of local government as a result of intervention by upper-tier governments in local government's fiscal management. This lack of autonomy by local government, as a result contribute to other issues related including over reliant on the intergovernmental grants and incompetence in managing both revenues and expenditures. The absence of transparency and good governance in intergovernmental fiscal relation also has been discovered through evidence gathered (Table 4). As a result, this has influence the capability of local government with lower fiscal capacity, hence struggle to compete with local government with better capacity to fulfill the need of households and firms and compete for fiscal capital. This indirectly become the "push factor" for households and firms to move to better state that can offer better standard of living and economic opportunity; thereby contribute to inequality between states. This can be proven through the data of migration which suggests that *Selangor* as the major receiving migration state for the period from 2010 to 2011; followed by *Pulau Pinang*, with many migrants come from *Kedah* (30.9%) [43].

Consequently, as reducing disparity between regions and equity has become one of the key objectives in Malaysia Plan (RMK 9 – RMK 11); policy-maker should focus more on the implementation of fiscal decentralization policies and how it effect the operation of subnational especially the local government. Even though a degree of intervention is necessary in order to prevent from fiscal failures by local government and also to sustain the economic growth, but uncontrolled intervention will eventually reduce the fiscal autonomy of local government in a long run. Nevertheless, although it has been verified from this research that there is substantial evidence that fiscal decentralization did influence the quality and capability of government, it is also important to understand the fact that the quality of government also can be influenced by other factors. From the findings, it also proved that the implementation of other legal documents and policy such as land

regulation and spatial planning policy by State Government which differs between states also play influential factor in dictating the level of spatial development in a state. The resources endowed and economic sector of a state can also affect the capacity and quality of government through the revenues generated. These factors nonetheless are parallel to fiscal decentralization in differentiating the level of quality between governments; henceforth contribute to the increasing of disparities between states in Peninsular Malaysia.

CONCLUSION

Local government as a public institution provides range of services as well as accountable to its stakeholder. As a public institution, a local government is expected to provide satisfactory level of service to its local communities. In order for local government to meet the needs and demands of both households and firms, the quality of the government play important part in ensuring equity spatial development, thus reducing the gap between regions. Theoretically, spatial inequality is influence by the decision made by households and firms which seeking for better environment that can offer better standard of living and maximum profits. Therefore, poor local government with lower fiscal capacity may struggle to meet the need of these tax-payers and unable to compete with better local government. As a result, decentralization of fiscal resources between multi-tier governments has been pondered as solution to this challenge.

However, there have been split perspectives regarding the effect of fiscal decentralization towards government quality. From the positive perspective, fiscal decentralization contributes in improving the efficiency of the local government and service delivery, and also promoting the economic growth. In contrast, it provides platform for central government to interfere, as a result of incompetency and dependency of subnational towards central government. Central government's interference is necessary at developing country in order to prevent from fiscal catastrophes. Unfortunately, uncontrolled intervention in long run may diminish the autonomy, hence capacity of local governments to efficiently fulfil its role and function towards its stakeholders.

For the purpose of this research, *Majlis Bandaraya Shah Alam* and *Majlis Bandaraya Alor Setar* as the highest and the lowest ranked city councils in Malaysia Local Government Star Rating System (SSR-PBT) in Peninsular Malaysia have been selected to gather data and experiential evidence. Correlative analysis between average quality of local government and GDP per capita indicate the existence of potential correlation between both variables. The primary analysis shows that state with greater local government quality, recorded higher GDP per capita, which represent better standard of living. In order to verify the correlation between these variables, secondary analyses have been done which based on the data and evidence gathered earlier from selected city councils. These data and evidence has been analysed descriptively and included as mediate variables to the connection of government quality and spatial inequality.

Conclusively, although it has been substantiated from this research that there is substantial evidence that fiscal decentralization did generally influence the fiscal capacity, hence quality of local government, it is also important to understand and aware of the influential effect by other factors which can differentiate the performance between governments. These factors can be related to the legislation factor such as spatial planning policy and land regulation which under the jurisdiction of State Governments, and also the resources endowment and economic structure, which differs between regions and states. Therefore, these differences in the end might play some significant part in catalyzing the inequity of spatial development between states and regions in Peninsular Malaysia.

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THE IMPACT OF ISKANDAR MALAYSIA DEVELOPMENT REGION TO RURAL AREAS: GELANG PATAH AND SURROUNDING AREAS

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ABSTRACT

Development Comprehensive Plan (CDP) is a document used to determine the direction of Iskandar Malaysia Region. Comprehensive Plan (CDP) comprises of strategies and initiatives that are made especially for the development of rural areas. Hence, the CDP document has identified 16 places of small towns which located in rural areas. Therefore, Gelang Patah and surrounding area is one of the towns that are located outside of the town and as a role in providing services to 5,888 people with a total area of approximately 142.60 hectares. Location of Gelang Patah and surrounding area have seen strategic because near to major developments in Iskandar Malaysia Region such as Nusajaya, Legoland, Medini and Senai-Tuas highway. Besides that, the physical developments in Gelang Patah town have brought improvement especially in the changes of land use, trade patterns, and infrastructure development. As such, the study is to identify and evaluate the impact of the development of Iskandar Malaysia to the rural areas, especially in Gelang Patah town and surrounding it.

Key words: Gelang Patah and The Small Town, Physical development, Development Implication

INTRODUCTION

Vision 2020 is a Malaysia expectation to achieve a high technology and progressive income nation by 2020. Malaysia's economic development plan is a progressive way of government's towards to achieve those goals. Therefore, in the *Ninth Malaysia Plan* (9MP) there are a variety of initiatives and Projects been planned to improve the economic development to the country. Base on Comprehensive Development Plan, among the planned projects include an initiative that could lead to economic growth in Malaysia with the proposed of Iskandar Malaysia Development Region (Khazanah Nasional, 2006) (refer Figure 1.0).



Figure 1. Area Of Iskandar Malaysia Development Region

In the Iskandar Malaysia Development Region, there are nineteen (16) small towns that have been identified and one (1) of the the small towns is of Gelang Patah Town. Comprehensive Development Plan 2006-2025 and Johor Bahru Local Plan 2020 (amendment) will be referred in particularly to evaluate this study. Therefore, this study will be carried out in specifically to evaluate the Impact of Iskandar Malaysia Development Region to Rural Areas especially in Gelang Patah town and Surrounding Area. Subsequently, the boundaries of the study have been identified by Mukim in order to evaluating and analyzing the impact in Gelang Patah Small Town and Surrounding Area.

LITERATURE REVIEW

Definition of Regional Development

According to Richardson H.W (1978), region is an area which will not overlap and will cover the entire country if combined. Normally it has a strong connection with the economy. Regional Planning is an area which economic and policy decisions been implemented and to represents the integrated power. Regional planning is more similar to the implementation of economy planning prior to achieve National Economy Objective. Czamanski (1973), also stated that region is an area in National Economy which structurally quite comprehensive and function independently even though in reality it certainly has a strong relationship with the rest of economies. Richardson H.W (1978) also stated that to define the boundaries of the area is not an easy matters. There is no satisfactory methodology even though the economic, administration, history criteria or etc had been used. However, the purposes of this study are to determine the boundaries of regional development in Iskandar Development Region area which was approved by State government. Economic criteria and strength hen of administration is seen as an important element in determining the boundaries of Iskandar Development Region. This was apparent when major project sand developments with high impact are located within Iskandar Development Region.

Definition of Small Town

According to Katiman Rostam, (1988), the settlements which have a population of 10,000 person sand over can be designated as a city. Accordingly, the Department of Town and Country Planning, Peninsular Malaysia (2009), has given a definition that the city is a gazetted area and located in the urban limits and contains as below:

- a. The area is approved as a residential land committed or specialized
- b. Minimum population of 10,000 people.
- c. At least 60% of the working population (aged 15 years and above) engaged in non agricultural activities.
- d. Public facilities;
- e. The center of district administration.

According to Berry and Garrison (1958), scatter town according to rank and size, typically town can form as loping straight line from the largest city in the lead up to the smallest town in the Township System due to second town, third town, big four town will be below in sequence according to certain rules. This common scat terisa not her explanation of scatter town as a services centerin the city by the idea of Chirstaller (1996). Moreover, Abduland etc. (2006) stated that urban layers can be made based on size and function in urban hierarchy. The biggest city has a variety of services and goods in large volume. The biggest city also had and distributed goods and services to each smaller city which able to provide. In this context they also clarified that the number of people in the first layer of city is greater than the population of the city in second layer, while the total population in both larger than the population in third layer, and so on. Therefore, the Department of Statistics, Malaysia also made a classification of the urban hierarchy, as per table below (See Table 1.0). Rated will be used to determine suitable areas to carry out the research.

Table 1. Urban Hierarchy

Urban Hierarchy	Population
Metropolitan	75,000 and over
Large city	10,000 to 74,999
Small Town	1,000 to 9,999
Rural	Remain in areas

Source: Statistic Department of Malaysia, 2000

In the Iskandar Development Region, there are 3 level so hierarchy of which is described in the Comprehensive Development Plan, 2006-2025 (See Table 2.0). The three-level of urban hierarchy works as supply a wide range of services to the residents. Accordingly, the following table is an overview of the urban centers and hierarchies defined in the Comprehensive Development Plan, 2006-2025:

Table 2. Urban Hierarchy In Iskandar Development Region

Urban Hierarchy	Area/City/Main Town
Growth Conurbations Of Southern Region	South Johor Economic Region
Town Center	Johor Bahru Central Planning Area Nusajaya Central Planning Area
District Center	Senai-Skudai Pasir Gudang
Residential Center	Permas Jaya, Taman Rinting, Kota Masai, Tg. Langsat, Mount Austin, Ulu Tiram, Taman Setia Indah, Bandar Inderapura, Ayer Bemban, Pekan Nenas, Tanjung Pelepas, Gelang Patah, Perling, Tampoi, Danga Bay, Pusat Kreatif Nusajaya

Source: Comprehensive Development Plan, 2006-2025

Strategy and Concept of Physical Development in Iskandar Malaysia

Iskandar Regional Development Authority (IRDA) through the Comprehensive Development Plan, 2006-2025 has formulated ten (10) Physical Development Strategy to achieve development goals, especially in Iskandar Malaysia region. Therefore, the physical development strategies outlined are a major focus of research in evaluates the impact of Iskandar Malaysia development to rural areas. Among the physical development of the strategies are:

Table 3. Physical Development Strategies In Iskandar Development Region

Strategies	Focus Development
Physical development Strategies 1	Ensure a balanced development within The SJER by Reaffirming distribution and enhancing efficiency through focused development in certain corridors. - Creating balanced growth in development corridors
Physical development Strategies 2	Protect and conserve natural, historic and open space resources to improve the quality of life. - To ensure that natural forest reserve, mangrove, animal sanctuary and water catchment areas are protected and gazette.

Physical development Strategies 3	Focus development in the areas where existing and adequate infrastructure exists, build further enabling infrastructure. - Focus in areas where ready resources and infrastructure are available and adequate. - Explore and construct for a new enabling infrastructure including infrastructure development such as the coastal highway to increase development potential.
Physical development Strategies 4	Promote in-fill and development in existing communities, including brownfield sites. - Establishing a sustainable future land use plan.
Physical development Strategies 5	Enhance accessibility by improving regional and east-west linkages as well as provide alternative modes of public transportation - To create sustainable economic growth in southern region with accessibility.
Physical development Strategies 6	Promote key economic initiative that will become focal point for the growth within region. - To create new development catalysts within the region. Initiatives as well as an MSC Cyber City are among the new initiatives to provide growth catalyst for Iskandar Malaysia.
Physical development Strategies 7	Plan and develop SJER as one integrated global node consisting of Johor, Singapura and Indonesia. - To Strengthening SJER international linkages as well as attaining a Critical Mass.
Physical development Strategies 8	Manage regional development Especially in the periphery areas of SJER. - To manage the growth of its periphery areas as well as ensuring plan for areas outside SJER.
Physical development Strategies 9	Plan for innovative and sustainable infrastructure and utilities. - Encourages efficient use of energy and alternative energy that leads to substantial saving.
Physical development Strategies 10	Promote Planned communities that will produce quality neighborhoods. - Produce high quality neighborhoods with high liveability factors.

Source: Comprehensive Development Plan, 2006-2025

OVERVIEW OF IMPACT

As stated by Harry W. Richardson (1978), Regional Planning is a policy and the government's plan to create a new economic region. Besides, the main policy is intended to improve and enhance the development potential of an area. So that, the State Government of Johor together the federal government has plans to create a new economic area through the establishment of the Iskandar Malaysia in year 2006. Iskandar Malaysia region covered of 221,634.10 hectares and located in the state of Johor. The area also has 3 main districts, namely, Johor Bahru, Kulajaya and part of Pontian. Besides that, the area also has five (5) Local Authority which is Majlis Bandaraya Johor Bahru (MBJB), Majlis Perbandaran Johor Bahru Tengah (MPJBT), Majlis Perbandaran Kulai (MPKU) Majlis Perbandaran PasirGudang (MPPG) and Majlis Daerah Pontian (MDP). Iskandar Regional Development Authority (IRDA) was an agency that been established to coordinate and facilitate the development of "South Johor Economic Region (SJER) or now known as Iskandar Malaysia Region. Therefore, the developed Iskandar Malaysia will be studied particularly to assess the implications on the rural areas of Gelang Patah and surrounding, especially after 10 years of its development. Iskandar Regional Development implications will be assessed by three main factors:

Land Use Changes In Gelang Patah And Surrounding Area

Before the development of Iskandar Malaysia, the land use of Gelang Patah and surrounding area is agriculture with **64.74 Percent** from the total (See table 4.0). The area also is a small Residential center with a percentage of commercial land use **0.16 Percent**. After the development of Iskandar Malaysia development region, a small town of Gelang Patah and surrounding has been zoned as Flagship B Nusajaya (Refer Figure 2.0). Flagship B has been designed by the IRDA mainly to develop this area with development of Johor State New Administrative Centre, the new Business and Financial Centre, MSC Cyber City and the Cyber Park Nusajaya and Education Center.

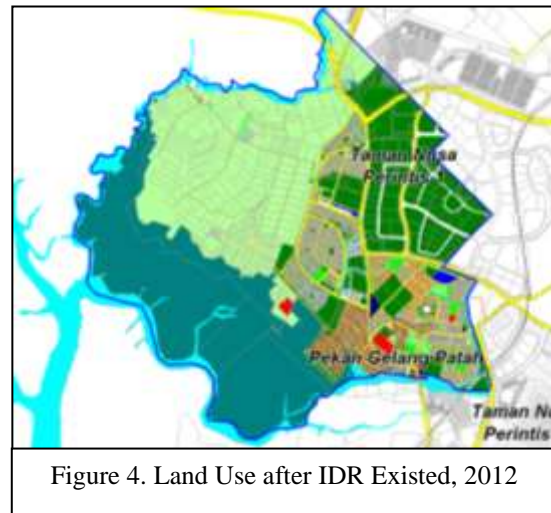
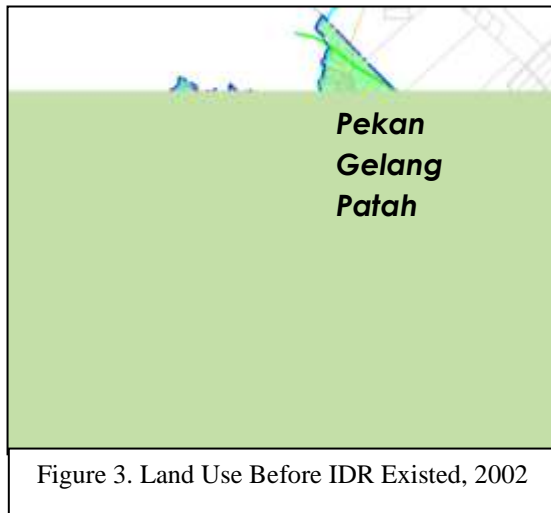
Table 4.0: Percentage of Land Use In Gelang Patah And Surrounding Before And After The Development Of Iskandar Malaysia

Land use	Before Iskandar Malaysia Development Region		After Iskandar Malaysia Development Region		Percentage of Comparative Analysis
	Hectares	Percentage	Hectares	Percentage	
Housing	81.00	3.80%	105.00	4.87%	+1.07%
Commercial	3.53	0.16%	13.51	0.64%	+0.48
Agriculture	1399.50	64.74%	820.56	37.97%	-26.77
Open Spaces	14.00	0.64%	22.71	1.05%	+0.41
Forest	501.00	23.18%	501.00	23.18%	maintain
Infrastructure and Utility	3.68	0.17%	14.38	0.66%	+0.49
Facility	20.30	0.93%	28.37	1.31%	+0.38
Road	89.00	4.11%	210.00	9.71%	+5.6
Empty Land (Committed Development)	30.11	1.39%	426.59	19.74%	+18.35
Other	18.90	0.87%	18.90	0.87%	maintain
Total	2161.02	100%	2161.02	100%	



Figure 2. Flagship Zones in Iskandar Malaysia Development Region

In year 2008, there were several major developments planned by the IRDA has already been implemented in Flagship B (Nusajaya) which is the Johor State New Administrative Centre, the new Business Center (Medini) and Iskandar Putri's education hub. The development has been carried out is located near to small town of Gelang Patah and its seen to have given major impact to the changes of land use activities in Gelang Patah town and surrounding. (Refer Figure 3.0, Figure 4.0 and Table 4.0)



From this comparative analysis, it was found that, land use Empty Land is a major land use change by 18.35 percent increase after the development of Iskandar Malaysia region. Therefore, changes in land use gives a clear picture that the development of Iskandar Malaysia can provide a huge implication to the changes of land use in the study area. In addition, changes of land use also have affected the development of small town and activities in Gelang Patah (**Refer Figure 3.0 and 4.0**). Before the development of Iskandar Malaysia region, the border of Gelang Patah is located within the radius 1 km from the town center. However, after 10 years development of Iskandar Malaysia, Gelang Patah were found to have growth and progression which particularly within 2.- 3 km from the town center.

Therefore, the condition clearly shows that the Iskandar Regional development has brought changes in the function and hierarchy of Gelang Patah that has a population of 5,888 people previously to a main settlement with population of more than 10,000 thousand people in year (2015).

Business Patterns

From the observations made, the development of Iskandar Malaysia is seen affecting business activities in Gelang Patah and surrounding. According to Mohd Hilme, (2010), development of new commercial or business areas has led to a business drop especially to retailers in small town. In addition, the implication of Iskandar Malaysia also has given major changes to the commercial or business activities in Gelang Patah town and surrounding. Before the development of Iskandar Malaysia, commercial activity in Gelang Patah is seen more conventionally in giving the services to the community. However, commercial activity in Gelang Patah and surrounding has improvement after development of Iskandar Malaysia. This situation can be seen when the new commercial or business activity has existed such as increasing of hotel, hypermarket, KFC restaurant, phone shops, and so on. It is clearly shows that Iskandar Malaysia has given positive impact to the commercial and business activities in small town especially Gelang Patah.

Accessibility facilities – roadway

Road development should be developed in accordance with hierarchy in accordance with land use development mainly to ensure the functioning and management of a road to be more structured and organized. The determination of road hierarchy will be used as a basis in determining the design standards such as road reserves, lane width, maximum slope, speed, degree of curvature, and so on. Road network generally can be categorized into 4 main hierarchies involving: -

- a) Highway (60m – 80m @ 200' – 264')
- b) Main Road (40m – 60m @ 132' – 200')
- c) Secondary Road (30m – 40m @ 100' – 132')

d) Local Road (20m – 30m @ 66' – 100')

Therefore, the development of accessibility with planning and construction of new roads and upgrading of the existing road hierarchy is a major focus in IRDA and government agencies specifically to encourage development in Iskandar Malaysia. This situation can be seen when 2 Physical Development Strategy Iskandar Malaysia which is Strategy 3 and 5 and focused on the importance of accessibility development in improving the development potential. The results of the observations in the study area, there were several major roads have been upgraded in accordance with the hierarchy consistently with land use activities. However, the upgrading is only made in development areas only and the surrounding area were not developed remains with the existing road hierarchy (**Refer Figure 5.0 & Figure 6.0**). Accordingly, it is clear that the rapid development of the Iskandar Malaysia is seen give a negative implication to accessibility, particularly involving the construction of a road that is not consistent hierarchy. In addition, the hierarchy of road that is not consistent is also a major factor causing severe congestion during peak hours, especially on the road of Gelang Patah - Ulu Choh.

