Strengthening Fishing Community and Capacity Building through Seaweed Mini Estate System in Sabah, Malaysia

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Abstract

Community capacity building issues in Malaysia have been given serious attention by the government, private sector, and NGOs, where day by day a number of new programmes are introduced and sought by the community to support the initiatives. This paper discusses the establishment of capacity building programmes among the poor rural community in the District of Semporna, Sabah, Malaysia. In relation to this, the capacity building programmes were carried out to enhance the level of community participation and skills advancement for the long term process of modern sustainable seaweed cultivation. The study was conducted in between 2011 and 2013. A qualitative research approach which involves an in-depth interviews and field observation methods were adopted and the data were analysed using qualitative analyses techniques. The findings revealed that the introduction of seaweed cultivation using the Estate Mini System and Cluster System under the initiative of the Department of Fisheries Sabah has exposed the community to the application of new technologies such as the varieties of seeds, seeds and nursery management, fertilising and tying of seeds, the activity of solar drying, and the casino table technique in the process of seaweed cultivation. The study is significant for the fishermen experiencing the process of lifelong learning, which also enable them to enhance their knowledge and survival skills in their respective fields of employment. Moreover, capacity building programmes could change the mind-set of the community to be more open in receiving new approaches in the production of seaweed cultivation. Finally, this paper draws some practical implications and suggestions for future research directions.

Keywords - Community capacity building, seaweed cultivation, fishermen, capacity building programmes.

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Introduction

Community development issues in the context of sustainable development have been given serious attention from all parties, namely the government, private sector, and NGOs. Development and community are two important elements which cannot be separated (Ibrahim, 2007). Sustainable development tends to inspire the community to enjoy all facilities and services in the aspect of social, economic, and environment for them to live a better and sustainable life. However, communities in rural areas especially the fishermen in many developing countries and underdeveloped countries are commonly characterised with marginalisation in developmental issues such as infrastructure development and socioeconomic status (Ibrahim, 2007, p. 58). This situation contributes to the conflict and unhappiness among the community members because they cannot afford to adapt themselves with the development ideas suggested by development agencies such as the government and private sectors (Hussin & Weirowski, 2013). This phenomenon causes the rural communities especially the fishermen to face many challenges. Presently, the main significant problem faced by the community is poverty (Ibrahim, 2007; Roddin & Sidi, 2013).

Poverty issue among the fishermen is considered a common problem and is known by many parties (Hussin & Weirowski, 2013). Moreover, the poverty issue is not only common among the rural fishermen, but also among the indigenous groups (Roddin & Sidi, 2013). Studies on poverty among the fishermen in peninsular Malaysia are given focus by many scholars (Firth, 1966; Aziz, 1987; Shaari, 1990) who tried to identify the main challenges and limitations encountered by the fishing community. There were several factors contributing to the poverty of fishermen such as the practise of conservative value, lack of capital and poor technologies in fish catching activity, fully dependent on the source from the sea and related sea activities (Firth, 1966; Aziz, 1987; Shaari, 1990). Meanwhile in Sabah, studies on poverty and development issues among the fishermen were conducted on those who are also practising seaweed cultivation as a secondary employment that were largely carried out by Getrude (2003), Ismail (2004), Hossin (2013), Majid Cooke (2004), and Rosli (2013). The research findings revealed that serious and proactive initiatives should be taken to overcome these problems.

There are a number of factors identified to be contributing to poverty and underdevelopment of the poor in the rural communities. There are personal factors especially attitude (Roddin & Sidi, 2013; Kamaruddin & Ngah, 2007; Omar, 2008; Abdullah, 2008; Aziz, 1987; Ismail, 2004), lack of capital and poor technology in agriculture (Firth, 1966; Aziz, 1987; Ismail, 2004), and demographic factors (Getrude, 2003). Relevant authorities should encourage the rural communities to improve their life to a higher level in order to overcome these problems. Members of the communities who want to succeed in development area are supposed to have positive attitude by taking some initiatives to develop themselves. There are a number of capacity building programmes supported by the government and this opportunity should be grabbed without negligence. Changes in self especially changes in behaviour is the most important thing, in which they should accept the capacity building programmes as a huge strategy to change (Roddin & Sidi, 2013, p. 663). Development programmes in the past decades were gradually developed by providing physical facilities and

finance for the new approaches, namely education, skill training, and capacity building to eradicate poverty and provide a good livelihood for the community. Merino and Carmenado (2012) responded to this situation by stating their views as follows:

'in rural areas, development projects have also evolved in a similar way from an economic perspective based on the ready availability of natural resources, low labor costs, and lax taxes and regulations to recruit businesses to rural areas to a broader concept in which factors like capacity and capacity building may be more important for development than the traditional technology transfer system, for their influence in projects sustainability and hence in economic growth and social development' (p. 966).