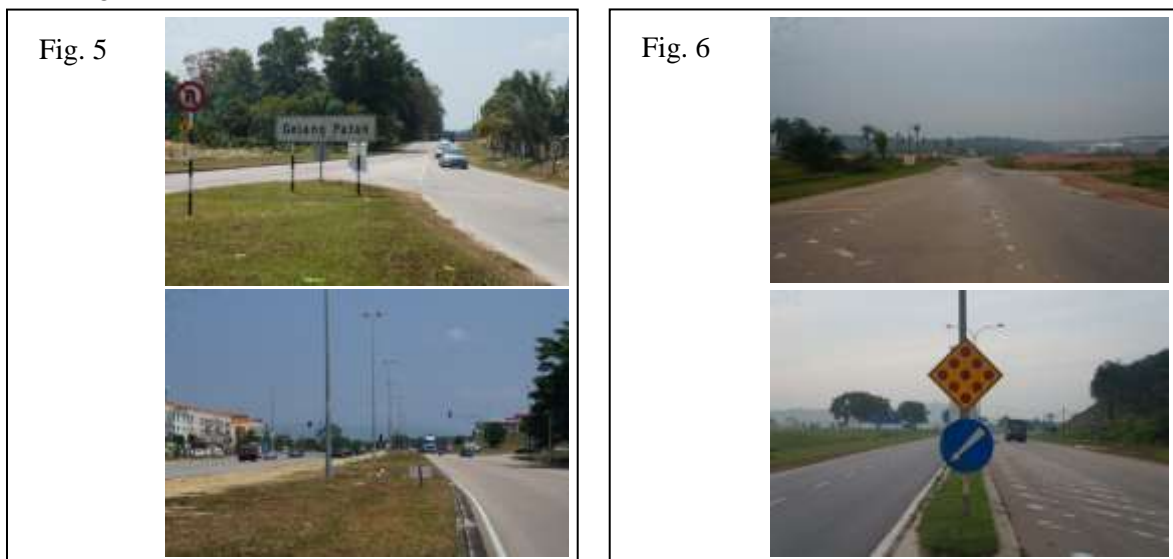


Figure 5. Conflict of Road Hierarchy in Gelang Patah Town
Figure 6. Conflict Of Road Hierarchy In Surrounding Areas

CONCLUSIONS AND RECOMMENDATIONS

In conclusion, policy and strategy developed by the IRDA in CDP is seen as major implications for land use changes in study area. It would, however, changes in land use needs to be managed well, especially in providing a better development environment in future. Therefore, policies and development plans as road facilities should be created and implemented in line with the development. According to Mohd Hilmee (2010), a clean environment and surroundings is one of the factors that give influences to community to get the goods supplied. Therefore, the development of commercial or business activities in Gelang Patah town need to be emphasized especially in creating a better commercial or business environment.

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STRATEGIES OF SUSTAINABLE RURAL DEVELOPMENT IN THE GAZA STRIP: WADI GAZA TOWN AS A CASE STUDY

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ABSTRACT

Wadi Gaza is a growing Palestinian town that aims to promote sustainable development principles due to its strategic importance to the Gaza Strip. However, there is a need to outline the main strategies that should control this development. In this context, this study aims to highlight the required development strategies of rural areas, taking the town of Wadi Gaza as a case study. A field study has been carried out using direct observation and structured interviews with specialists and decision makers. The study concluded that this town is a promising area for sustainable development considering the available opportunities and strength aspects. However, its development faces several challenges that require a comprehensive strategic framework. The main characteristics of this frameworks is preservation of rural nature of the area, development of infrastructure, technical capacity building of local authorities, especially in rural development related fields, and economic development through supporting local economic initiatives.

Key words: Sustainable development, strategic planning, Wadi Gaza, the Gaza Strip.

INTRODUCTION

Rural development in general refers to the “process of improving the quality of life and economic well-being of people living in relatively isolated and sparsely populated areas” [1]. Traditionally, rural development focuses on the exploitation of land-intensive natural resources, especially agriculture. This has changed considering the broad framework of sustainable development. Thus, in addition to agriculture, rural development nowadays focuses on tourism, niche manufacturers, and recreation [2]. In this regard, socioeconomic actions play significant role in the development process. This includes development of education services, entrepreneurship, and physical and social infrastructure. Countries vary in terms of rural regions areas and conditions. This study focuses on the Gaza Strip, which forms southern governorates of Palestine. The Gaza Strip is located along the eastern Mediterranean coast. It extends over an area of 365 square kilometres. Its population is estimated at about 1.7 million inhabitants [3]. The Gaza Strip includes 9 rural regions. Wadi Gaza, the study area, is the largest rural area in the Gaza Strip, with an area of 660 ha [4].

Wadi Gaza is a rural Palestinian border town. It is also locally called Johr al-Deek. It is located in the southeastern part of Gaza governorate. It is bounded by the Green Line (Israeli borders with the Gaza Strip) from the east, and by Salahuddin Regional Street from the west. Fig. 1 shows Wadi Gaza town location in the Gaza Strip. Its population is estimated at about 3700 persons [5], most of them are Bedouins and they mainly depend on farming and livestock production. The area is also characterized by a high level of social cohesion and interrelation. In 2000, a municipal town council was appointed for Wadi Gaza town, where its name was changed from Johr al-Deek to Wadi Gaza town, i.e. the valley of Gaza town [4]. This reflects its geographical relationship with the Valley of the Gaza Strip which crosses the region from east to west until it reaches the Mediterranean Sea. In 2005, the first master plan of the town was produced with an area of about 660 ha [6]. To date, the town suffers from a shortage in services and absence of main infrastructure components. The main obstacle that faces development of the area is the fact that it is a border town that is directly affected by any conflict that occurs cross the borders between IDF and the Palestinians.

In 2013, a strategic plan of the Town was prepared for four years. It was prepared by Wadi Gaza Municipality and managed by Municipal Development & Lending Fund (MDLF). This was based on community participation. Public meetings were arranged and committees were formed to help forming the main base of the plan. This helped the Municipality to specify the development priorities based on community real needs. The main advantages of this plan were current situation analysis, local community participation, and preservation of the rural nature of the area and supporting rural development. However, some required improvements were as follows: limited technical capacities of participants, future growth of the area was not in-depth investigated, and similar experiences of rural areas development in Palestine were not analysed.



Figure 1: Wadi Gaza town borders [6]

Several studies highlighted the issue of sustainable rural development in specific urban contexts. Qashou [7] studied strategies for integrated rural development in Palestine with reference to Sha'rawiya area. The main objective of the study was to develop appropriate strategies for integrated rural development, which helps community upgrading, investment attraction, services and living conditions improvement. The study analysed this area in terms of its geographic, social, economic, and service characteristics. Potential opportunities were addressed too through the field survey and interviews. The results showed the great potential of the area despite the great challenges it faces. A set of development strategies was recommended such as developing the agro-industrial sector and partnership with local authorities.

Xi et al. [8] discussed the potential impacts of sprawl on farmland in China. They argued that China faces a challenge in coordinating urban and rural development in the context of building a new countryside. The study carried out an analysis of different growth scenarios urban growth model and GIS analysis. The study concluded that farmland loss was inevitable. However, this varies in the different examined scenarios. As a result, the Intensive Development scenario was recommended. This scenario means that residential lands should be carefully selected (e.g., areas with good economic conditions and large population). Development in this case shouldn't take place on any available rural residential land. Elmenofi et al. [9] discussed governance of rural development trends with reference to Egypt. They mentioned that rural development in Egypt faces great challenges. This includes poverty among small-scale farmers, lack of coordination between concerned stakeholders, and reduced governmental investments. The study aimed at identifying rural development policies in Egypt. Mixed quantitative and qualitative approach was adopted using a questionnaire survey with 50 representatives of key organizations in different sectors. SWOT analysis was also used to analyse the current rural development strategy approach. The study found that there is confusion in defining rural development in these organizations. The main identified problems that require interference were lack of community participation. The study recommended that rural development strategy in Egypt should be based on coordination and integration between various sectors and stakeholders.

As indicated above, the Gaza strip suffers from planning difficulties in general. This is a direct result of the political instability and high level of uncertainty. Wadi Gaza is not excluded of this difficulty as it suffers from the repeated Israeli military operations due to its nearby location from the Green Line. Thus, the research problem is: what are the strategies that should be duly followed to

achieve a balanced rural development in this area? This is expected to contribute to the economic development of the area and create work opportunities without compromising its rural nature. The study aims at answering the following questions to provide the study conclusion:

1. What are the main needs of Wadi Gaza Town?
2. What are the obstacles that limit the sustainable rural development of this area?
3. What are the strategies which are required for developing this area?

The Current Situation

In order to arrive at the required strategies to develop rural areas in the Gaza Strip in general and the study area in particular, a field study of the current situation of Wadi Gaza town has been carried out using participatory observation. Data has been collected about this situation to identify the current challenges and the required development measures. The following points have been concluded:

- Natural resources availability is a main point of strength in Wadi Gaza town. As shown in Fig. 1, the Valley of Gaza (Wadi Gaza) limits the region from the south. This valley is the largest valley in the Gaza Strip and it forms an important natural advantage. It is important to indicate that the only segment of this valley that is clean from water pollution is the one that passes through Wadi Gaza town. This forms a great opportunity to make Wadi Gaza area a nature reserve that could form a main attraction point in the Gaza Strip.
- Buildings in Wadi Gaza town are generally dispersed and not uniformly distributed. Some areas are quite open, while others are characterized by narrow alleys that don't exceed 4 m in width. This makes services distribution more difficult and increases the cost of infrastructure networks. Buildings height doesn't usually exceed two floors, which are roofed by concrete slabs or metal panels.
- As for the infrastructure, there is a severe need to develop this sector and its subsectors. As for other infrastructure components, Wadi Gaza has the main services like the electricity, water, and roads network, but they require a comprehensive development and rehabilitation. Also, there is no sewage network in the area. Residents depend on septic tanks, which has negative environmental impact especially on the aquifer. However, there is currently a proposed project for the area to establish sewage network and main pumping station. Fresh water network covers 90% of the area. Some residents rely on artesian wells for irrigation.
- Roads in general require maintenance and development. Most of paved roads don't exceed a width of 6 m, with a total length of about 15 km. Roads used to serve agricultural lands are unpaved, with a total length of about 7.5 km. There is no public transportation in the area.
- Land uses in the Town are divided into nine categories. This mainly includes residential lands (12.4%) agricultural lands (72.6%), and roads (8%). Other land uses are limited in area such as public buildings (3%), green areas (2%), and commercial zone (0.5%) [6]. It is important to note that vast areas of residential lands are used for agriculture. This is because residential lands are subdivided into large lots, which is only utilized by small number of families (Fig. 2).
- There is a municipality of the town. However, it suffers from limited financial and human resources. However, possibility of establishing partnerships with other municipalities is a great opportunity to overcome this problem. This is because the nature of local laws allows for administrative decentralization, which facilitates working with national or international partners. The main advantage here is to benefit from these experiences to improve the technical capacity of the Municipality.

Based on the above discussion, it is possible to identify points of strengths, weaknesses, opportunities, and threats that characterize Wadi Gaza town current situation. These are summarized in Table 1. It is possible to notice that Wadi Gaza town has several aspects of strengths including the rich natural resources and the potential of agricultural and livestock production. This forms a great economic opportunity considering availability of willing donors in this regard. However, this requires comprehensive development based on a clear strategy. This is investigated in the following section.



Figure 2: Mixed residential and agricultural land uses in Wadi Gaza town

Table 1: SWOT analysis for the current status in the study area

Strengths	Weaknesses
Location and climatic conditions Natural resources (especially agricultural land and Gaza Valley). Agricultural and livestock production experience. Human resources and labour force availability. Existence of municipal council and concerned authorities	Rural development legislations require comprehensive update. Lack of rural development strategy. Absence of main infrastructure components Shortage of some main services High levels of unemployment and poverty, and illiteracy. Limited technical capacity of the Municipality.
Opportunities	Threats
Availability of funds from a variety of donors. Training for unskilled labour is possible. Social cohesion that facilitates development process. Partnership with the private sector and external municipalities.	Conflict across the borders. Current political instability. Crossings closures which results in shortage of Building raw materials. Limited export capability. Pledged funds may not be paid.

The Structured Interview

Structured interview has been chosen as a research tool. This is believed to be an appropriate tool considering the nature of research problem which requires the opinion of specialists rather than ordinary people. Thus, strategies to develop rural areas in the Gaza Strip have been questioned from the perspective of academics, experts and planners. Snowball sampling was used to reach specialist in decision making level. Interviews continued until data saturation status was observed. Total number of interviewees was 12. Specialists' affiliation included decision makers at universities, ministries, municipalities, local authorities, and donors. The interviews were carried out in different areas and municipalities the Gaza Strip. All selected interviewees were contacted in person or by phone to arrange an appointment. Comments were noted down in Arabic, and translated later on to English. Finally, data analysis was performed based on mixed qualitative and quantitative approach.

The interview was introduced by the study aim and scope. After that 8 questions were discussed. Results were as follows:

1. Question 1 stated that "How could the rural areas in Wadi Gaza town be developed considering the current legislations? Do you suggest any change to these legislations?" Respondents stated that urban and rural areas differ in terms of population density and services availability. Despite the fact that the Gaza Strip suffers from scarcity of housing public land, its rural areas should be preserved as main provider of agricultural and livestock production. Thus, the rural character of these areas should be protected by increasing restrictions on urban expansion towards these strategic areas. Accordingly, 80% of interviewees suggested that the current building legislations and regulations require an update in order to take this issue into account.

2. In the Question 2, interviewees were asked whether they think that the current master plan of Wadi Gaza town requires an update or doesn't. Most respondents (85%) believe that the current master plan of Wadi Gaza town requires an update. This master plan has been approved in 2007 and it's the time now to revise it. Some required measures are the reduction of street widths so that they don't exceed 12 m, i.e. to function as collector roads, increasing area of agricultural land use, and solving the problem of dispersed housing buildings within the agricultural land. The rest of respondents (15%) said that no update is required at the moment since the current master plan helped developing the town in a way that balances between the different land uses. As for boundary expansion of the town, 60% of respondents said that there is no need currently for such an expansion considering the limited technical and financial capacity of the local municipality. 40% said that this expansion is required to improve the current road network.
3. Question 3 stated that "Wadi Gaza town is a border town that suffers from instability. This has negatively affected its development and forced some of its residents to migrate. From your point of view, what is the appropriate planning for rural areas in this case?" Different opinions have been presented here. Some suggested ideas that are inconsistent with Wadi Gaza town master plan such as construction of buildings with high density along the border zone in order to consolidate population existence in the area. Some said that the current rural nature of the town should be preserved, where political instability requires political solutions in the first stance.
4. The following question targeted the issue of municipal merging. Interviewees were asked the following question "Is it possible to merge rural municipalities in the Gaza Strip? What about Wadi Gaza Municipality?" In general respondents indicated that there is a need to merge some town municipalities in the Gaza Strip to increase their efficiency. As for Wadi Gaza municipality, respondents are split on that issue. 50% said that it is possible to merge it with the adjacent municipalities that are located in one geographical zone around Gaza valley. 50% said that it's better to develop the capacity of Wadi Gaza municipality instead of merging it with other municipalities.
5. In the same context, interviewees were asked in Question 5 whether or not they support partnership with the private sector, considering the expected effect on municipal decisions and financial resources. 80% of respondents said that this is possible and recommended without affecting Municipality's revenues and independence. In this regards, some services may be assigned to the private sector for instance. The rest (20%) didn't support the idea considering the different work scopes and aims of municipalities and the private sector. Instead, they encouraged partnerships with other regional or even international rural municipalities.
6. Question 6 stated that "High rates of illiteracy in rural areas, especially among women, led to the weakness of community participation in decision-making. What do you suggest in this regard?" There are several measures that could be done in this regard. The role of media is essential. Also, the role of local authorities and community organizations is essential as they can organize activities to improve cultural capacity of the society.
7. To outline development priorities, interviewees were asked in Question 7 about the projects that are required to develop the town of Wadi Gaza. Respondents suggested a variety of projects in the fields of culture, education, health, tourism, retail, and light industries. This indicates the severe services shortage in the town.

Table 2: Priority order of the different development fields in Wadi Gaza town

	Priority level Development field	% of respondents						Total
		1	2	3	4	5	6	
1	Planning and organizing	50	25	12.5	0	0	12.5	100
2	Administrative development	12.5	0	37.5	25	25	0	100
3	Services development	12.5	12.5	12.5	37.5	25	0	100
4	Infrastructure development	0	37.5	25	25	12.5	0	100
5	Economic development and poverty prevention	25	0	0	12.5	25	37.5	100
6	Cultural development and community participation	0	25	12.5	0	12.5	50	100
	Total	100	100	100	100	100	100	

Finally, question 8 stated that ‘What is the proposed priority order of the following areas of development in Wadi Gaza town: planning and organization, development management, public services (health, leisure, education, etc.), urban infrastructure, economic development, and cultural development?’ Table 2 shows the results. It showed that the field of planning comes on the top according to 50% of respondents. This is justified by the importance of this field as a main determinant of development strategies. Infrastructure comes in the second rank according to 37.5% of respondents due to the severe need of infrastructure development in Wadi Gaza town. In the third rank comes administrative development according to 37.5% of respondents. This includes development of municipal administrative performance in terms of human recourses, management structure, and capacity building.

PROPOSED DEVELOPMENT STRATEGIES

Based on the current situation analysis, SWOT analysis, and interviews with specialists and decision makers, the following main strategies of sustainable rural development of the Wadi Gaza town can be highlighted:

- 1) To preserve the rural character of the town, and to prevent unplanned urban sprawl. Funds should be secured for farmers to support them and compensations should be paid against any losses due to the current political instability
- 2) To develop the main components of infrastructure, especially sewage network. Other improvements are required in roads, especially those serving farms, water quality, and electricity availability. Renewable energies may be invested to implement several techniques in this regard [10].
- 3) To develop technical and administrative capacity of the concerne staff, especially in rural development related fields. In this regard, experiences may be exchanged on regional level with the West Bank, the Palestinian northern governorates, and/or on international level by establishing bonds with other rural municipalities.
- 4) To improve farming techniques and quality management of agricultural lands. In this regard, farmers’ technical capacities may be enhanced through establishment of agricultural institution in Wadi Gaza area. This is expected to enhance famers' awareness through workshops and training courses Also, financial incentives may be provided to support these projects.
- 5) To improve local services in the fields of education, culture, and recreation. This is essential since about 90% of the implemented development projects’ budget in the Town in the last 5 years was for infrastructure projects. Several other projects in the fields of health, community development, and recreation are required.
- 6) To encourage investment initiatives and to create job opportunities in order to reduce poverty rates. This is achievable through some strategic projects. This includes creating opportunities

for local productions marketing (crops and livestock) such as establishment of a local market and light industries zone for local products. Local regulations and circumstances should be updated to encourage investors' initiatives in this regard.

- 7) To encourage rural tourism through development of the Valley of Gaza as a natural reserve. This rural tourism is considered as a potentially good product that promotes local economy and gets the community involved in the development process. This is needed more in communities that face hard situations and in need for greater wellbeing promotion, such as Wadi Gaza town.
- 8) To encourage community participation in the development process. The role of woman is essential here considering the social nature of the local society. The private sector should get involved along with the local authorities of Wadi Gaza town.
- 9) To improve cultural capabilities of residents and to take actions for illiteracy prevention. In this regard, the role of local community driven initiatives is essential. Community representatives should get involved in projects that aim at cultural upgrading and illiteracy prevention, and funds should be secured for these projects.

CONCLUSION

There is a need to consider rural areas in our built environment as areas of special strategic importance. This comes from the economic and social importance of these areas in addition to their natural and demographic importance. This is also justified by the fact that they form a main pillar of the sustainable development and local food security due to the availability of agricultural lands within these areas. In the Gaza Strip, rural areas form a national asset considering the limited area of the Strip. Considering the current demographic stress in the Gaza Strip, sustainable development of rural areas has become inevitable to protect them from the unplanned urban sprawl. In fact there is a little that has been done in this field. This is clearly reflected in the reality of these areas, which needs immediate actions in several development fields. This is true for Wadi Gaza town, which is the focus of this study. Wadi Gaza is a rural Palestinian border town that has a unique strategic value due to its location and natural resources. However, this town suffers from hard economic situation and shortage of several services and infrastructure components. This may threaten its rural nature and leads to the loss of its role in farming and livestock production. Thus, controlled development of this town should be given a high priority in the regional plan of the Gaza Strip. This should be guided by a comprehensive and practical strategic plan of the town. Based on SWOT analysis of Wadi Gaza town current situation, and the structured interviews with specialists, it is concluded that the following strategies should be placed on the top of sustainable development agenda: a clear planning strategy to protect agriculture lands from unplanned housing, incremental infrastructure development, building of technical and administrative capacity of the local authorities' staff, services development especially the educational, recreational, and health care ones, enhancement of community participation, and finally cultural development and illiteracy prevention.