In addition, capacity building programmes were identified as a mechanism in the development of the community because they have the potential to change the poverty status of the community. Studies on capacity building which focus on the rural fishermen are scarce, especially in Sabah. For this reason, a study was conducted to fulfil this gap regarding the capacity building involving rural fishermen in Semporna, Sabah. This study discusses the establishment of capacity building among the poor rural fishermen community. The aim of this study is to bring the benefits to the community to provide a better life and gain social advancement by participating in seaweed cultivation projects in their areas. Seaweed cultivation is regarded as the main and secondary employment for the fishermen in Semporna, Sabah. However, there is a need to increase their livelihood to a better condition by introducing capacity building programmes to them. Capacity building programmes are significant in that area because the community does not have any exposure on how to gain through the development. Local communities without capacity are not really communities in any meaningful sense, which could rather lead them to apathy, poverty, and ineptitude (A workbook-in-progress for rural communities, n. d). As a result, they are not given the chance to adapt themselves with the new modern development programmes. Several types of capacity building programmes are to be addressed such as programmes that can increase their knowledge and skills related to the seaweed cultivation as well as exposure to new modern technologies. As a result, the main objectives of this study are as follows: (1) to identify the forms of capacity building programmes implemented which can boost the knowledge and skills of the fishermen, and (2) its impacts.

Literature Review

Concept of Capacity Building

The concept of capacity building is an abstract concept that has multiple dimensions (Merino & Carmenado, 2012). There were a few characteristics stated when the meaning of capacity building was examined in past literatures such as capacity, strengths to the more tangible characteristics of knowledge, technical expertise, skills, and leadership (Simmons et al., 2011, p. 197). Capacity building was given the definition as 'increasing the ability of people and institutions to do what is required of them (Honadle, 1981, p. 577). According to Littlejohns and Thompson (2001),

capacity building is 'the degree to which a community can develop, implement and sustain actions which allow it to exert greater control over its physical, social, economic and cultural environments'. On the other hand, Civil Society Human and Institutional Development Programmes (CHIP) (2007) defines the term capacity as having the capacity to do something such as creates new ideas, implementing the new and old ideas, and implementation through action and others. Honadle (1981) also gives his view on the definition of capacity, in which it has several characteristics that contribute to the core such as (1) anticipate and influence change, (2) make informed, intelligent decisions about policy, (3) develop programs to implement policy, (4) attract and absorb resources, manage resources, and (5) evaluate current activities to guide future actions. Then, the purpose of capacity building is questioned. Therefore, Simmons et al. (2011) stated that the purpose of the capacity building in general is to address the primary determinants of health, enhance the quality of life, promote health and well-being, and prolong multiple health gains many times over.

The concept of capacity building in Australia is becoming a central objective and is often applied widely in all programmes and development policy (Hounslow, 2002). According to the World Resources Institute (2008), an increasing resilience of the organisation in terms of social and economic is a result of capacity building (Merino & Carmenado, 2012, p. 961). This study supports this view whereby the forms of capacity building programmes are expected to build the trust in fishermen to boost their life by participating in seaweed cultivation.

Concept of Seaweed Cultivation

Seaweed cultivation is regarded as an activity conducted near to the coastal area and it is mainly environmental basis, which is often conducted by the community in that area. The term seaweed according to the native language is SayurHijau or green vegetables, which is a source of food for the traditional people in past centuries in Asia (South, 1993; Ruperez, 2002). Other than that, Asian Countries became important agents in producing and marketing seaweed to other countries in the world (Rouxel et al., 2001). In Southeast Asian countries such as Philippines, Indonesia, and Malaysia, especially Sabah seaweed species that are commonly cultivated include Kappa and Euchema. They are then exported to other countries (Sievanan et al., 2005, p. 298). There are several seaweed species that are largely cultivated by the community in the coast of Malaysia. In Peninsular Malaysia, seaweed species such as Caulepa, Sarga, and Ulvaare are commonly produced by the community in the coast, especially the fishermen (Phang, 1989). In Sabah, seaweed species such as Kappa and Euchemaare are only cultivated by the community in the coast (Kaur & Ang, 2009, p. 4). Seaweed cultivation in Sabah is mainly focused in Semporna, Lahad Datu, Kudat, and Kunak which occupies 7535 hectares of the coastal area. The District of Semporna is given the main focus because most of the islands communities in that area conduct seaweed cultivation activity, especially the fishermen. Seaweed cultivation activity has a big potential to contribute in boosting the income of the country as well as enhancing the socio-economic level of the community.