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SOLUTIONS PROCESS OF CUSTOMARY LAND OWNERSHIP DISPUTE: A CASE STUDY OF PANGO VILLAGE, EFATE ISLAND, VANUATU

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ABSTRACT

This study was aimed to analyze the best process of solving land ownership dispute cases. The study was conducted at Pango village on the Island of Efate in Vanuatu. The study used descriptive statistics method and the sample size was 15 households including 2 chiefs' and some knowledgeable people with customary land dispute solution skills and knowledge. The study method used was qualitative therefore, In-depth interview and questionnaires were used to obtain the results. The results showed that arbitration and "Nakamal"(customary institution for solving disputes) were the best process for solving customary land ownership disputes. Furthermore, it revealed that all land in Vanuatu are owned by natives and governed by custom rules. The principles for choosing those processes was because, they are cheaper to facilitate, openly discussed between disputed parties while the process are related to custom rules and norms that are understood by the indigenous people. The countries Act also, states that all land in Vanuatu are owned by indigenous people and also specified in 2015 that customary land disputes will not be heard by formal courts but return to customary institutions.

Key words; Land Ownership Dispute (LOD), Customary Land, Custom, Land Dispute Solution process (LDSP), Land Dispute (LD).

INTRODUCTION

Land is very significant for all living things, developments and acquires natural resources that humans need for survival especially for settlement, agriculture, oil, gas and other purposes. However, when two people, groups, or countries have some claim of ownership over a particular land thus, that land becomes a disputed land. Also, there are many conflict nationally, internationally and globally for instance, especially in civilized countries where land are disputed for boundaries, resources such as oil, gas, and minerals which are mined for commercial or economic purposes. Therefore, various claims for those disputes occur meanwhile, their solutions diver as some take short or longer period to be solved. This paper emphasize on the best solution process for traditional land ownership / rights disputes in Pango village.

Background of Study

Vanuatu has a population of over 382,000 and the village is located near the Capital of Vanuatu, Port Vila. Vanuatu has been also voted twice the happiest place on earth (commonwealth Year Book, 2015). Pango village is the third largest village on the Island of Efate located north of Australia, West of Fiji and South of Solomon Islands. The ancestors of this village sold part of their land to the government where capital city is located. Also, part of village land were illegally sold hence, causing disputes among the villagers however, the villagers have customary regulations and system in place that were derived from ancestors for solving land disputes. Land in Vanuatu are owned by indigenous people of Vanuatu termly, customary land. In Vanuatu history, land were owned by natives but when the colonies moved in the country they control some of the lands and invest their developments. Thus, after Vanuatu gained independence in 1980, all the land that were controlled by the two colonies French and British were returned to the natives and were also regulated under the country's land Act, on the day of independence and all the rules and usage are of custom laws (Jowit 2004). Also,

approximately 98% of sea and land resources within Vanuatu are at present governed by customary ownership and it is categorized as the utmost custom level ownership globally (Regenvanu, 2008).

Land ownership were returned to the indigenous land owners so that the foreigners should not have rights over them, unless they have some agreements or purchase those lands under lease term of 75 years for their diverse developments. The rights that people in the village acquire to land are termed customary land ownership or rights passed down from their ancestors from generation to another and strengthened by Vanuatu land leases Act Cab 163 that all Land in the Republic of Vanuatu belongs to the indigenous custom owners and their descendants (Article 73) (Laws of the Republic of Vanuatu (1988). Also, with the land rights, they are eligible to do their various developments on the land and even sell them to whoever they have negotiations through custom transfer or lease transfer. However, some of the transactions of land are not appropriate or illegal that causes land dispute therefore, in this village there are land dispute cases where some have been solve and some are still to be solved. About over 75% of customary land were sold in the village to investors for tourism purposes creating leases and strata titles on vacant land.

Moreover, the channel of solving the disputes are not by government courts but mostly by traditional process. People in the village respect the custom rules hence, whenever most of the decisions are made thus, they are respected by natives and it is seen by the people as the cheapest way of solving land dispute since the administration of land are rooted in the custom rules. The area also, is developed with many resorts and hotels that covers all the beautiful beaches. Most of the land for agriculture have been sold by locals to investors and locals mostly illegally since, the village is located near the capital city so the distance of village is about 5 minutes by car. The village population have their traditional process for solving customary land ownership dispute cases.

Rational of Study

It has come to many countries attention that the indigenous population are losing grasp on their land and safety as highlighted in 2000 by the united Nation report that the world's Indigenous Peoples are experiencing dislocation from their land, territories and indigenous peoples and referring to various illustrations that includes, Indonesia, Malaysia, Thailand, Hawaii, Rwanda, Burundi, Democratic Republic of Congo (DRC), Uganda, Colombia (UN News Center 2010). According to the Ministry of lands news on Radio Vanuatu thus, Pango village on the Island of Efate has the record of land sale in the Pacific and the youths in the village were unhappy and urged the Council of Ministers to cease lands minister's power from signing land certificates and they hoped that it will minimize wrong doings with land sale because there were many illegal land sale (Ministry of Land and Natural Resources 2010). Thus, the area was selected based on customary land dispute experienced due to inappropriate fast sale of land in the village.

Therefore, the study contributes to understanding deeply about the process of traditional process of solving customary land disputes thus, these traditional process has been used by ancestors but currently country people are mixing up the customary land dispute with the government or foreign court system that tend to cause more disputes between two parties and takes long period to be solved. Also, even though the disputes are within families nonetheless, they end up in government courts which are sometimes unsolved since land are governed by customary rules. In 2014 the amendment of land laws stripped of Land Minister's power to issue land leases and also abolished government courts from dealing with customary land dispute and strengthen the traditional courts or institutions to determine customary land ownership (Radio New Zealand, 2016).

Associated with that, there are several land ownership dispute cases that are of various claims therefore, there is a need for people to have lesson learnt from the process of how they have been solved and those that have not been solved. Hence, because land ownership dispute is common in Vanuatu, people need to understand the process of solving the dispute meanwhile, it is cheap and it is in accordance to the nation's land act. It is also the key to solving issues related to land and the knowledgeable people are the key to implementing the process of land disputes solution. It is significant to pay more attention in understanding the process and channels of solving various cases through lesson learnt from ancestors and way forward on how to solve them so that village population may leave in Peace and harmony. Founded on the contextual and the formulation of the research problems above, the objectives of the research are as follows: (1) to study the best process of

customary land ownership disputes solutions practiced by the people of Pango village. The study is expected to provide some benefits to (1) Pango and Vanuatu about the traditional knowledge of solving customary land ownership cases using traditional process since after the Independence in 1980, land dispute have been always referred to formal or government courts and most of the cases have not been solved and were expensive process for poor people to pay for the lawyers and for the court fees and usually lose their land. Therefore, the experiences showed that it was not appropriate for formal system to justify customary land which is rooted in custom rules because it caused more conflicts and sometimes not solved; (2) Unpack the best traditional channel of solving customary land ownership and be a lesson learnt within the village households in order that any land dispute that may arise later or still continuing, may be addressed using this process. People will be aware of the cheapest way of solving customary land dispute as they have not been respected since independence. Locals could follow the same process to solve any land disputes at the local level that doesn't cost a lot of money to process the hearing compared to formal court systems. The study will also identify which cases last shorter and longer period to be solve and at what level and channel process.

LITERATURE REVIEW

Pacific Island countries share almost similar customary land ownership rules and similar cases of land disputes as indicated above. Polynesians and Melanesians in the Pacific share the same culture or custom about land ownership and land is inherited from past generations to the new generation thus, in this way, they follow the rules of the traditions that are practiced within the society. Furthermore, in the past, Pango village share the same cases and the process of solving those conflicts are by the Chiefs and Elders according to custom procedures.

Land dispute concept

The land dispute is a concept of two people or groups disagreement about an issue of land. Therefore, either one of them have diverse ideas, interest or values on land. The dispute or acts may be characterized in the form of violence or threatening by wards, fighting and destruction of properties. Meanwhile, that is based on a person interest, or values which is also important to significantly the rights of every person. Everyone's rights should not be neglected therefore, there is always a dispute. The needs to have a solution to land disputes is significantly for people to live in peace and harmony. Thus, if disputes are not solved therefore, people will continue to suffer and will degrade the livelihoods of affected people. The definition of land dispute can be seen through the displacement of people from their land and properties while affecting local agricultural production and other investments for instance, overall, land tenure systems in Vanuatu have been depicted as a significant discouragement to investment and hindrance to optimum land use (Larmour, 1997). In Vanuatu as stated by (Gay, 2008), that at the level of land dispute, the cases involved are high thus, there are issues that affect the country to have peace in various communities.

The land dispute criteria

The criteria of land dispute by the World Bank are based on the interest and the value of parties on the land thus, if both parties have some interest or value on the same piece of land, then there is disagreement among themselves, meanwhile at the end of the disputes hence, there is always a winner and a loser between both parties (Wehrmann, 2005). The effect of land dispute is realized as people are displaced or relocated by force from their land and their properties being destroyed. There are some aspects in the land dispute that are desirable to be highlighted namely, cases in customary land dispute and their solution process that this case study encounters. Therefore, different land dispute cases differ for instance some are for the geographical location of land and their context and the solutions process are dependent on the context of the cases.

Main Types of Customary Land Disputes Cases:

Individual vs Individual Case: Land dispute in this case thus, elder persons and younger brothers are usually in conflict about unequal share of customary land within a family therefore, the elder brothers

are usually in control of deciding the land for the younger brothers family. Besides, most of the custom norm hence, the elder brothers are in charge of land ownership therefore, if he is prejudicial in allocating land to his families then there is a continuously land dispute between them. However in some circumstances individuals also have rights to land according to customary law which is recognized in practice in his sole right or on behalf of the family (Don, 2016). In some cases, one of the individual sale's their land without consulting others so the dispute arise.

Tribe vs tribe

In the past two tribes usually have civil war and some people have to be displaced or die. Currently in Pango village, some people still have conflicts while sorcery is used to kill people and some still practice the custom spirits to kill people especially over land dispute cases. The rights to land are rights to use land and to distribute land to other families to grow crops, settlements and to take care and visit ancestral sites thus, currently custom continues to be preserved from past to present both good and bad custom practices for sorcery which is still practiced (Jolly, 2012).

Government vs tribes

In some cases governments and tribes have shown numerous disappointment within the country about government involvement in land that are disputed but then again has continued to support clients to obtain lease thus, Pango village households or families also argue over the lease of South Pary Wharf developers in Pango. In February 2016 Bill Kalpoi of Pango village has disputed the government about the inappropriate Memorandum of Understanding (MOA) which has been signed by the representative of the government and other groups of people who he claimed are not the true customary land owners of Pango land and claimed the government to pay compensation to his family (Marango, 2016). The dispute has currently occurred this year and the representative of the family (Bill's family) are arguing with the government to pay compensation to his family and demanding the villagers who signed the lease to proof their ownership in "Nakamal" hearing.

Real Estate vs Tribes

The case in Real Estate and the tribes occurs as some members of the tribes sell land that belongs to their tribes without consulting all the members or head of the tribes to the Real Estate. The Real Estate then subdivides the land and sells them to investors while the tribes realize later that their land has been sold therefore, they then approach the Real Estate for the illegal process of the customary land registration made to lease title. The disputes also materialize in Pango village here for instance, as identified by Vanuatu Land Grab that the Director of Island Property Real Estate has conflict with some tribes of Pango village concerning the land that his Real Estate bought in the process of land grab where some of the village individuals sold land while was later uncovered by the land owners (Davis, 2013). Real Estate are making millions of profits and subordinating the indigenous custom land owners where they get nearly nothing from these agreements and the concerns were raised by the chiefs but collapsed on unresponsive ears, he further stated that if this situation continues it will definitely be like the civil unrest in the Bougainville and Guadalcanal, in the Solomon Islands (Simon, 2010).

Investor's vs Tribes

Investors are interested in coastal land for tourism purposes therefore they pay land from some members of families or real estate agents without knowing that those land were registered illegally. Thus, when the local land owners realizes the developments on their land they then react to the investors. Also, in some occasions, investors lose their properties but sometimes they are negotiations with land owners to settle their differences.

Process of traditional Land dispute solution

The process of traditional landownership dispute solution is a procedure of solving land dispute at the local level by and according to rules of custom. The cases or claims for customary land ownership are solved through custom procedures. Here for instance, land arguments relating to customary lands in Fiji have three key proportions therefore, existing land management, land tenure and ownership and

land boundaries which are mostly solved by traditional Institutions (Fonmanu, Ting, & Williamson, 2016). In Solomon Islands, the government has been devoted to hosting enhanced structure for resolving ethnic land disputes by giving the power to local people who are living on the land and who know the family tree, history and tradition of their local area to decide land ownership, (Tribal Land Dispute Resolution Panel, 2012). In Fiji also the western system cannot be incorporated with custom rules for solving land dispute because the changes were not understood and accepted by the people therefore, conflicts involving custom land are decided by custom rules (Crocombe, 1987).

The experiences in Vanuatu reflected that western land laws cannot replace the customary land rules since, people do not understand the practice and land administration is based on custom rules around various islands. The bases of acquiring land within the country are respectively through the rules of custom and each islands has its known criteria for owning customary land. After Independence, the government has incorporated the western land system with the customary rules but in 2005, allot of problems arise, such as illegal sale of land, land grabbing and land disputes geared in government courts. In 2013 the power of minister was stripped of from signing leases and customary land disputes were regulated back to the customary rules for determining land issues. The customary land amendment Act 2013 empowers local-level customary institutions (Nakamals) to make final determination as to determine land dispute and to identify who are the true custom owners of an area of land. Also, within the Islands the process is alike in Fiji where formal courts are not required to deal with land ownership but it is dealt at the customary level (International Climate Initiative 2014). Figure 1 below indicates the process that has been claimed to be best for solving custom land ownership after a wider consultation that lead to enacting it in 2013 to solve land disputes at the local level while abolishing the formal courts from making any decisions on customary land ownership.

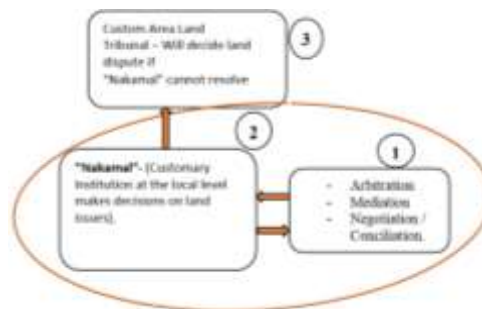


Figure 1. The current process of solving customary land ownership Dispute in Vanuatu.

Source: International Climate Initiative (2014).

Customary land disputes are mostly dealt with at the customary level and the state doesn't get involved in the process of solving the conflicts (Jowit 2004, Regenvanu 2008). In Figure 2 above it shows the first steps as the land disputes are solved through Arbitration, Mediation, and Negotiation or Conciliation process but, if they are not solved then the cases has to go through another customary institution called "Nakamal" and also from there, if it is not solved then it has to be further decided at Custom area Land Tribunal which is another customary institution. The circle above indicates the most common convenient process of solving customary land dispute since most people have chances to speak or share their knowledge about customary rules. However, the resolution can be appealed to another body which is; area land tribunal as indicated in stage (3) above which comprised of chiefs and elders from a broader region than just outside the village while, the cases of customary land dispute are no longer heard in the formal or government courts (Jowatt, 2004).

Arbitration is a form of alternative dispute resolution (ADR), it is a technique for the resolution of disputes outside the courts or by court in some cases. The parties to a dispute refer it to arbitration by one or more persons (the "arbitrators", "arbiters" or "arbitral tribunal"), and agree to be bound by the arbitration decision (the "award"). Decision-making processes varies from wide discussion on the one hand to one-sided arbitrary decision-making on the other (Farran & Paterson, 2004). The Chief is knowledgeable in the history and family tree of each tribe or clan and their various rights to use of land. The ancestors in the past lived in peace because their chiefs made

decisions at the lower level where it is acceptable by the villagers' therefore, this maintain peace within the villages.

Mediation

Mediation is another effective way of resolving disputes without the need to attend court. It involves an independent third party which is a mediator and who helps both sides come to an agreement. Mediation is a flexible process that can be used to settle disputes in a whole range of situations such as: consumer disputes. Customary land dispute is also solved by an independent person who is not part of the dispute for instance, a knowledgeable person in land disputed issues therefore, the chief or the Elder person in the village. It has remained importantly weakened under the authority of foreign powers and the accessibility of other opportunities for land disagreement resolution however, current initiatives in several nation state of the South Pacific point to a rebirth of the role of chiefs as conflict resolvers in land problems (White & Lindstrom 1997).

Conciliation

Furthermore, Conciliation is also another way, out of court conflict resolution tool. Likewise mediation, conciliation is a voluntary, flexible, intimate, and interest centered procedure. The parties pursue to grasp a friendly conflict settlement with the help of the peacemaker, who acts as a neutral third party (Jennifer & Paterson, 2008). In this situation as stated above, a centered person who is neutral to facilitate the agreements between both parties who understand and agrees to settle their differences, shake hands and make custom ceremony as a sign of peace accepted by custom rules while exchanging wealth and the chief gives the words of encouragement between them and they would re-unite and restore their disrespect and relationship.

(“Nakamal”) Local-level customary institution

This customary institution consist of the elder people, people with traditional knowledge and wisdom, the secretary, the treasurer, Committees, Chairman and his vice, and the chiefs who are the head of the “Nakamal”. In essence of the land dispute solution, when the three process above are not agreed upon during a dispute consensus hence, the matter is brought to “nakamal”. This body is still govern by customary regulations which are normally not written but are practiced and use traditional knowledge to solving the land disputes. The criterions are 1. History and family tree of the ancestors using Patrilineal, or Matrilineal, 2. Settlements sites of their ancestors, 3. Gardens, 4. Graves, 5. Custom fields, 6. Secret or “Tabu” sites, 6. Fishing sites, 7. Songs, 8. Witnesses who are related to them, 9. The villagers or knowledgeable people who know the history of the clans, tribes or individuals hence, the people must be familiar with the two parties' ancestry tribe's history and to confirm them. However, if one of the disagreed party does not agree thus, he can then appeal to Custom Area Land Tribunal but, only if the decision are bias. This institution consist of Chiefs of each surrounding villages thus, it follow the same procedures as the ‘nakamal’. Foreign judicial system brainwashed the citizens and even the policy makers after independence in 1980 who brought land cases to magistrates and supreme courts however, in 2005 all customary land dispute were abolished from government courts and returned to traditional institution to determine land cases.

The Research Hypothesis: Based on a review of the theoretical and conceptual frame work described above, the hypothesis in this study is: to identify the best process for solving customary land dispute cases at Pango village.

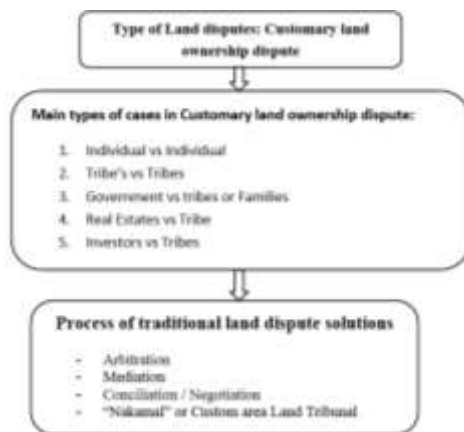


Figure 1: Conceptual Framework

RESEARCH METHODOLOGY

Consequently, the study is account for qualitative research approach and it is focused on the best possible process of solving customary land dispute that does not cost both parties, is favorable for locals to participate in issues discussions, more related to culture and custom of the village, bind by both the government law and customary rules. The study duration was short but, it deeply uncover the best process and lesson learnt from the chosen households. The village consist of over 160 households and Information was derived from 15 selected households affected by land dispute. The targeted population was 15 households and they were selected by the Village chief. He provided the names of households that experience land disputes. The key informants were the head of each selected households thus, comprising village chiefs and knowledgeable people experiencing land dispute cases.

The targeted respondent were from each of the selected household heads. They provided information about customary land ownership solution process in the village which they had experienced. The key informants were heads of households, the Chiefs and knowledgeable people in land dispute cases and the solution process. The Sample Design: the study conducted used descriptive statistics. The information is reliable because if it were within discussion groups then the respondents would not be able to provide all the information required since they would be scared of opening up the discussions. Therefore, it might be difficult to unpack the information required. Research gathering Tools: Interview guide, Questionnaires, Informants, Tables, Charts / Maps, Audio Recorder, Camera, Recording materials for example; Note books, pens, pencils and 2 Assistants.

Methods of data collection

The research was conducted using qualitative research method. The interview guide were created and semi- structured interview guide was piloted for collecting the data. The systematic structure questionnaire drafted for the study. It controlled and directed the interviewer and interviewee in order that topics are followed from main topics to subtopics thus, through this method it guided the research to unpack the required information from the key informants. The Chief of the village was consulted before the study began since, he selected the households, chiefs, and knowledgeable people with the knowledge of land dispute solution skills. Primary Data and Secondary data were also collected.

Primary data were collected from the informants in the selected village. The warm up or general questions were used firstly before in-debt questions were asked for key informants to feel more comfortable since land dispute is a sensitive issue therefore, it is important that they settle before the in-depth questions were directed to them. Moreover, data were collected from head of selected households with 2 Chiefs, and knowledgeable people. Secondary data were collected from literature and the Department of Lands office. These information will support or provide information about how land disputes are solved in the village since the office is located on the same island with the village. Moreover, some information were also derived from the land Tribunal Office who also deal with all customary land within the country. The program of SPSS was used to analyze the data collected thus,

to identify the frequencies and percentage of different land dispute solution processes, and also the types of cases experienced in the village.

FINDINGS AND DISCUSSIONS

Based on figure 2 below, it can be seen that the dispute cases of customary land ownership of land at Pango village has the highest count. Thus, most of the cases are for the ownership of land. Rationally, because land in Vanuatu are owned by natives as stated earlier in this paper therefore, when land are taken from the villagers illegally without their consent thus, they retaliate and fight back since they own the land as customary land not only at Pango village but within the country. Some villages are still fighting for money to be paid to their families. Also, the average of the households are disputing over illegal sale of land that has been sold for example; Mleo Tribes vs Comoinic tribes as Comoinic tribes had sold land that belongs to Meleo tribes therefore, they have conflict between themselves. Customary land that had been used for agricultural purposes and coastal beaches were sold to investors by some of the families without others or the land owner's consents for instance; Lewi Kalpoi vs Kalkot Kaltapang as Lewi sold the land that belongs to Kalkot Kaltapang and family and this causes dispute between the two households. A key informant stated that Lewi Kalpoi sold the land that belongs to his family thus, this caused dispute between them and it resulted in the Supreme Court because it was sold to an investor however, the chief of the village stated that the case will not be solved unless it is returned to Village court such as 'Nakamal' or Area Land Tribunal since the land regulations are governed by customary rules (K. Kantapang, personal communication, 12 May 2016).

Table 1. Comprised 15 Households encountered by land disputes at Pango village.

	Key Informants	Age	Village	Reasons for land Dispute (case)	Solution Processes used	Institution used for Solving Land Dispute	Disputing Parties	Years of Dispute	Solved or not solved
1	Renata Kalwatman	25	Pango	Boundary dispute	Arbitration	"Nakamal"	Kalsrap Kalwatman vs Kalsrap Family	6	Not solved
2	Bellat T	33	Pango	Ownership	Arbitration	Land tribunal	Kalsrap vs Pango Community	11	solved
3	Joshua Kabwut K	23	Pango	Boundary dispute	Mediation	Family meeting	Arnok Joshua K.	5	solved
4	Brent Kalmet	40	Pango	Ownership	Mediation	Land Tribunal / Family Meeting	Mleo Tribesman vs Pango Community	2	solved
5	John Kalmet	60	Pango	Land Compensation	Arbitration	Court of appeal	Family Naflak vs Government		Not solved
6	Lewi Kalpoi	58	Pango	Ownership	Arbitration	Supreme Court	Lewi Kalpoi vs Kalkot Kaltapang	10	Not solved
7	Bruce Kalotiti	57	Pango	Ownership	Arbitration	"Nakamal" / Mediation	Bruce Kalotiti vs Investor (Breakers Resort)	4	Solved
8	Michael Kaltapang	59	Pango	Ownership	Negotiation	Family Meeting	Related		solved
9	Kalkot Kaltapang	58	Pango	Ownership	Arbitration	Island Court and Government Court	Family Kaltabang vs Real Estate	5	Not solved
10	Chief Roland Masiman	62	Pango	Ownership	Arbitration	Nakamal	Chief Roland Masiman vs Naflak Tribes	4	Not Solved
11	Chief Abel	68	Pango	Ownership	Arbitration	Nakamal	Abel vs Government	5	Not solved
12	Bill Kalsrap vs Kalpoi	60	Pango	Unequal share of land rent	Conciliation	Family Meeting	Real Estate vs Family Kalpoi	3	solved
13	Brent Kalmet	54	Pango	Illegal land sale	negotiation	Family Meeting	Mleo Tribes vs Comoinic tribes	6	Solved

14	Sope Kalsrap	55	Pango	Land ownership	Mediation	Family meeting	Sope Kalsrap vs Patas Paton	5	solved
15	Abel Kalmet	67	Pango	Illegal sale of land	Arbitration	Government Court	Abel Kalmet, Manual Kalmet vs Epang T-ne & Brent Kalmet	4	Not solved

Besides, the results indicate that the cases or reasons for customary land dispute from high to low percentage are as follows: land ownership dispute – 60%, Land boundary dispute - 13%, Illegal sale of land 13%, Unequal share of land 7%, and dispute over land compensation – 7%. Thus, the lowest of land disputes are for land compensation that the investors and government failed to pay the natives in the village. Meanwhile, the highest rate of the cases within the house households are for the ownership of land as indicated in Figure 2.

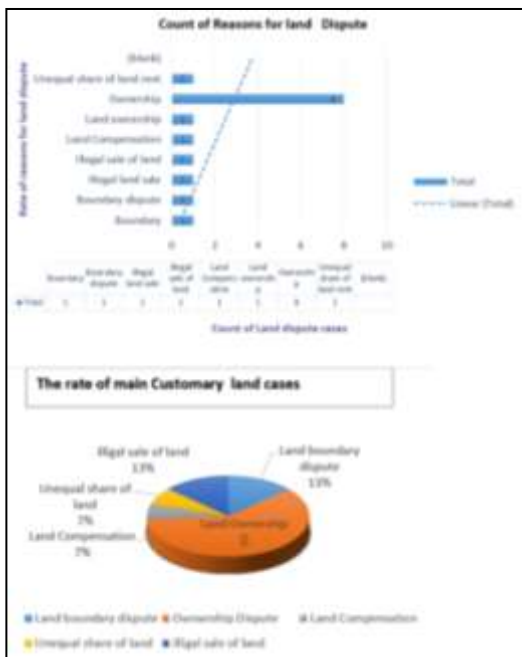
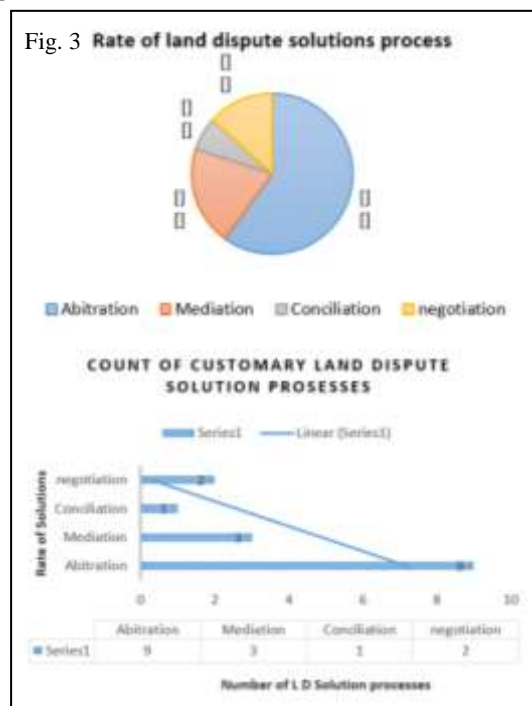


Figure 2. Reasons for land disputes. Source: Research fieldwork in 2016.

Figure 2 identifies that land ownership dispute is the main dispute in the village as people have rights to land as communal or individual through customary rules. Bella, one of the respondents stated that most of their cases are land ownership dispute since they inherit land from their ancestors as those rights to land are handed down to elder sons in a family to make decision and allocate land to the families but, currently that customary norm has been abused as any members of family sell land to others without families consent. Furthermore, the disputes occur because customary land rules are not followed. Younger members of the families think that they own land themselves so they can sell land as they wish but in accordance to customary land norms of the village and the island thus, the acts are bias while not acceptable by the village population.

Meanwhile, Figure 3 indicates that the best solution process used in the village is arbitration with 60%, where the chiefs, knowledgeable people or elders or group of elders, solve land dispute as third party either individual, group or through customary institutions such as ‘nakamal’ land tribunal, or Island courts. The second best solution process is through mediation with (20%), negotiation with (13%) and conciliation process with (7%) which is usually facilitated by the church priests elder people and the chiefs.

The results of the research illustrates that the rate of arbitration is high but most cases are yet to be solved however, as explained by John Kalmet (a key informant) that those cases are pending arbitration process through ‘Nakamal’ area land tribunal and are awaiting court decision before the end of this year and the number of cases are high since most of those cases were taken out of government courts to be heard at the village level as government court were abolished of deciding customary land dispute cases. He also stated



that those cases will be solved but still in the process to be heard.

The villagers use arbitration and mediation process for solving major land disputes while conciliation and negotiation process are for minor land disputes. The process begins from negotiation process however, if cases are not solved therefore, they are excelled to arbitration process where they are channeled by chiefs and elder people through ‘Nakamal’, Area Land Tribunal traditional courts. In this court system thus, democratic custom regulations are followed as both parties submit and defend their various claims and the third parties therefore; the committees, elder people with traditional knowledge and wisdom, Chiefs, chairman of the customary institution are present to hear and decide the case. Before any land case is heard, the written notice or verbal announcement is made to both disputed parties 21 days before the date of court. Chief Rolland explained that they are strict in deciding land cases compared to past experiences where land cases were bias and allot of bribery were done which resulted in bias decisions. Currently, the customary land regulation are carefully followed and decisions are made according the criteria of owning land within the village.

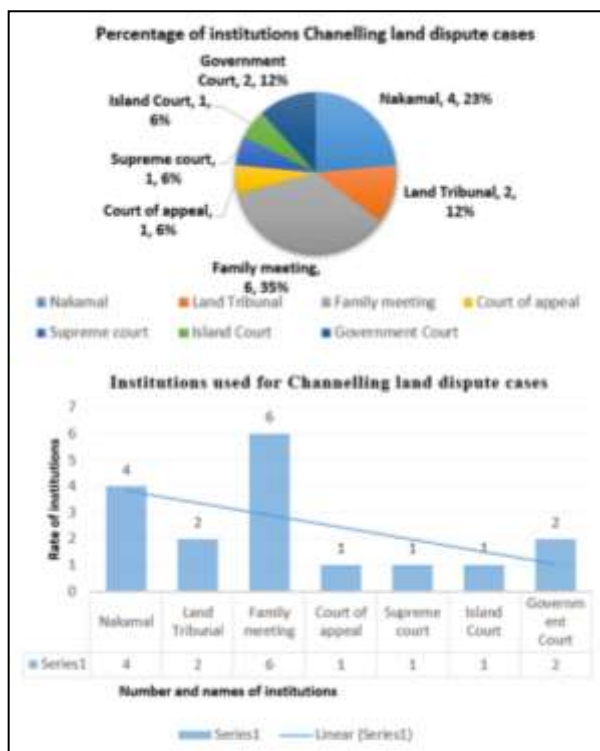


Figure 4: Institutions channeling land dispute cases. Source: Research fieldwork in 2016.

Figure 4 shows that Family meeting was mostly used to channel land dispute cases. Family meeting plays a vital role in getting people together to have their say and address their issues rather neglecting each other. The chiefs, elders and church leaders plays a significant role in the village to keep people in peace. The second best institution for channeling land dispute is through ‘nakamal’ where it is comprised of elders, chiefs and knowledgeable people about the history and family tree of ancestors in the village. The percentage rate above shows that family meeting got the highest since it is the first process which are normally used in the village to solve land disputes because it is related to custom and people are also bound to kinship ties where they become more related therefore family meeting becomes one of the best solution for solving land disputes before it is decided by other above institution.

Discussions

The lesson learnt from the research are so interesting and useful since the disputes of land in the area in the past years were hear in radio, or media to be at the high rate of land disputes meanwhile it is a surprise that those disputes were mostly dealt with by mostly arbitration process through the channel of family meeting and ‘nakamal’ which is still governed by customary rules. The cases that were heard at the government courts such as supreme courts and court of appeal were still pending as stated by Kalkot kaltapang a key informant that people do not understand the government courts because they do not recognize the rules of custom and are unworkable to resolve land disputes since the land disputes are rooted in customary rules. A key informant Kalmet John also explained that at this millennium era, the government knows the land acts that land belongs to custom owners but then drafted its structure to make decisions on customary land that does not makes sense for instance, it acquires customary land as state land and green spaces as its own but the land act still retain the rights of natives to land. The main problem of land dispute occurs due to government structures and it is a rigid system and in custom philosophy there is no such thing as state land hence, it is a dogmatic system – to make strict rules or structures over custom land in Vanuatu. Land at Pango village are affected through government regulation on top of customary rules which allows the minister to sign

certificates of leases on behalf of land owners without consulting them. Thus, when it comes to disputes between investors and locals or between locals themselves thus, the government cannot solve the dispute since the rules of government are foreign laws and are unworkable with custom regulations. The lesson learnt from the research have shown that land disputes are solved through custom rules since people respect the cultures and custom rules. Moreover, it allows both disputing parties to express their feeling and concerns so that consensus or collaboration could be obtained to solved disputes and keep the disputing parties to live in peace and harmony within the community.

CONCLUSION

The study determines that with diverse cases on land disputes at Pango village hence, the best process for solving land disputes is through arbitration and the institution for channeling the cases are through Family Meeting and 'Nakamal' by customary regulations in the village. The government courts cannot solve customary land ownership since they lack traditional knowledge and rules of customary land. Also, the secret 'tabu' sites, family tree and history of each person's ancestors cannot be recognized in government courts. The process of solving land disputes is cheap and is democratic as both parties are able to express their interest openly compared to government courts. The best land dispute solution process used in the village is democratic, cheap, open for public participation, and at the end of courts or meetings there is always conciliation between the two parties by exchanging wealth such as mats or pigs as a sign of peace while the facilitation is done by the chiefs. However, there are some limitation to the studies as follows: (i) Death during data collection, (ii). Some of the information given may be limited since it is only part of an Independent study report for Master degree of rural development management at Khon Kaen University, Thailand.

Recommendation

- 1) New generation should learn how to tackle land dispute, learn the skills and knowledge or wisdom from the older population in terms of collaboration, negotiation, mediation, arbitration and the channels of how the institution function for example 'Nakamal' or Land Tribunal in order to solve land disputes.
- 2) Government and the Chiefs should appoint a customary institution which acquires proper criteria to make final decision on land dispute cases rather than moving them from one institution to another that might be a time consuming process.
- 3) Government courts should be abolished from hearing land disputes cases since custom rules are conflicting with western laws meanwhile, government laws cannot solved customary land dispute cases.
- 4) Vanuatu government and the Chiefs of the Islands should collaborate to regulate each Island's customary land laws and be passed in Parliament so that it may be easier to decide land disputes for the benefit of present and succeeding generations.

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FACTORS ANALYSIS OF HOUSEHOLD POVERTY IN RURAL AREA OF WEST KALIMANTAN, INDONESIA

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ABSTRACT

The purpose of this study was to analyze the factors such as education level, family member, working days, age and loan which influence to household poverty in rural area of West Kalimantan. The study was conducted in Senujuh Village, Sejangkung Sub-district, Sambas Regency, West Kalimantan. There are 352 Households in Senujuh Village, with a sample of 80 poor households which find out based on the Simple Random Sampling from 105 household which listed as poor. The instrument of data collection used questionnaires and interviews. The study use Descriptive Statistics to describe the household poverty in rural area, furthermore Multiple Linear Regression was used to analyze the factors that influence household poverty in rural area of West Kalimantan. The results showed that 45% head of household were not educated, elementary school level 43.7%, junior high school 8.8% and only 2.5% have senior high school level. Based on the analysis of factors affecting the household poverty in rural area, it was found that the variables of working days and debt have positive significant impact on household poverty. Age of household head has negative significant impact on household poverty. While, education level and family size do not have significant impact on household poverty in this study area.

Key words: Household Poverty, Poverty in Rural Area, Indonesia

BACKGROUND

Poverty is a complex problem that faced by almost developing countries since many years ago. It is interlinked with many factors, such as education, employment, income, health, age, gender, natural resources, environment, political conditions and etc. According to Coudouel et al. (2002) poverty is the abilities or resources which have by households or individuals today to meet their needs. World Bank (World Bank, 2008) categorizes poverty into extreme poverty which is living less than US\$ 1.25 per day and moderate poverty which is living less than US\$ 2 per day. While, according to Indonesian Statistic Center, poverty defined as lack of economic ability to fulfill basic needs. So, poor people is the people who have average of monthly expenses below the poverty line (Indonesian Statistic Center, 2015).

Table 1. Poverty in Indonesia

Year	Poverty in Indonesia (in Million People)		Total
	Urban	Rural	
2013	10,634	17,919	28,553
2014	10,356	17,371	27,727
2015	10,619	17,893	28,513

Source (Statistics Indonesia, 2016)

Indonesia is one of the developing countries that has large number of poor population. According to the table above, in 2013, the number of poor population in Indonesia is around 28,553 million people. Which consist of urban poverty such as 10,634 million people and Rural poverty such as 17,919 million people. The total number of poverty in Indonesia decreased in 2014 become 27,727 million people, Urban poverty such as 10,356 million people and Rural poverty such as 17,371 million people. It decreased 0.5% of poverty in Indonesia from 2013. Meanwhile, in 2015 total number of poverty in Indonesia increased to 28,513 million people which consists of urban poverty such as 10,619 million people and rural poverty such as 17,893 million people.

In Indonesia, rural poverty mostly happens in the remote area. Many villages in Indonesia are located in remote area, such as mountainous area, remote islands, forestry area and border area. They lack of access to the capital city, so the income distribution is not equal. Inequality of income distribution makes unequal development. Development in some of rural area is very slow. It makes the people in those area hard to get out of vicious cycle. The poverty condition is difference among one provinces to another provinces in Indonesia (see table 2).

Table 2. Village Development Index in Kalimantan

Province	VDI 2014	Village Percentage according to Village Typology			Number of Villages
		Underdeveloped	Developing	Developed	
West Kalimantan	49.85	50.58	48.22	1.20	1.908
Central Kalimantan	51.32	40.86	58.44	0.70	1.434
South Kalimantan	56.44	20.92	78.17	0.91	1.864
East Kalimantan	56.37	23.17	74.31	2.52	833
North Kalimantan	42.63	71.14	28.19	0.67	447
Kalimantan	52.41	37.80	61.50	1.15	6.486

Source: Indonesia Statistics & Ministry of National Development Planning (2014)

Based on the table above (table 2), it showed that the Village Development Index in West Kalimantan (49.85) is in the second lowest part after North Kalimantan (42.63). With the percentage of underdeveloped village in West Kalimantan such as 50.58 percent, developing village 48.22 percent and developed village only 1.20 percent from the total 1,908 villages. The average of Village Development Index in Kalimantan such as 52.41. In average, Kalimantan Island is underdeveloped in infrastructure condition. It is one of the important thing that should be concern in sustainable development. The economic structure of Kalimantan which is dominated by mining commodities and agricultural commodities needs to improve the infrastructure condition to stimulate development in non-raw materials sectors.

Senujuh village categorized as underdeveloped village in West Kalimantan Province based on the Village Development Index 2014 by Ministry of National Development Planning. Senujuh village is located in Sejangkung Sub-district, Sambas Regency, West Kalimantan Province, Indonesia. The distance of Senujuh village from Capital city of Sambas Regency is around 34.7 kilometers. The total population of Senujuh village is 1335 people, consist of 661 male and 671 female. There are 352 households in Senujuh Village. In Senujuh village only have one Elementary School, it does not have Junior High School and Senior High School. The distance to the nearest hospital is more than 23 kilometers and in the village also does not have Primary Health Center. Most of the villagers cooking by the fire woods. Drinking water source is from the rain fed. The 85% of Senujuh villagers are farmer and 15% are labor. Their income per capita among 15 – 70 US\$ per month. Otherwise, national income per capita in Indonesia is 3,650 US\$ per year, which is around 340 US\$ per month. It is indicate that the villagers in Senujuh village live under the poverty line (Huruswati, 2012).

This research topic is important for development of Indonesia rural area in the future. Poverty in the rural area must be eliminated because the society in rural area also have same right with the society in the big city of Indonesia. The income distribution must be equal so poverty can be reduce. This research leads to poverty which is located in the rural area of West Kalimantan, Indonesia. Hopefully with this research could help the government to further increase its attention in establishing self-sufficient villages in rural area in Indonesia. With the development in the rural areas, are expected to be in the rural communities can get out of the vicious circle of poverty.

Definition of Poverty & Types of Poverty

Poverty can be described in many ways based on the viewpoint of researchers or analyst. Every viewpoint of researchers will determine the understanding of poverty definition, how it was happened, factors of poverty and how to do poverty alleviation appropriately. In general, poverty defined as a condition of individual that lack or cannot fulfill their basic needs. Poverty according Indonesia Statistical Center is an individual condition which has income per capita in month is not enough to fulfill a minimum basic needs. Minimum basic need is limit of expense per capita per month to fulfill food and non-food. According to Todaro (2012), poverty can divided into two categories based on the characteristics, such as absolute poverty and relative poverty. While Sachs (2005) divided poverty into 3 classifications, such as extreme (absolute), moderate and relative. Poverty also divided based on the places, such as Rural Poverty and Urban Poverty. The characteristics of poverty in Rural area and Urban area will be have some differences. Perhaps the most valid generalizations about the poor are that they are disproportionately located in rural areas, that they are primarily engaged in agricultural and associated activities, that they are more likely to be women and children than adult males, and that they are often concentrated among minority ethnic groups and indigenous peoples. Data from a broad cross section of developing nations support these generalizations. We find, for example, that about two-thirds of the very poor scratch out their livelihood from subsistence agriculture either as small farmers or as low-paid farmworkers. Some of the remaining one-third are also located in rural areas but engaged in petty services, and others are located on the fringes and in marginal areas of urban centers, where they engage in various forms of self-employment such as street hawking, trading, petty services, and small-scale commerce.

Poverty Measurement

Poverty measurement in every countries is different. It based on the standard of living and the poverty line in each country. But in general, according to Aline Coudouel (2002), there are three requirement in measure the poverty level such as:

1. Choose the relevant dimension and indicator of well-being.
2. Select a poverty line in order to classify household as poor or not.
3. Select a poverty measure that will used for reporting whether poverty in population as a whole or population subgroup only.

Indonesia Statistic Center measured the poverty based on the basic needs approach. With this approach, poverty is seen as an economic inability to meet the basic needs of food and non-food which is measured from the expenditure side. So the Poor is the population had an average monthly per capita expenditure below the poverty line. Food poverty line is the value of basic food consumption expenditure is equivalent to 2.100 kcal energy per capita per day. Non-food poverty line is the amount of money to meets the minimum needs of non-food items such as education, health, transportation, etc.

Income is a key concept in almost all definitions and studies of poverty; however, 'income' is an extremely difficult concept to define and measure. The term is sometimes used loosely to refer only to the main component of monetary income for most households – that is, wages and salaries or business income. Others use the term more widely to include all receipts including lump-sum receipts and receipts that draw on the household's capital. Much of the debate has centered on whether:

- income should include only receipts that are recurrent (that is, exclude large and unexpected, typically one-off, receipts);
- income should only include those components that contribute to current economic well-being, or extend also to those that contribute to future well-being;
- If the measure of income should allow for the maintenance of the value of net worth (Canberra Group (2001) in (Pantazis, Gordon, & Levitas, 2006)).

METHODOLOGY

The study area of this research is located in Senujuh Village. Senujuh village is one of the 12 village in Sejangkung Subdistrict. Sejangkung subdistrict is located in Sambas Regency, West Kalimantan Province, Indonesia. In Senujuh village has 4 RT (Rukun Tetangga) which consist of 352 households. Purposive Sampling is used for choose the study area and Stratified Random Sampling is used in determining sample size from the village. In this research, researcher apply the standard of error in collecting sample such amount 10%. Based on the data above, so the number of sample size that will used in this research can be known by this following calculation:

$$n = \frac{N}{1 + N(e)^2}$$

$$n = \frac{352}{1 + 352(0,1)^2}$$

$$n = 77,8$$

With: n = sample size
N = Number of Population
e = Standard of error (10%)

Based on the calculation of sample size by Slovin Formula above, so researcher use 80 Household to be used as respondents.

Dependent variable is poverty level that identified by the income level, ratio scale as the measurement. Independent variables are consist of six variables with ratio and nominal scale. The independent variables are education level, family size, working hours, age of household head and debt. The primary data of research variables will be carried out by questionnaire and interviews. The data will analyzed with descriptive statistics and multiple linear regression.

Economic model defines the statistical relationship between variables in particular phenomena. This research uses multiple linear regression model below:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + e$$

Where:

Y	= poverty (amount of income in household)	X ₁	= Education Level
β ₀	= constant	X ₂	= Family Size
β ₁	= education regression coefficient	X ₃	= Working Days
β ₂	= family size regression coefficient	X ₄	= Age
β ₃	= working hours regression coefficient	X ₅	= Monthly Loan
β ₄	= assets regression coefficient	e	= error term
β ₅	= debt regression coefficient		

RESULT AND DISCUSSION

Descriptive Statistics

Descriptive statistics are used to describe the basic features of the data in a study. They provide simple summaries about the sample and the measures. In Senujuh village, there are 352 households, among 105 households were listed as poor in national census 2012. Most of the head of households work as farmer, labor in palm tree factory or rubber factory and fisherman.

Table 3. Descriptive Statistics

Variables	Minimum	Maximum	Mean
Monthly Income (USD)	8.25	100	45.86
Education (Year)	0	12	4
Family Member	2	7	4.6
Working Days (Monthly)	0	24	14.5
Age of Household Head	26	71	46
Monthly Loan (USD)	0	35	7.25

Source (Data Processing, SPSS)

Based on the table 3 above, it shows that the minimum income per month is 8.25 USD, the maximum income per month is 100 USD and the average income per month in Senujuh village is 45.86 USD. The youngest head of household in this village is 26 years old and the oldest is 71 years old. The minimum family member in Senujuh village is 2 people, the highest number of family member is 7 people and the average number of family members is around 4 people. The minimum working days per month is 0 day, the highest working days per month is 24 days and the average working days per month of head of Household in Senujuh village is 14 days. The maximum loans that owned by head of household is 35 USD and the average is 7.3 USD per month.

Table 4. Education Level in Senujuh Village

Education Level	Frequency	Percentage
Not Pass Elementary School	36	45
Elementary School	35	43.7
Junior High School	7	8.8
Senior High School	2	2.5

Source (Data Processing, SPSS)

The minimum year of education of head of household in this village is zero. It means, they are not pursued the basic education. The statistics (see table 4) show that 45% head of household in Senujuh village only not have basic education (elementary school). Head of household which have elementary school education is 43.8%, Junior High School is 8.8% and Senior High School only 2.2%. It conclude that the education level of head of household in Senujuh village is very low.

Autocorrelation Test

Autocorrelation is used to know the existence of correlation between error term in t period and error term in previous period (t-1) in multiple linear regression model. In this research used Durbin-Watson test (DW Test) to test the autocorrelation in this model. The result of Durbin-Watson test can be seen in the table 5 below:

Table 5. Durbin-Watson

Model	R	R Square	Durbin-Watson
1	0.914	0.835	1.853

Autocorrelation can be tested by running Durbin-Watson test. Based on the table above, it shows Durbin-Watson value such as 1.853. Then, compare to the Durbin-Watson table, dL is 1.533 and dU is 1.743. The criteria to test autocorrelation by Durbin-Watson such as:

Positive Autocorrelation:

If d value $>$ dU is mean there are no positive autocorrelation.

D value $1.853 >$ dU 1.743 so it means there are positive autocorrelation.

Negative Autocorrelation:

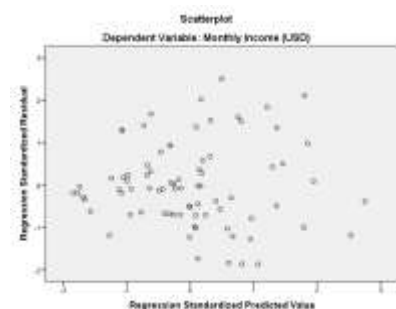
If $(4-d) >$ dU is mean there are no negative autocorrelation.

$(4-d)$ value $2.147 >$ dU 1.743 so it means there are no negative autocorrelation.

So, based on the criteria above, it conclude that there are no positive and negative autocorrelation in this multiple linear regression model.

Heteroscedasticity Test

One of the important test in multiple linear regression is heteroscedasticity test. Heteroscedasticity refers to the circumstance in which the variability of a variable is unequal across the range of values of a second variable that predicts it. The diagram shows that the dots are spread randomly, they do not form a specific and clear pattern. The dots are spreading both above and below the zero on the y-axis, thus it is concluded that there is no heteroscedasticity in this model.



Multicollinearity Test

Multicollinearity is a high degree of correlation (linear dependency) among several independent variables. It commonly occurs when a large number of independent variables are incorporated in a regression model. It is because some of them may measure the same concepts or phenomena. Only existence of multicollinearity is not a violation of the OLS assumption. However, a perfect multicollinearity violates the assumption that X matrix is full ranked, making OLS impossible. When a model is not full ranked, that is, the inverse of X cannot be defined, there can be an infinite number of least squares solutions (Jeeshim, 2016).

Table 6. Collinearity Statistics

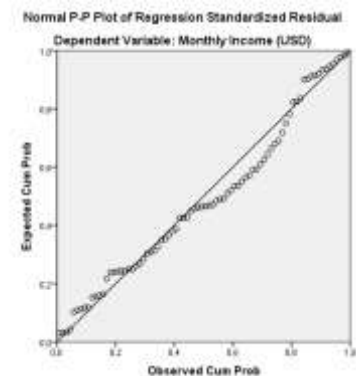
Model	Collinearity Statistics	
	Tolerance	VIF
Education (Year)	0.674	1.483
Family Member	0.767	1.304
Working Days (Monthly)	0.482	2.077
Age	0.501	1.995
Monthly Loan (USD)	0.557	1.797

a. Dependent Variable: Monthly Income (USD)

According to (Nachrowi & Usman, 2006), Multicollinearity can be indicated by points out the VIF value. If VIF value is greater than 10, it indicates a collinearity problem. For this model, the table above (table 6) shows that the VIF values are well below 10. Therefore, it is conclude that there is no collinearity within the data in this model.

Normality Test

The aims of normality test is to see whether the dependent and independent variables in the multiple linear regression model have normal distribution or not. Normality can be seen on the data distribution when the curve does not pass through either left or right. As depicted in figure besides, it shows that the data output in this model is normally distributed.



Multiple Linear Regression

Table 7. R Square

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.914	0.835	0.824	8.97630	1.853

The table above (table 7) shows that the value of R^2 is 0.835. It means 83.5% dependent variable can be explained by the independent variables, while 16.5% explained by other variables outside this model.

F-Test

Simultaneously test or F test is used to see whether the independent variables influence dependent variables simultaneously or not. To examine the F test, we need to compare the result of F value to the F table. Based on Table 8, the value of F is bigger than value of F table ($74.925 > 2.53$) with significant level below 0.05 such as 0.000. So, it can concludes that variables X1, X2, X3, X4 and X5 are simultaneously significant on Y variable.

Table 8. F-Test

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	30,185.11	5	60,307.02	74.92	0.000
Residual	5,962.46	74	80.57		
Total	36,147.57	79			

a. Dependent Variable: Monthly Income (USD)

b. Predictors: (Constant), Education, Family Member, Age, Monthly Loan (USD), Working Days (Monthly)

T-Test

Partial test or T test is to examine the effects of each independent variables on the dependent variable as partially. T test can be run by compare the T stat and the T table by looking at significant column for each T stat. In this regression model of poverty, the significant level that we used is $\alpha = 5\%$ or 0.05.

Table 9. T-Test (Multiple Linear Regression Result)

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig
	B	Std. Error	Beta		
(Constant)	49.968	8.700		5.743	.000
Edu_X1	5.418	2.976	.105	1.820	.073
Family Member_X2	-1.270	.833	-.082	-1.524	.132
Working Days_X3	.933	.302	.210	3.090	.003
Age_X4	-.585	.117	-.334	-5.015	.000
Monthly Loan_X5	1.261	.155	.515	8.132	.000

a. Dependent Variable: Monthly Income (USD)

Based on the table above (table 9), the multiple linear regression equation is arranged as follows:

$$Y = 49.968 + 0.933X_3 - 0.585X_4 + 1.261X_5 + \mu$$

The multiple linear regression model means:

- The constant value of 49.968 means if the value of other variables are zero, then the dependent variable of the average income of poor people will increase 49.96 USD per month.
- The X3 variable (Working Days) positively affects the average income of poor people with an influence coefficient of 0.933, it means that each increase of 1 working day (X3) in a month will increase the average income of poor people by 0.933 USD per month.
- The X4 variable (Age) negatively affects the average income of poor people with an influence coefficient of -0.585, it means that each increase of 1 year of age (X4) of poor people will decrease the average income of poor people by 0.585 USD per month.
- The X5 variable (Loan) positively affects the average income of poor people with an influence coefficient of 1.261, it means that each increase of 1 USD of Loan (X5) will increase the average income of poor people by 1.261 USD per month.

Two independent variables are out of from the model of regression:

- The X1 variable (Education) positively affects the average income of poor people with an influence coefficient of 5.418, it means that each increase of 1 year of education level (X1) of poor people will increase the average income of poor people by 5.418 USD per month. But in this model, variable X1 (Education) is not significant.
- The X2 variable (Family Member) negatively affects the average income of poor people with an influence coefficient of -1.207, it means that each increase of 1 family member (X2) will decrease the average income of poor people by 1.207 USD per month. But in this model, variable X2 (family members) is not significant.

Those two variables are not significant because in this village, we found that the head of household mostly have no education background. Most of poor people have same level of education which is not

educated and primary level. Also for the family member, most of the household have 4 – 5 family members, only few household that have more than 5 family members. It cause the data of education level and family member cannot explain the influence on average income of household significantly.

DISCUSSION

From the result of Multiple Linear Regression it shows that three independent variables have significant influence on dependent variable. While, two independent variables do not have significant influence on household poverty in Senujuh Village. Working days have positive affect on average income of poor people in this village. It is occurred because most of the poor people in Senujuh village work as labor in Palm Tree Factory and Rubber Factory. Their income are derived from the number of working days. Therefore, increasing the number of working days will affect their income positively. However, the factory have regulation for the number of working days which is maximum 15 days of working per month. Then, they must do another job in the village such as farming, fishing or handyman to fulfill their needs. Labor in the palm tree factory can earn 5.7 USD per day but labor in rubber factory is less than that because of the price of rubber drop since few years ago.

Age of household head have negative impact to the income of household. Most of the head of household who are more than 50 years old were not work anymore. They only work for few days in their small farm. Farming is a jobs that required strong physical and high effort, it can be done by people in productive age. Moreover, when people is over the productive age will be have less income because they physical condition is getting drop. It becomes problem for the household that lead by elder people. They were not have good income from their activity, some of them cannot work anymore and only depend on subsidy from government and family. It occurred because most of the head of household were not have high education level. So, when they were getting old they cannot do anything. We can see the differences when the people gained high education, when they are getting old they still can be productive, for example lecture, consultant, politician and etc. Loan have positive impact to household income. In every adding of loan it will increase household income. They will take loan to support their farm, small store or other type of small investments. The people in this village will take loan based on their ability to pay back. Based on the data, most of the villagers take loans from the debt collector, family and leasing. There is no cooperative in Senujuh village or nearby the village.

CONCLUSION

In this paper we first estimate the factors that influence household poverty in rural area of West Kalimantan using a sample of 80 household in Senujuh Village. We then apply descriptive statistics and multiple linear regression to estimate the impact of education level, family members, working days, age and loans on the average income of household living below the national poverty line. Poverty in Senujuh village is high. 30% of population are living under the poverty line. Working days and Loans affect positive significantly on household poverty. However, age affect negative significantly on household poverty in Senujuh village. Small incentives that earn by the people make the working days affect their average income. People need to increase the number of working days to increase their average income. People will use loans as their capital to help them increasing their average income. Theoretically, education and family members will significantly affect the household poverty. Meanwhile, in this research both of those factors are not significantly affect household poverty in Senujuh Village. It caused by the education level of head of poor household are mostly same which is uneducated. The number of family members in this village also mostly similar around 4 until 5 members in one household. So, because of the similar data, it cannot explain the influence of both variables significantly. Education Level, even though education was out of the regression model but based on the descriptive statistics it shows that most of the household head in Senujuh Village were not well educated. Government assists the poor household in this village is only give subsidy on rice every month. They did not have any development program to reduce the poverty in this village.

Lack of job vacancy for the people outside farming and plantation. Lack of infrastructures in the village. The access to Senujuh village is only small cement road around 120cm width as 17 kilometers. Only can use motorbike and boat from the river. There is no financial institution near the village. However, this study has put fourth several suggestions for development in Senujuh village: (i) Government should make development program to reduce the poverty in this village, especially related to the agriculture and fishery. (ii) Infrastructures Development such as big road, primary health care, high school and etc. (iii) Make cooperative in this village or nearby to make people easily access the financial institution to gain more capital for their agricultural activities. For the further researches, research area may be longer and have a wider sample, can include macroeconomics factors that may contribute to reduction of poverty rate.

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FRAMEWORK CONSIDERATIONS FOR ONE VILLAGE ONE PRODUCT (OVOP) PLAN FOR B40 HOUSEHOLDS IN RURAL MALAYSIA

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ABSTRACT

This paper reviews the concept of One Village One Product (OVOP) and the extent to which the OVOP plan may be linked to the improvement of livelihoods among the Bottom 40 percent (B40) households in rural areas, particularly within the Malaysian context. The review explains the emergence of the OVOP concept and its principle forms, followed by the adoption of OVOP (or similar to the OVOP concept) by various countries and regions as a vehicle to rejuvenate rural society and to transforming local economic development. The review continues with the identification of potential issues and challenges related to the OVOP plan. The paper concludes with recommendations of an improved OVOP conceptual model that is tailored to improve the livelihoods of the B40 households in rural Malaysia. The proposed model integrates the three original principles from Oita Model for OVOP namely: (1) global but local, (2) focusing on human resource development, and (3) promoting self-reliance and creativity; while keeping in mind the four success factors in community-based local economic development initiatives which are: (1) the presence of a local champion, (2) having a good and workable organization, (3) integrating OVOP into local economy, and (4) delivering quality products and services to the market.

Key words: OVOP, local economic development, Oita Model, B40, rural households.

INTRODUCTION

One of the key focus area as highlighted in the Malaysia Human Development Report 2014 is an urgent need to the government to tackle the issue of Bottom 40 percent (or termed as B40 that is bottom 40% earned low income) through inclusive development approach (Kamal Salih *et al.*, 2015). The need for addressing the issue of B40 has been further mentioned during the presentation of 11th Malaysia Plan (11MP) (2016-2020) by the Honourable Prime Minister on May 20th 2015. The element of inclusiveness has been ranked first among six focus areas of 11MP. Based on 11MP report, inclusive development strategy will directly address the need of B40 group as there are currently 2.7 million household in Malaysia identified as B40 in year 2014 (EPU, 2015). This is the group which according to the Economic Planning Unit (EPU), vulnerable to issues of social exclusion, barriers to social mobility and economic insecurity in development plans. Furthermore, the government has set a target for income improvement for B40 from RM2500/month in 2014 to more than RM5000/month by 2020 (EPU, 2015). Under the same period, the Gini index is targeted to decrease from 0.401 in 2014 to 0.385 (by 2020) (EPU, 2015).

As a response to these targets, current and continuous initiatives for overcoming issue of rising cost of living and to promote social justice were introduced by government under Government Transformation Programme (GTP) such as 1Malaysia Clinic, 1Malaysia People Menu, 1Malaysia People Shop, 1Malaysia Textile Shop and 1Malaysia People Agro bazaar Shop will be maintained and more facilities/services are to be developed in other areas during the 11MP period (PEMANDU, 2013; EPU, 2015). Apart from provision of necessary infrastructure and services, strategy for rising the household income for B40 will be improved through education and training programmes aiming at

producing high skill workers. As for those who are keen to start their own businesses, the entrepreneurship support programme will be provided to support micro and small businesses (EPU, 2015). With an intensive focus to be given towards diversification of rural economic activities hence to improve socio-economic and well-being of B40 group under GTP and 11MP, it is becoming more crucial for a specific study to be planned and conducted to examine the potential application of One Village One Product (OVOP) programme as one of rural development strategy for B40 group. The effort of extending OVOP programme for B40 group has been highlighted in government's recent development agenda:

“The (OVOP) programme is seen as being able to raise the income of villagers or the Bottom 40 group, as implemented in Korea, Japan and Thailand” (The Sun newspaper: 10/6/2015, p.16).

In line with government's agenda on OVOP for B40s household, this paper will review the concept of One Village One Product (OVOP) and the extent to which the OVOP plan may be linked to the improvement of livelihoods among the Bottom 40 percent (B40) households in rural areas. The review should explain in brief, the concept of OVOP, followed by identification of potential issues and challenges related to the OVOP plan. The paper concludes with recommendations of OVOP conceptual model that is tailored to improve the livelihoods of the B40 households in rural Malaysia.

ONE VILLAGE ONE PRODUCT (OVOP)

“One village one product” is a simple and easy terminology used to send a clear message on local development initiative even to the non-educated local residents. The term itself is representing a straight forward meaning of local development approach whereby one community creates one marketable product by utilizing potential resources of the region, with identical brand, by using own/local resources and brush up the product, upgrade the value, establish the own brand, and merchandise in the global markets (Igusa, 2010). Furthermore, OVOP intended to promote development of actual rural activities/products based on their current conditions i.e. capability for working as collective unit and optimizing the use of local resources which the community are currently possess. Since its first introduction in Malaysia in 1992, using OVOP as local development approach has been developed, implemented and showing signs of success in some cases locally as well as in other countries, for example in Japan, in Thailand, in Sub-Saharan Africa and in the Philippines which may have value in Malaysia where the Ministry of Rural and Regional Development (MRRD), Ministry of Finance (MoF), among other agencies, may find value in such programme to realise their goals of developing rural societies in a more inclusive and sustainable manner.

Principal form of OVOP

According to Igusa (2010), there are three basic principles of OVOP as outlined by Governor Hiramatsu, who also known as “the father of OVOP movement”. These principles are explained in the following Figure 1.

Major Issues and Challenges of OVOP

Based on review of literature, there are several major issues and challenges related to OVOP movement has been identified and summarized in Table 1.

Table 1: Summary of major issues and challenges of OVOP from review of literature.

	Component	Summary of issues/challenges
1	Human resource management	<ul style="list-style-type: none"> • Leadership issue • Lack of training for staffs to manage the business (in accounting, production, marketing)
2	Local but global	<ul style="list-style-type: none"> • Monopoly of local market by big investors/companies • Stringent in standards of certification for local entrepreneurs • High dependency on government support/initiatives/assistance • Lack of funding and weaker economic base • Lack of infrastructure
3	Self-reliance and creativity	<ul style="list-style-type: none"> • Lack of business strategy (unclear → unprepared for future uncertainties) • Lack of community support and participation – lack of knowledge and information • Current planning mainly focus on the short-term gains/results rather than long-term economic revitalization

Source: adapted from Igusa (2011); Rohayu Roddin et al. (2013); Igusa (2010); Mukai and Fujikura (2015); Srisantisuk (2015); Moore and Donaldson (2015); Kurokawa (2009); Jaiborisudhi (2016); Fujioka (2011); Kurokawa et al. (2010); Oikawa (2015); Rahayu et al. (2015); Aryanto and Fransiska (2012); Triharini et al. (2013); Rana (2008); Gupta et al. (2015); Oseni and Oseni (2015); Chidumu (2007); Issa and Lawal (2014); Ohaya et al. (2013) and Sopheaktra (2008).



Figure 1: The three principal form of OVOP model.

Source: adapted from Igusa (2010).

OVOP MOVEMENT FOR B40 HOUSEHOLDS IN MALAYSIA

Development of OVOP programme begins in Kedah state, Malaysia in 1992 under the initial pilot project called One District One Product (ODOP) programme, a slightly modified concept from original OVOP movement in Oita, Japan (Igusa, 2010). ODOP programme is an initiative introduced by then Prime Minister, (Tun) Dr. Mahathir Mohamed after his visit to Oita prefecture in December 1991 to view the progress and achievement of OVOP movement in Japan. Under ODOP programme, each selected district is being identified its potential resources and potential distinct product that can be developed or refined, improved the value, established own brand and be promoted for local and international markets. Among local products that have been promoted under ODOP programme including handcraft, food and beverage, sewn and livestock. Ten year later (in 2002), the ODOP policy was extended to One Village One Industry (OVOI) with reference to the case of One Tambun One Product (OTOP) in Thailand. A year later (in 2003), OVOI has been transformed into One District One Industry (ODOI) and the movement has been maintained ever since.

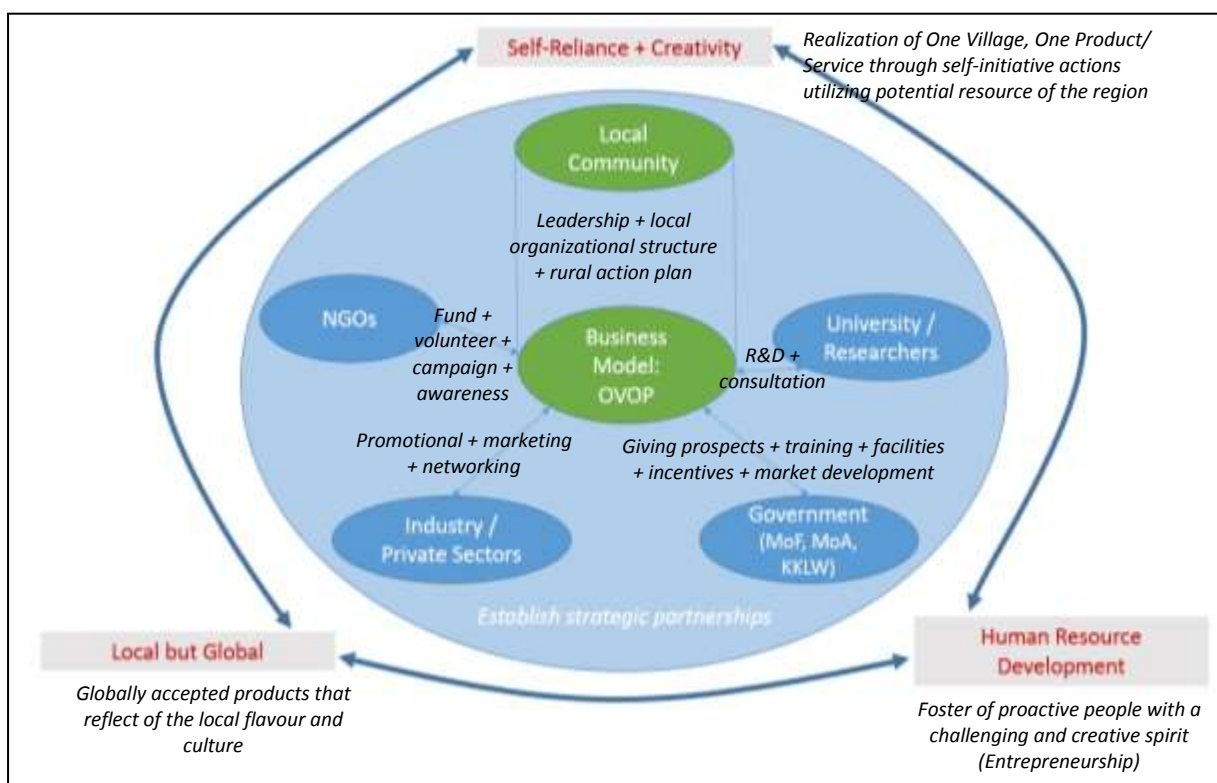
The issue of poverty and the need for uplifting of the Bottom 40 percent of households in Malaysia (B40) has been clearly mentioned during the presentation of the 11th Malaysia Plan 2016-2020. Prior to the national agenda to uplift the B40 socio-economic condition and livelihood, the Ministry of Finance Malaysia (refer to The Sun, 10/6/2015) has further stated that “the (OVOP) programme is seen as being able to raise the income of villagers or the bottom 40 group, as implemented in Korea, Japan and Thailand” (p. 16). Under the extension OVOP plan, about 20,000 villagers are expected to gain benefit from producing handicraft, food and beverages, sewn and

livestock products. Due to the very recent focus was given towards OVOP plan for B40 households (reported in Mid-2016) therefore, it is not possible to select any existing OVOP projects that can be linked to the B40 households. Therefore, this paper is designed as a proactive effort by discussing and proposing a possible form or conceptual OVOP model which appropriate to tackle the on-going issues related to B40 households and their livelihood.

CONCLUSION: FRAMEWORK CONSIDERATIONS FOR OVOP

As a response to the pertinent issues and challenges identified during the review of literature (Table 1), this paper has proposed the following framework for OVOP plan for the B40 households in rural Malaysia (refer to Figure 2). The proposed framework could be considered as an initial roadmap for future works to realise OVOP program for B40 group in Malaysia. The proposed framework consists of three major action areas namely:

- (1) Establishment of the OVOP business model suitable for local context. Among immediate actions proposed are the identification of the ‘local champion’ (leaders), establishment of local organisation suitable for a specific business activity/project and formulation of a special rural action plan for rural entrepreneurs among B40 group to address the needs of the project in particular, and to uplift the livelihood of B40 households through an inclusive development strategies in general.
- (2) Integration of OVOP and/or OVOP-related projects into local economy via establishment of strategic partnerships with various main stakeholders including the government agencies, private sectors (investors), the non-government bodies (NGOs) and experts/researchers from local and foreign universities and research institutions.
- (3) Delivering quality of product from OVOP and/or OVOP-related projects to local and global markets through promotion and marketing, development of human resource and self-reliance and creativity.



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DEVELOPMENT PLANNING OF ABORIGINAL PEOPLE RESETTLEMENT PROGRAMME: PARLIAMENTARY CONSITUENCY OF CAMERON HIGHLANDS

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ABSTRACT

Among the governmental strategy to enhance the quality of life of the indigenous community is the implementation of the Resettlement Plan (RP) (*Rancangan Penempatan Semula*) and Village Reconstruction Programme (VRP) (*Program Penyusunan Semula Kampung*). RP involves the relocation of remote aboriginal communities scattered in an area and equipped them with basic amenities and economic activities for commercial agriculture in a specific location. The amenities and homes of the settlements are restructured with additional socio infra components in VRP. However, infrastructure and social amenities assistance including houses and the location of RP or VRP among indigenous communities may not be compatible with the choices they desire. In addition, their living standards may not have a significant change in the resettlement vicinity. After about 35 years of implementation, this study evaluates the impact of settlement/restructuring of indigenous people in the RP and VRP, located in the Parliament of Cameron Highlands, Pahang. The design of this study is descriptive quantitative and qualitative (surveys). Impact and satisfaction of the relocation program are evaluated using five indicators in terms of economic opportunities, social relationships, ability to maintain tradition, public utility services and satisfaction with the size/location of the village/house in the settlement area. In general, the results show that the RP and the VRP have managed to improve the quality of life of indigenous community. This study has found that the aboriginal satisfaction has increased compared to their previous village dwellings. However, these achievements are still low when compared with the same indicators at the national level. In fact, the study found that indigenous communities living in the RP are more successful than the VRP.

Key words: indigenous people, aboriginal resettlement program, quality of life, Cameron Highlands.

INTRODUCTION

The aboriginal people or *Orang Asli* is a minority race and represents only 0.63 per cent of the total population of Malaysians. According to the records of the Department of Orang Asli Affairs (DOAA), up until 2010, there were 178,197 Orang Asli comprising 36,658 head of households (HH). Up until 2010, there were 852 *Orang Asli* villages in Malaysia. These villages can be categorised into three, based on their location, level of economic development and the basic amenities that are made available to them. Around 61 per cent of the *Orang Asli* live on the fringes of the towns, 38 per cent in the interiors and only one per cent live in the towns (JAKOA 2011). The development Planning for the Orang Asli comprise the Structured Resettlement Programme, the Economic Development Programme and the Social Development Programme. The Structured Resettlement Programme involves the structured resettlement of Orang Asli villages systematically, equipping a house with water and electricity. In some areas, building a school, health clinic, police station, a DDOA office, tarred road and economic resources are providing land for the planting of rubber/palm oil.

Table 1: Orang Asli Development Planning

Pre-NEP	New Policy (1990) ^a	Economic (1971-1990)	National Development Policy (1991-2000) ^a	National Vision Policy (2001-2010) ^a	New Economic Model (2011-2020) ^b
	<ul style="list-style-type: none"> • Protection and Security from communists threats and teachings • Instill the spirit of integration • Education Opporrtnunities • In-situ Settlement Programmes- Regrouping Programmes • Opening up of new land, agriculture and fisheries programmes • Providing basic facilities • Medical and health 		<ul style="list-style-type: none"> • Commercial land • Knowledge sharing • Development of education and skilled Training • Entrepreneur Training • Raise the quality of the public service 	<ul style="list-style-type: none"> • Society and human development Plan • Poverty Eradication • Education plan • Access to technology and communication information • Village Info Centre • Eco-tourism • Land ownership 	<ul style="list-style-type: none"> • Special Programmes for those earning 40 per cent and below • Programmes providing house, better infra and social amenities • Development Programmes to raise the standard of living • Land ownership for commercial agriculture

.Source: ^aJAKOA 2011. Strategic Plan for the Orang Asli 2011-2015. Table 2, p.16.

^b 10th Malaysia Plan, p.115

Resettlement policies for the Orang Asli were undertaken since the emergency (1946-1960) for security purposes to protect the Orang Asli from communists influence. After the end of communists' insurgency, in the 1980's, the resettlement of the Orang Asli policy was more focused on raising their socio-economy profile and quality of their life (Mustaffa 2008). The Structured Resettlement Programme for the Orang Asli is divided into two categories. The first category is Resettlement Plan (RP) (*Rancangan Penempatan Semula*), that was undertaken since 1979 in the Fourth Malaysian Plan and later re-enforced in the Fifth Malaysian Plan and Sixth Malaysian Plan as the main strategy to raise further socio-economic status of the Orang Asli community. Through the RP, the Orang Asli villages which were dispersed far in the interiors and were gathered together in one area that was provided with basic amenities and economic commercial agricultural activities (rubber and palm oil). The families that were involved were transferred to resettlement areas.

Through this planned programmes, amenities were easily made available and effective and was able to prevent the communist elements from influencing the Orang Asli in the interior areas. Besides raising the quality of life of the Orang Asli, this programme also gave them a chance to be involved in the modern economic activities. Through the rubber and palm oil planting programmes, the Orang Asli community received dividends from the crops, apart from being given a chance to be plantation workers. Until today, there are about 17 RP, that is, 6 in Perak, 7 in Pahang, 3 in Kelantan and 1 in Johor (JAKOA 2010). Around 14 percent of the Orang Asli live in RP areas (Mustaffa 2008). The second category is and Village Reconstruction Programme (VRP) (*Program Penyusunan Semula Kampung*) where villages which are already in existence are rearranged and provided with basic facilities and economic activities like commercial farming. This programme was implemented since the Seventh Malaysian Plan (1996-2000) that involved around 217 Orang Asli villages (12,264 HH). The objective of this programme was to raise the standard of living of the Orang Asli community in the already existing villages through social-infra components like that, undertaken by the RP²⁰.

²⁰ The third Structured Resettlement Programme for the Orang Asli is the New Villages Programme (*Rancangan Kampung Baru*). This resettlement programme is specially designed for the Orang Asli villages which border Thailand and are in KESBAN areas. The participants are equipped with SRP infra-social amenities as RP and VRP. The approach taken by KESBAN is – “Security and Development”, to provide security and economic stability in the boundary areas around a radius of 25 kilometer (km) from the international Malaysia – Thailand border. KESBAN was undertaken in 1979 with basic housing facilities in place together with economic

The environment of these relocated areas had far better conditions in terms of available infrastructure and social amenities than that available in the traditional villages of the Orang Asli. Having said that, however, the reallocation to the new areas was found to be not suitable for the culture, lifestyle and economic activity (mainly for forest produce) of the Orang Asli. Nevertheless, assistance in terms of infrastructure and social amenities including homes and the location of the area of the RP and VRP amongst the Orang Asli were likely to be at odds with what they desired. Some new houses were left empty by the registered residents. This is highly likely to be the result of the lifestyle of the Orang Asli community for whom the forest is an intergral part of daily activity. Besides that, the Orang Asli's choice of the specific area they stay in and the facilities they chose to have in their homes are heavily influenced by their social and cultural backgrounds as well as their beliefs.

The quality of life as well as the income of the low-income Orang Asli cannot be improved if their villages are a great distance away from the centre of local development (the town or city centre). This is because a significant number of the Orang Asli are involved in traditional farming or tapping the forest produce which have low economic value (they usually work individually). Where the villages have been located near local development centres, a majority of Orang Asli have started working in the private sector or with the Government and thereby securing a higher and more consistent monthly income. Hence, a conflict exists between the areas of the housing programmes and their source of income. If the Orang Asli do not work individually, it is more likely that they will be more inclined and predisposed to living in villages that are closer to the centre of development.

MATERIALS AND METHODS

This research will analyse the impact of resettlement programmes on the socio-economic level of the Orang Asli in the RP and in the VRP. Specifically, this research will analyse the economic impact in terms of type of job, location of the working place and income and expenditure. Besides that, this research will also ascertain how far the Orang Asli can retain their relationship with their own community and to ascertain the level of satisfaction of the Orang Asli of the basic facilities that are available in their villages now and what are the other facilities that they require. The structure of the research is descriptive that is both quantitative and qualitative (*mixed-method*). The research uses primary data that was obtained from the questionnaire through face to face interview with the respondents.

In this research, the area that was chosen covered the Orang Asli villages that were involved in the Structured Resettlement Programme in the Parliamentary Constituency of Cameron Highlands, in Pahang. The Parliamentary Constituency of Cameron Highlands covers all the districts (Tanah Rata, Ringlet & Hulu Telom) in Cameron Highlands and the district of Hulu Jelai in the district of Lipis (Diagram 1). This research used the stratified random sampling method. This method was used to allow the HH from each village in the area of research that was chosen the probability of becoming a potential respondent. From the whole area of research in the Parliamentary Constituency of Cameron Highlands which has a HH population of about 2,260 (86 villages), 1,235 HHs were chosen as research samples. This figure represents 54.6 percent of the total population in the area of research in the Parliamentary Constituency of Cameron Highlands. The total number of villages involved in this research is 23 RP and 46 VRP area. In terms of distribution according to districts, 18 villages are in Hulu Telom (Cameron Highlands) and 51



programmes like agriculture, husbandry and village industries. No Orang Asli New Villages Programme locates in Cameron Highlands.

villages are in the district of Hulu Jelai (Lipis). For the whole research, a total of 69 villages were involved with the resettlement programme in the district of the Parliamentary Constituency of Cameron Highlands.

Paired Samples t-Test Statistics (also referred to as *correlated groups t-test*) used to compare the average income of the HH prior to and after shifting. The research will also evaluate the level of satisfaction amongst the HHs based on five indicators:

1. Economy Opportunities
2. Community Relationship
3. Ability to retain traditional practices
4. Size and location of the village and house
5. Public amenities

RESULTS AND DISCUSSIONS

There is a significant change in the type of main occupation and increase in income in the current settlements. If in the earlier settlements the main occupation of the HH was the foraging of jungle produce, in the current settlements, the main occupation of the HH in the RP area is working in the rubber and oil palm small holdings, whereas the main occupation of the HH in the VRP area is farming (subsistence agriculture). Foraging of jungle produce is now the second main occupation in the area of research (RP and VRP). In the current settlement, there are also member of households with part-time jobs, especially farming (subsistence agriculture). As for the location of the main occupation, a large number of the HHs work in the villages/settlements. At the same time, the HHs who are not working have decreased in both areas of research.

In terms of increase in income, there were significant changes after the HHs were involved in the resettlements whether in the RP or VRP area. In the RP area, the income of the HH had increased around 66 percent whereas 61 percent in the VRP area and VRP area. Even though relatively the average monthly income from the main occupation of the HH in the RP area (RM229) is less than the VRP area (RM232), the average monthly income from the part-time occupation and other sources of income which is high in the RP results in the total average monthly income of the HH in the RP area to be higher than the VRP area.

Table 2: Summary of the Economic Impact

	RP	VRP
Main previous occupation of the HH	Foraging for jungle produce (59.4%)	Foraging for jungle produce (60.9%)
Main current occupation of the HH currently	Workers in small holdings rubber/ oil palm (41.0%)	Farming (subsistence agriculture) (41.5%)
Percentage of HH who were not working previously	13.1	14.5
Percentage of HH who are currently not working	4.0	3.3
Location of the main occupation of the HH previously	In the village (74.4%)	In the village (92.1%)
Location of the main occupation of the HH now	In the village (75.0%)	In the village (89.5%)
Percentage of HH who had part-time jobs previously	0.0%	0.0%
Percentage HH who had part-time jobs previously	29.7%	21.3%
The main part-time occupation of the HH	Farming (13.0%)	Farming (10.9%)
Location of the current part-time job of the HH	In the village (90.4%)	In the village (94.0%)
Average monthly income of the HH from the previous main occupation	RM77	RM90
Average monthly income of the HH from the current main occupation	RM229	RM232
Average monthly income of the HH from the	RM115	RM47

current part-time occupation		
Average monthly income of the HH from the	RM63	RM58
current other sources of income		
Current Monthly Total Average Income of the	RM407	RM337
HH		

At the same time, 18 percent of the HH in the VRP area stated that their economic satisfaction remained unchanged in the new settlements compared with 15 percent HH in the RP area. Whereas, around 11 percent of the HH in the RP and VRP area stated that their economic satisfaction had decreased in the new settlement areas. A large part of this group (satisfaction remained unchanged or decreased) are those above 55 years and still retain their activity of foraging for jungle produce as a main occupation. At the same time, the age factor of the HH that is relatively high and the decrease in forest resources whether naturally or because of the change in the status of the jungle for purposes of development and commercial agriculture, results in decrease in the income obtained from forests.

In the RP area satisfaction increased between 64 to 78 percent. The highest percentage in increase in the RP area was for community relationships (family relationship of the HH, relationship of the HH with the local community, outside community, Batin, head of religion/imam, JAKOA officer, Local Councillor and with the Member of Parliament (which had increased). This situation was followed by economic satisfaction (economic opportunities, increase in the income of the HH and MH in the current village/scheme) satisfaction with ability to retain traditional practices of the Orang Asli community (in wedding, religious community and Sewang ceremonies) and lastly in satisfaction with the size and location of the current village/scheme.

In the RP area, an increase is visible in community relationships in cluster houses (78%) compared with previous settlements which are dispersed. Satisfaction here is also high compared with other areas of satisfaction (economic, traditional, village) and is higher in community satisfaction in the VRP area (71%). At the same time, RP has also been successful in increasing economic satisfaction and increasing the income of the HH and MH where 74 percent of the HH stated that their economic opportunities had increased. This number is much bigger when compared with the VRP area (71%). This is the same where retaining traditions and their daily practices are concerned which is higher in the RP area compared with the VRP area. However, in terms of satisfaction towards the size and location of the village, relatively, this is very low compared with satisfaction towards community, economy and tradition.

In the VRP, satisfaction in terms of size and location of the village and community relationship increased when compared with economic opportunities and retention of traditions. Differing from the RP area, the VRP programme did not involve moving village. Due to this, satisfaction towards the size and location of the village and community relationships remained significantly unchanged when compared with the RP participants. In the early stages of the implementation of this RP programme, each participant was given some economic opportunities where they were given land for commercial farming and it can be in term of rubber or oil palm with the assistance of the relevant government agency. In the VRP area, commercial farming programmes depended on the land reserves that were already available for development.

Relatively, the distribution of land to the HH (participants) in the VRP area is much smaller than the participants in the RP area. In relation to this, the size of the land which is small is suitable for subsistence cultivation and is not suitable for cultivation of rubber and oil palm. This factor is also related to income from the main source of occupation of the HH in the RP and VRP area. The main occupation of the HH in the RP area is working in the rubber and oil palm small holdings whereas in the VRP it is cultivation of subsistence crops. The income from rubber and oil palm is also much higher than subsistence cultivation of crops in the research area. In terms of satisfaction in retaining traditions, it was found that the percentage in the RP area was much higher than the VRP area. The age factor of the MH in the RP area which was much higher in the VRP area (age structure which was young) results in more youth (secondary school leavers) in the RP area compared with the VRP area. Activities like wedding ceremonies, community celebrations and Sewang were held more often in the RP area compared with the VRP area. By rearranging the research indicators to only two choice answers, which is satisfied and not satisfied, in the RP area the percentage of HH most satisfied

(highest) was with community relationships (1), economic opportunities (2), ability to retain traditional practices (3), size and location of villages (4) and lastly related to the public services that were available in the in the RP area (5). Whereas in the VRP area, the percentage of HH most satisfied were with the size and location of the village (1), community relationships (2), economic opportunities (3), ability to retain traditional practices (4) and lastly related to the public services that were available in the VRP area (5).

In the RP area satisfaction towards the size and location of the village is the fourth compared with the VRP area. This is because, as discussed in Chapter four, RP involves moving from village to village, whereas in the VRP area it only involves restructuring the villages which are already there. Satisfaction with the size and location of the village in the VRP area is high because they have lived in the same area for a long time (since their previous generations) and much of the VRP areas are near the Malay community villages and close to the main road to the towns. However, the satisfaction towards economic opportunities for the population in the RP area is much higher compared with the population in the VRP area. This is because the resettlement in the RP is planned for more structured economic opportunities. Besides this, the satisfaction for retaining traditions in the RP area is also much higher when compared with the VRP area. This situation is related to the age factor of the household and the location factor of the settlement area. The process of cultural assimilation of the Orang Asli community and the Malay community took place more in the VRP area. Whereas, in both the areas, the percentage that were most dissatisfied were towards the public facilities that were available.

CONCLUSION

Orang Asli represents the minority race whose percentage is less than the total population of Malaysia. In Malaysia, the focus on the development policies of the Orang Asli has been undertaken since 1954 through the Orang Asli Act (Act 134) and the establishment of the Department of Orang Asli (DOA). However, till today the Orang Asli community remains a minority group that is marginalised from mainstream national development or at the international level, they are still termed as “*the most marginalized sector of society*”. In Malaysia, even though the percentage of the population who live in town areas is increasing, but only about one percent of Orang Asli community live in town areas. In general, the Restructuring Programme in the research area, that is RP and VRP was successful in achieving the target in terms of raising the standard of living of the Orang Asli community. The satisfaction of the Orang Asli community that is measured in terms of community relations, economic opportunities, ability to retain traditional practices, location and size of the village had increased compared to their previous settlements.

However, in general, the objectives of the developmental plans for Orang Asli had assisted in increasing the quality of life of the community. This achievement is still low compared with the national average. When a comparison is made between the RP and the VRP, research indicates that the success in increasing the quality of life of the Orang Asli community was more in the RP than in the VRP (based on the indicators used in this research)²¹. However, in terms of economic impact, their income and involvement in the modern agricultural activities had increased but the rate of increase is still low compared with the average monthly income of the population of Malaysia. Almost all (90%) of the Orang Asli community in the research area are in the below of 40 percent group of households

²¹ As an example, the research of Muftaffa, (2008:186) shows that amongst the weaknesses of RP are (1) dependency on traditional economy, (2) limited job opportunities and insecure future (3) low awareness regarding the importance of education (4) insufficient infrastructures as planned. However, through this research, it was found that achievements (1) to (4) were satisfactory in the RP compared with the VRP. Research done by Devamany & Asan Ali (2016a; 2016b) found that the RP and the VRP have managed to improve the quality of life of indigenous community.

with the lowest income threshold. Besides this, the poverty rate amongst the Orang Asli community is still very high. Around 80 percent of the population are within the poor households ²².

Besides, even though foraging for jungle production is not the main source of income for the Orang Asli community, this practice is still the second main source of income in the research area. In relation to this, the objective of the 10th Malaysian Plan to reduce the poverty issues amongst the Orang Asli community from 50.0 percent in 2009 to 25.0 percent in 2015 requires a holistic approach to enhance the earning potential and capacity of the Orang Asli community. It cannot be denied that the location factor of the villages of Orang Asli community which is far interior, limits the accessibility of development to their areas thus resulting in limited job opportunities in the area of research. However, by increasing access to transportation and implementing special capacity building programmes for the Orang Asli community, it is felt that their monthly income will be increased.

Besides, a large part of the location of the main occupations and part-time jobs (income source of the Orang Asli community) are in their villages including reserved land, customary land within the 'rayau' area. The researcher observes that the Orang Asli community (including the youth and especially women) seldom migrate from their settlement areas. They are more comfortable and feel 'safe' staying in their current community. In relation to this, the policy that "*if development cannot be brought to people, bring the people toward development*" is very inappropriate. What is more important is how these development projects (or rural areas) which are becoming closer to the Orang Asli community are able to assist in raising the standard of living of the Orang Asli community. As an example, in the category of unskilled workers, (including hotel and restaurant workers), a suitable policy that has been drafted is to limit the involvement of foreign workers and replace them the involvement of the Orang Asli community. Nevertheless, policy and formulation preparation of psycho-socio programs for the youth have to be undertaken to strengthen their preparedness to capitalize on available opportunities and resources.

In the research area, economic development through the planting of rubber and oil palm together with the relevant government agencies has to be reevaluated. Land size for each participant of between two to six acres is found to be not economical to support the income of Orang Asli households which have member of householed who are relatively high in number. Besides, the issuance of land title and grants to the participants will increase the participants' efforts which will then directly increase productivity on the land which is available. In comparison, the participants of the FELDA scheme are given 10 acres of land and individuals are issued title documents after they have settled payment of the cost of development of the land/said settlement to FELDA. The FELDA Model which has been recognized at the international level as a success model to increase the income of rural people can be adopted for the Orang Asli community. The terms of agreement can be restructured and modified to minimize abuse and to increase sustainability of ownership.

Socio-cultural and demographic factors of the Orang Asli community also have to be taken into account when drafting resettlement programmes, including the type of houses, number of rooms and the area size of the house. As an example, the house of the Special Housing Programme (PPRT) which has two rooms and is without a balcony is found to be unsuitable for the Orang Asli community. Besides, the Orang Asli community prefers the toilets to be outside the house and there are amongst them who prefer houses on pillars and not on the ground. Due to this, it is more suitable if the Orang Asli community is given a choice on the type of houses in the Special Housing Programme (PPRT) with the same costs. These houses must be suitable and can complement their culture, customs and tradition. In addition, they do not like to have houses that are very close to each other. Usually, they will build a house next to their own house for their married children, thus requiring the space around their home. This is because of the emotional and family bondage that is very deep and has been strongly rooted amongst the Orang Asli households. The highest percentage of those who are not satisfied is in relation to the availability of transportation. All the resettlement areas should be connected by tarred roads. Tarred roads will help in improving the quality of life in terms of opportunities to increase the income and providing easier access to education and health. At

²² The findings of this research is similar to the findings of Juli Edo et.al (2008) in the Batu Berangkai area and in Kampar, Perak; Sungai Ruil and Cameron Highlands, Pahang; Bukit Lanjan and Tanjung Sepat, Selangor which found that around 80% of them earn an income of less than RM800 and below (poor).

the same time, Health Clinics (KRIM) can be introduced in the Orang Asli settlements. With the high number of youth, public facilities for them are also very important, like playing fields (football, sepak takraw, netball / futsal), telephone connections for the hand-phone, tuition classes, internet centres and skills training workshops. On the whole, this research found that 70 percent of the participants in the resettlement programme were satisfied with the scheme that was available. However, a special policy must be drafted for the 30 percent who are not satisfied with the available scheme.

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TRANSFORMATION AND SUSTAINABILITY OF RURAL ECONOMY IN FACING FUTURE DEVELOPMENT CHALLENGES

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ABSTRACT

The boost global economy has affected the sustainability of rural transformation. Due to the global economic boost has resulted in rural areas had to be independent and explore the existing opportunities. Transformation towards sustainable rural economies be affected by endogenous development approach and exogenous development approach. Both of these approaches has its own role, which can propel the transformation of rural development to a higher level. Collaborations in society can be endogenous factors in the community and change the mentality towards better advancement individual. The combinations of these two factors facilitate the acceptance of exogenous factors that are taken by the government to help rural transformation. Sustainability of the rural economy seen on the seriousness of the villages in a developing economy. Changes in approach from individuals to group can ensure the transformation towards sustainable rural economies without disturbing the existing individual activities. Empowerment of the rural sector should be taken seriously towards sustainability of rural communities in line with the transformation of the rural economy.

Key words: Sustainability, rural transformation, endogenous development approach, exogenous development approach

INTRODUCTION

Economic transformation of the country appears to have changed the landscape of rural development in Malaysia. The transformation of rural areas is seen as a potential that should not be neglected. Ability of rural potential need to explore to balance the nation's progress can be achieved through proactive policies. At national level, 12 National Key Economic Areas (NKEA) are used as a catalyst in spurring the economic growth. In contrast, in rural areas, resources and opportunities are limited where the main focus of the rural economy development remains the same on agriculture and farming. Through the transformation program approach to technology was focused to increase productivity. The rural sector in general is not as advanced as in urban areas which become the main focus of economic activity. Therefore, the rural sector must be strengthened holistic, balanced and structured so that it can be transformed into a sector that is economically viable, competitive and resilient. The development of industry in Malaysia has changed, more liberal policy for local and foreign investors introduced from time to time with the idea of encouraging private investment from domestic and overseas (Nasaruddin, 1992). This effect is indirectly much stimulating rural economic activities which become suppliers to other industries. This is in line with government policy that encourages the growth of the local business sector to help boost local economic activity (Aznie et al, 2015).

RURAL ECONOMIC DEVELOPMENT IN MALAYSIA

The relationship between urban-rural have long debated by expert's sociologist. They have a different opinion but have a common goal. Rural normally considered a less populated area. While the city is crowded with activities to carry out commercial, industry and institution (Sorokon et al: 1930). The

rural economy is based on various areas such as agriculture, fisheries, forestry, mining, tourism, and others (Matteo and strict: 2006). George Simmel (1978) stated that the urban environment produces its own mentality. This mentality is tied to the economic dominance in urban areas. Such economic domination leads to insensitive and impersonal behaviour, while in rural areas are characterized by the conquest of the mind. This situation shows that the rural economy is difficult to develop due to a weak mentality. In Malaysia, the rural development program starts after independence. The program has undergone some major era in the country.

Developments in the rural sector have been initiated since the post-independence era between the years 1957-1970. The main agenda is to draw up rural development systematically that covers the central, state and district levels. This is known as the era of growth (Era Pertumbuhan) in which the government has introduced Rural Economic Development Book (RED Book) in 1960. In this era also produced a number of implementing agencies which act as a catalyst for rural development. Among the agency set up is the Federal Land Development Authority (FELDA), the Rural Industrial Development Authority (RIDA), Federal Agricultural Marketing Authority (FAMA), the Federal Land Consolidation and Rehabilitation Authority (FELCRA) and Majlis Amanah Rakyat (MARA). The establishment is to assist in getting help, promote and market their agricultural products.

Then, the era of the New Economic Policy (NEP) is formed between the years 1971-1990. NEP growth with equity is an effort to eradicate poverty and restructure society to eliminate the identification of race with economic function. The programs organized by the foundation are set up parallel with the challenges and issues. New agencies were established for administering the Rubber Industry Smallholders Development Authority (RISDA), Community Development Department (KEMAS) and regional development authorities like KEJORA, KEDA, KETENGAH and KESEDAR. The NEP is intended to form and shape the rural activities to be more organized, according to the potential of areas and region. The agglomeration of economic activity is also evident particularly in plantations and agriculture. In 1984 the government introduced the National Agricultural Policy (DPN1). The ultimate goal is to revitalize the role and contribution of the agricultural sector in economic development.

National Development Policy drafted for the purpose of pursuing a policy of growth with equity, with a focus on eradicating poverty and restructuring society and the establishment of Bumiputera Commercial and Industrial Community (BCIC). This era was known as the National Development Policy between 1991- 2000. A notable event in this era was the launch of Vision 2020 by four former Prime Minister, Tun Dr. Mahathir Mohamad to achieve developed country status by 2020. Transitional rural development in this era has shifted to focus on human development (homocentric) to establish an open-minded man, has a global perspective and adopts values. This focus included in Philosophy and a New Strategy for Rural Development (FSBPLB). This philosophy has outlined seven main initiatives:

- i. Excellent human development
- ii. The development of a prosperous family
- iii. Community development and resilient identity
- iv. Provision of quality infrastructure
- v. Sustainable economic development
- vi. Effective delivery system
- vii. The creation of an institutional framework that is responsive to changes.

Rural Vision Movement (GDW) was introduced in 1996 as a strategy in the human development approach, in addition to a national movement aimed to increase community empowerment through awareness, changing attitudes and capacity building. It is to create a society with first in class minded through the government's efforts to build a developed country. Malaysia is now in the era of the National Vision Policy between 2001- 2020 which emphasize sustainable development. It is majorly focused on strengthening national and integration between urban and rural areas. Changing socio-economic growth strategy based on knowledge (k-economy) that use the latest technology and skills to increase productivity in all sectors of the economy. The government has established a Programs One District One Industry (SDSI) in 2006 to develop products or services that can promote the

identity of the district and its marketing locally and internationally. The government have been set up Rural Transformation Centre and Mini Rural Transformation Centre to increase the services and information about rural programs. The difference activity rural economy and urban economy are shown in Table 1:

Table 1: Characteristics of Urban and Rural Economic

No	Urban Economic	Rural Economic
1	Factory goods, technology services, administration services	Mining based products, agricultural products and environmental services
2	Advances technology	Traditional technology
3	Continuous operation throughout the year	Seasonal and dependent on demand
4	In a controlled environment	Free without restrictions
5	Local and foreign markets	The local market

Source: Matteo and Patric: 2006

Stimulate economic activity continues through the village Rural Action Plan (PTD). The purpose of the provision of PTD is to help villagers in managing the village more systematically documented in the form of an official document such as a book profile. Those involved in the preparation of PTD is composed of administrators village (JKKK), representative population groups such as youth, farmers, traders, entrepreneurs, teachers and professionals from agencies involved in rural development, such as the Office of Agriculture, Department of Irrigation and Drainage, the Department of Veterinary, KEMAS and others. Overall, the development covers two main areas: people and the environment. Human development covers four main aspects: the physical, cognitive, psychosocial, and spiritual development of the environment while also cover four main aspects, namely economic, physical environment, socio-cultural and political (Ibrahim Ngah, 2003).

SUSTAINABLE RURAL ECONOMY

According to the Brundtland Report, 1987, sustainable development is development that meets the needs of the present without compromising the ability to meet the needs of the future. This means that available resources must now be maintained and preserved so that future generations are able and have the opportunity to use it. Meet and maintain existing resources in sustainable practices to balance the social, economic and environment can be cared for properly. In rural planning, sustainable practices outlined some criteria that are related to sustainable development such as:

- i. Addressing environmental problems of agriculture
- ii. Reducing agricultural subsidies and protection
- iii. Supporting small farmers Subsistence
- iv. Linking agricultural production with conservation
- v. Moving the terms of trade for small farmers
- vi. Addressing inequality of access and distribution of food
- vii. Introduce land reform
- viii. maintaining biodiversity
- ix. Stopping forest destruction
- x. Build a network of protected forest
- xi. Creating a special international convention
- xii. Preserve and enhance natural resources natural

Sustainable rural development arises from increased environmental awareness by men and connectivity knowledge of the economic, ecological and social welfare. Furthermore, the sustainability of rural development is divided into the process and the product. Products include the balance of economic growth, improved social conditions and the preservation of natural resources. Process, the participation and the bottom-up approach needs to be exercised to involve local

participation in planning and implementation (Nghah, 2015). Rural development is a continuous process and sustainable economic, social, cultural and environmental changes that are designed to improve the welfare of the whole society (Moseley, 2004; Nghah, 2015).

Criteria of Sustainable Planning

Stressing the importance of sustainable rural development should be noted that effective local level to address local issues such as diversity, partnership and coordination, local identity, mobilization, increase the value of local resources and defense against globalization. The importance of environmental factors, social and economic planning is essential to achieve sustainable (Glasson and Marshall, 2007; Nghah, 2015). According to Riddle (2004) and Nghah (2015) proposed a number of sustainable design criteria such as:

- i. The link between knowledge and action
- ii. Raise awareness of the natural environment
- iii. Maintain good relations
- iv. Focus on the future
- v. Cycle glory: spring, lifestyle, high and low
- vi. They form artfully and carefully
- vii. The balance of socio-economic and environmental
- viii. Trying to protect from destruction

To achieve a sustainable level of detailed planning and need to be developed starting from the bottom. The aim is to identify the main causes of issues and problems that are difficult to contain. Through participation with local communities and taking into account the views and opinions of each will produce a holistic plan.

Sustainable Rural Planning

There are four levels of sustainable rural planning by Baker (2006), which can be a useful guide. He proposed a four-stage plan that is ideal model of sustainable, strong sustainable development, weak sustainable development and pollution control (Nghah, 2015).

Table 2: Level of Sustainable Rural Planning

Level	Sustainable Rural Planning	Method
1	<u>Ideal Model</u> Changing to a better attitude, Political decentralization, Law, Social and economic institutions, Integration of environmental policies and priorities of protecting the environment, Bottom-up approach to community; and Control	Radical, controls and restrictions
2	<u>Strong Sustainable Development</u> Changes in the form and level of consumption, Capital maintenance of the environment and biodiversity, Integration of environmental concerns in each sector; and Planning and design of green	Requires a touch of change
3	<u>Weak Sustainable Development</u> Reuse, Recycle, Help rebuild consumer goods, Life cycle management of goods, Addressing pollution at source; and Many top-down initiatives	Require changes in lifestyle

4	<u>Pollution Control</u> Awareness of preserving the environment is very low and require pollution control measures	Increase the importance of awareness
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Sources: Ngah, 2015

Sustainable development of rural areas there are four components that can also be done, namely innovation, maintenance, participation and integration (Pugliese, 2001; Ngah, 2015). These components include the social, environmental and physical for ensuring sustainable rural development. Moseley (2004) also outlines some examples of goals and methods of sustainable development of rural areas such as:

- i. Avoid shortages of non-renewable resources at an accelerated rate and promote the development of a more suitable replacement
- ii. Avoid carbon dioxide (CO₂) emissions into the open air and in soil and water that exceed the natural capacity for absorb or neutralize the harmful effects.
- iii. Maintain, improve and restore the diversity and productivity of natural ecosystems
- iv. Develop skills, awareness, knowledge, health and motivation of local people so that they have access to productivity and job satisfaction and involvement in development activities
- v. Maintain physical infrastructure and capital construction
- vi. Maintain or develop the technologies to ensure the production and use resources more efficiently
- vii. Organization and management systems develop effective and equitable that contribute to economic development that respects the preservation of natural, man-made and human resources
- viii. Maintain and improve the system of formal and informal justice, democracy and governance, promote social cohesion and justice
- ix. Maintain and improve homes, families, neighbours and communities that provide safe and lively environment
- x. Maintain and promote the diversity of cultures, traditions and activities that enhance the continuity with the past, a welcome place and local pride

APPROACH TO RURAL DEVELOPMENT

The rural sector has always been marginalized and exploited, the best approach should be drawn up to solve the issues. There are two approaches such as the endogenous development approach and exogenous development approach. Both have their own focus and basis for distinguishing this approach. In rural area build a base such as social, economic and physical as a backbone of development progress. Endogenous development is local development impulses generated by local and based on local resources (Picchi, 1994). The benefit was maintained for local economic development while respecting local values (Slee, 1994). Rural policy emphasis shifted towards rural diversification, bottom-up approach, to support local businesses, encourage local initiatives and local companies, and provision of appropriate training (Lowe et al., 1995). Theory-led rural development communities (community-led rural development) are

- i. Focus on strengthening the capacity of local actors to help themselves, which is regarded as a precondition for creating and maintaining local economic development
- ii. Refers to the ability of self-help rural community organization expertise with respect to the formation of groups, conflict resolution, mediation / delivery, leadership and management in achieving the common vision
- iii. In addition to 'community-led rural development' (rural development-led community), terms such as 'community development' (community development) (Keane and Cinneide, 1986) and 'bottom-up partnership approach' (a partnership approach bottom-up) (Mannion, 1996) was also adopted in this theory.

Bryden (1998) proposed a theory regarding a potential source of movement (immobile resources) to create a competitive advantage in rural areas

- i. Increasing mobility of capital, skilled labour, information, goods and services in the process of globalization. These resources are the basis for building a strategy for the development of rural areas.
- ii. Mobile sources (immobile resources) has four types such as social capital, cultural capital, environmental capital and local knowledge capital
- iii. Depending on the combination of visible (tangible) and less visible (less tangible) and interaction with each other in the local context.

But contrary to approach the endogenous, exogenous development depends on external factors for the development of rural areas. Rural development is a move to certain areas where the benefits of development are likely to be exported out that aside the local values (Slee, 1994). The approach taken is ensured to provide returns and benefits to local people fairly. The tendency to occur on the exploitation of rural resources has affected and retarded development. Approach mixed indoor / outdoor rural related to the globalization process due to the rapid technological changes in the information and communication sector. Encourage external factor approach is needed to help spur development while respecting local needs to ensure that rural areas maintained the authenticity and heritage.

LATEST ISSUES OF RURAL ECONOMY

Pressure on the economy development of a more liberal and a monopoly affects the rural sector. Unstable economic situation makes everyone into a panic and to remain aggressive in the market. For rural areas may face similar issues since from time to time. The difference now is the challenge to make the rural economy remains sustainable. Receipt of subsidies from the government to make the economy competitive and remain sustainable. But to continue in the future is difficult because of factors such as attitudes, exposure to external influences, the mentality of the population, geographical location, availability of knowledge and differences in political ideology. Taking the example of the draft Study Transformation and Rejuvenation Rural Plan of Johor 2016-2025 rural economic issues raised were:

Table 3: Latest Issues in Rural Economy

Issues	Note
<ul style="list-style-type: none"> • High dependence on foreign workers • Lack of employment opportunities for young people • Young people are not interested in agricultural activities • The workforce is getting older village • The problem of capital and mentoring to young entrepreneurs • The issue of certification and product quality (need to certification and quality improvement of products for marketing • Weaknesses marketing (packaging, branding and barcode) • The promotion of homestay (less publicized) • The problem of accessibility of rural products (away from downtown) • The delivery system is inefficient (subsidies, aid was slow) • Traditional Technology • There is no database information related to the arts and heritage • The need to continue and strengthen the heritage activities such as dance heritage, the heritage of the game, a literary heritage, a heritage of sound art and music heritage • Wasteland • Lack of resources and raw materials (crafts, foods like chips SMI) 	<p>Starting from the attitude of young people who are not productive in finding and developing opportunities for rural economic slowdown led to the development of this sector. Finally replacement hard earned handed over to foreigners who are interested and monopolized by companies. This situation is detrimental to the local population who are disabled and out migration to the cities</p>

<ul style="list-style-type: none"> • Disturbance of wildlife to plants (elephants, monkeys, wild boar) • The price of a commodity that does not affect the income stable • Prices of goods expensive cost of living increase • The problem of living in FELDA second generation that does not have a permanent job • Difficulty new entrepreneurs to gain a foothold because of existing premises occupied by old businessman 	
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Source: Final Draft of Transformation and Rejuvenation Rural Plan of Johor 2016-2025

Aggressive economic transition has hurt rural residents are still pursuing the old hopes to aid and government subsidies. Management weaknesses also be the cause of the rural economy is difficult to grow and meet the needs of the current market. Therefore, the food industry is still imported because domestic supplies are still unable to meet the current needs. Economic issues of today were due to the need of transformation towards sustainable rural economy. The challenges of an increasingly challenging the shrinking opportunities for the continued pursuing its old. But what he was trying to become the starting point for the revival and development to create opportunities.

TRANSFORMATION OF RURAL ECONOMIC

Economic sustainability studies conducted in the winners of *Anugerah Desa Cemerlang (ADC)* which is now known as *Anugerah Desa Sejahtera 1 Malaysia (ADSIM)*. Indeed, the village has a high competitiveness to participate and win this competition. Kampung Parit Tengah Sri Merlong Mk 12 Rengit, Batu Pahat, Johor which is the national winner ADSIM 2014 and Kampung Sungai Jambi Rengit, Batu Pahat, Johor which is the national winner of the ADC 2012 and Desa Lestari 2012. Both this village have a good cooperation in terms of participation, management, business, service and broad market that is named *Koperasi Parit Tengah Batu Pahat Guyup Berhad (KoGuyup)* and *Koperasi Jambi Indah Batu Pahat*. Not focused on the agricultural sector alone, cooperatives expand their economic branches more profitable services such as homestay (KoGuyup) and agricultural equipment rental business and canopy (Jambi Indah). Transformation the rural economy of the individual to the group allows participation by all the locals as well as benefit and income equivalent.

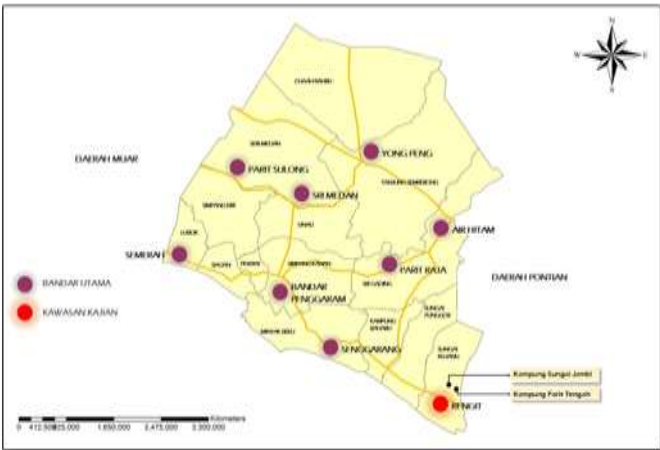


Figure 1: Location Map of Study Area

The background villages in Rengit, Batu Pahat, Johor, which generally represents agriculture and oil palm and pineapple orchard. The main constraint here is the lack of natural resources that add value to the landscape of the village. But the advantages of such social values and community consensus make this village a viable and successful. Social values are preserved as *gotong-royong*, *rewang*, alliances and united. This is because the majority of the residents are descendants of Javanese society. Generally the Javanese society known for their diligent and persevering especially in agriculture, *guyup* (united), strong work, love of peace, humility, respect and obey the chief guest (Noriah and

Kamdi, 2011). In addition, as a head of village they are very concerned about the members, caring and as a peacemaker of a fight. The imaginary reflect the strongest in society with the retention of traditional cultures still practiced. A clean environment, beautiful and can be enjoyed at Javanese home page and throughout the village. Lined village formed from the multiplication as agricultural drainage ditches reflect the identity of the village society, especially in Johor (Norah and Kamdi 2011: 15). Rural economic transformation of the individual to society can be deduced from two cooperative model villages. There are three parts that will be discussed are:

i. The participation of cooperatives and the election of the Board of Cooperative

The participation is open to residents of which RM100 is charged for each participant to take part or share. Fee per participant is fixed and equal unauthorized person who pays more. The aim is to avoid being monopolized by certain groups if the project success. But providing an incentives is allowed such as 100 persons earliest registration is free as practiced by KoGuyup. This initial investment of money paid by the cooperative as an incentive and boosters. So that each cooperative membership now stands at over 300 people aged 18 years and above. Registered as a cooperative, cooperative members receive a membership certificate issued by the Malaysian Cooperative Commission (SKM) for confirming membership. This makes the registration becomes valid business carried on in terms of the law. In addition, members are also entitled to express their opinions and participate to vote whenever the time comes for the election of the Board of Cooperative (ALK).

ALK nominations made by members of the cooperative who felt qualified to lead the leadership of the cooperative during the Annual General Meeting. Usually the chairman is elected head of the village itself for ease of management and administration. They have features such as experienced in the management of the village (JKKK), agreed upon by a majority, skilled in village administration, intelligent debate and expression, leadership qualities and a successful advanced (role model). For ALK employment consists of 15 members, including the chairman, secretary and treasurer. While the management team is assisted by two co-operatives for the Management Committee to manage, design, oversee and evaluate the transaction as well as projects and activities. Transparency should be demanded from all ALK for the success of the cooperative agenda.

ii. The business conducted

Business focus now shifting to services compared to primary sectors such as agriculture. As a successful example of village leadership and the economic aspect is important to set a precedent for other villages. Business is conducted vary according to their respective strengths. For KoGuyup and Jambi Indah doing business that brings profit is a priority so that it can be shared with members. Profit is owned by a member of the joint and not on ALK only. The advantages of this cooperation are to have all projects of the ministry and the funds received will be reallocated and managed by the cooperative as a company. This situation makes the village economy is also able to move forward if properly managed and has a good record. Transformation towards sustainability of the rural economy can be seen in the business carried on by the two cooperatives.

Table 4: The Cooperative Activities

Koperasi Parit Tengah Guyup Batu Pahat Berhad		Koperasi Jambi Indah Batu Pahat Berhad	
Address	Bangunan Mini RTC Kampung Parit Tengah Sri Merlong	Address	No 80, Kampung Sungai Jambi Darat, Rengit
Type of business	Services	Type of business	Services
Year of establish	2014	Year of establish	2012
Main services product	Inap Desa / Homestay / Desa Stay	Main services product	Farming equipment rental business and canopy
Others services	Mineral water plant project,	Others services	Pineapple farming

	Complex Chalet and Camp Guyup (in planning)		
Asset	Farmland, factories (in planning)	Asset	Canopy, trucks, 4x4 vehicles, backhoes, mini excavators, agricultural land
Targeted group	Students / universities, government agencies, researchers from local and abroad	Targeted group	Faction group of local farmers and the local population about Rengit

Source: Field Study and Profile Cooperation, 2016

The findings of both cooperatives show long-term plans that clearly and securely into the power of cooperative management. Projects that benefit the economy of the village has always been planned and implemented. With the advent of social relations intact assist the village administration manages and administers the village well. In its policy of the Ministry of Rural and Regional Development (MRRD) who want to create a sustainable village of the 21st century, where villages are able to generate and provide economic opportunities to residents. The involvement of young people and youth in the planning can prevent that from happening migration to the cities. Have the economic base, infrastructure and complete facilities will make the 21st century the village is more developed and organized. Proactive organizations always participate and are willing to participate with the government to achieve the objective of a sustainable village. Initiated transformation will be an example to other villages of the whole country.

iii. Operation and management

The daily activities of the cooperative are to manage and update the work of the administration and planning of programs throughout the year. Therefore, there are two assistants remain as manager and assistant managers who perform office job in the village cooperative. In addition, management task is updating the cooperative village so full profile for future reference purposes. While the secretary will prepare reports related meeting minutes which will be updated and revised by management. ALK as they are in office in the JKKK and somewhat limited with their daily tasks. So it's hard for them to focus. Generally, under the administration of the village JKKK while acting as a co-operative company carrying out economic activities of the village. The JKKK is distinguished by the village administration and represents the village to the district, state and national levels. Fund of Funds is also different which JKKK income generated by agricultural activities such as pineapple and palm while also through cooperative projects planned economy. But they were led by a chairman of the same in the JKKK and cooperative. The aim is to avoid a conflict of opinion in order to become excellent village.

DISCUSSION

Transformation is a complete change something like the shape, appearance and character²³. While the transformation of rural development refers to the development of rural areas for the rapid and radical intensity agriculture, livestock elected, farmland, incomes and farm productivity, the productivity of technology and labor, and improvement of comprehensive housing and rural economy and increasing social impact of industrial and urbanization (Long et.al, 2011; Ngah, 2012). During the post-independence era rural communities are poverty, low productivity, lack of basic infrastructure, low health status and less education (Ngah, 2009; Ngah, 2012). Post-independence economic boom has been a considerable increase in rural areas. Many economic opportunities provided by the government to assist rural communities viable. Since then, the percentage decrease of poverty declined 58.6 percent in 1970 to 3.4 percent in 2012. While the percentage of extreme poor fell by 5.2 per cent in 1990 to 0.6 percent in 2012. This scenario shows the successful transformation program to develop

²³ Longman Dictionary of Contemporary English

rural communities, especially in terms of opportunities economy. Revenues still makes their living standards continue to rise. But not forever rural communities should be provided subsidies for self-development. In recent times, they have to be more self-reliant to explore the opportunities that are available. Village leadership must be alert and productive lead and develop the village. Inventory of science and knowledge is very important to provide the community can meet the challenges of development in the future. It is difficult to attract the public trust if the village leadership is not united. Inner strength needed to be strengthened so easy to understand and cooperate. Ideological differences should not be an obstacle to progress. Parable of political parties such as the difference in the garden where the plants that will best serve as an example (Norah and Kamdi, 2011). Cooperation village seen as an effort to sustain the rural economy. Systematic management and organized to ensure the smooth running of projects planned. Economic activity also intensified, with the participation of the entire population of the village. To guarantee the maintenance of economic activity for a long time to make the transformation to a sustainable rural economy is more successful. Summary cooperative concept under study is shown in Figure 1.

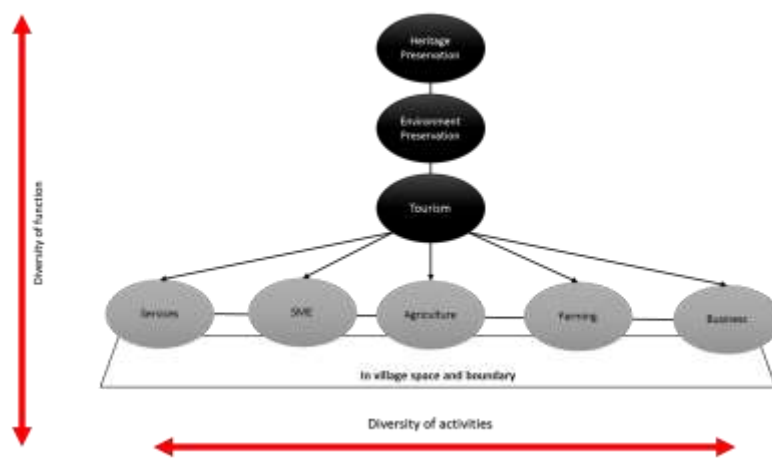


Figure 2: Model of Cluster Economy in Diversify Function

The horizontal axis is looking for the potential for economic diversification based on the strength of existing resources that have not been exploited mainly based economy expanding chain of events that can be generated from existing products or new products. The vertical axis is also diversifying the economy through tourism activities that utilize existing economic resources in the same area eg existing agricultural activities can be used for agrotourism. Applying the existing resources sparingly in the interest of the future of the planned activities will be sustained. Merely increasing the potential and opportunities that exist to preserve the heritage and focus to grow the rural economy. Actually tourism products and attractions can be designed with a determination and openness to all parties. The best thing is through culture and heritage attractions that ensure the sustainability of the village, especially in the economic sector.

CONCLUSION

Overall transformation requires a long time and infinite patience. In addition, openness and cooperation is demanded so plans now show a positive change in the future. Youths should also be given the opportunity to participate with the leadership of the village in order to inherit the tradition and heritage of a closer and deeper. Maintaining culture is very important in order to stimulate the transformation of rural areas do not disrupt the local culture. A pure approach should be emphasized that the expected progress is not submerged heritage valuable. Transformation towards sustainable rural hopes to address issues such as migration of rural youth to cities, addressing labour issues, reduce the urban-rural gap, marginalization and lack of rural and solve social problems.

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