Forms of Capacity Building

This section explains the forms of capacity building derived from the literature. Abu Samah (2011) in his writings explained that the capacity of a community is a pillar of the implementation of the community's development process. Shulman (1999) reviewed that lack of capacity of development agents in promoting the community capacity building would slow down the process of the community to come out from the poverty issue. Development programmes should be wisely planned so that the development objectives could be achieved. Dalam (1989) stated that the issue commonly encountered in the third world countries is the dependence of the community towards agricultural economic sector which is highly not productive as well as lack of capital, modern technology, and expertise. Prior to this, socio-cultural and psychological problems often occurred in the community, namely low level of education, attitude of the community, value system, traditional practice, and the people's mentality which are not in line with the development objectives. Therefore, a variety of capacity building programmes should be implemented by the government in the third world countries such as training programmes for effective manpower which has the potential to enhance and increase the quality of manpower as well as to produce viability and income of the community.

Salim (2005) in his writing entitled 'A challenge to public intellectuals' states that education, capacity building enhancement, and health and nutritional supplement would assist to increase the productivity because the workers are part of the production. A review by Porodong (2001) indirectly discusses the poverty issue from many angles such as cultural explanation and structural explanation. Cultural explanation gives emphasis on the poverty issue that is often related to the community behaviour. This situation influences them to decide and relate to the socialisation process in their early life. However, the emphasis of structural explanation on poverty is on the imbalance of opportunities within the society. The unbalance distribution of opportunity led to the imbalance of economy and resulted in two situations which are rich and poor.

Micro credit scheme starts to be implemented in many developing countries which gives attention to effective strategies in enhancing people's incomes. It was introduced in Bangladesh in the mid-year of 1970s with the revolution of 'credit as a human right for people' (Mohamed Zaini Omar, 2010). This initiative was implemented by Grameen Bank that considered the scheme as an effective way to eradicate poverty among the poor people in Bangladesh. This programme applies a concept which is based on self-assistance by giving loan in a small scale with a condition. The condition or agreement is just an easy process and mainly focuses on the people's capacity building. In Malaysia, Amanah Iktihar Malaysia (AIM) was set up through capital assistance by the government to enhance the people's capacity in financial management, moral support, advice, consultation, and skill training. This acts as an initiative to develop the small scale industries with the participation of the Bumiputeras. Research findings by Syuhada Abdul Halim et al. (2013) indicated that with the sponsor provided through micro credit by AIM and SAHABAT in AIM has changed the participants' lives. Based on the thorough survey conducted, the changes in SAHABAT participants' lives do not only increase their incomes but also in terms of materials.

To enhance people's capacity building, multiple aspects need to be given attention. According to Kadir Arifin (2009), human capital management is the most important element that should be given serious attention to ensure the quality of the management. Human resource refers to workers and staffs of an organisation, including those in low and high levels. This is because human resource could influence the quality of the product based on the suitability of education, training, skills, and experience. Therefore, if a person has the above stated elements, the quality of the product in the organisation will increase. Other than that, Kadir Arifin (2009) argued that there are a few management resources that are not really important in the quality management system, namely the source of supply, infrastructure, and working environment. The forms of capacity building that could provide to the community in all development projects depend on the suitability of the needs of the community to ensure that the objectives are successfully achieved. For example, livestock project of catfish and the processing of dry fish involve 131 local communities in Batang Lupar, Sarawak. All the participants of the project were assisted by the government in the form of grant, equipment, advice, training, and marketing. In terms of marketing, Honey Aquaculture Industry and Harvest Industry were officially elected as suppliers. This scenario enables the participants to pay full attention only on the productivity of growing the catfish and salt fish. Moreover, the programme enhances their skills and knowledge in terms of self-discipline, self-esteem, and time management in conducting the project.

It is undeniable that the use of new technologies in agriculture could help to enhance the agricultural productivity and change the result from small to big scale. The implementation of new technologies in producing organic fertilizers and new species has allowed the usage of other techniques which could help to create better productions. In relation to this, the application of new technologies is often regarded as the most important element in enhancing the capacity building of the community as well as their incomes. The enhancement of capacity building within the community in many programmes does not only benefit them in terms of a better livelihood, but also benefits the country. Poverty eradication programmes are some of the programmes that have succeeded in contributing to less social problems within the community and increased the economic income by having a high productivity. However, to realise the success of poverty eradication programmes, development agents are urged to have the capacity to bring the community together in the programme. This issue has been explained by the evaluation research done by Samir Muhazzab and Sara Shakilla (2012) which focused on the capacity of the development officers who run the programmes such as Skim Pinjaman Iktihar Nelayan, Mukim Kuala Kedah under the responsibility of AIM with the collaboration from Lembaga Kemajuan Ikan Malaysia (LKIM). Samir Muhazzab and Sara Shakilla (2012) concluded that development officers who have skills and knowledge can assist the fishing community in the effort to improve their livelihood. Moreover, these kinds of qualities in officers are needed by the community and the country.

Literature of Seaweed Cultivation in Sabah

Seaweed cultivation in the District of Semporna has a great potential to overcome the poverty issue if the fishermen are actively involved in the project. This is supported by Sade, Ali, and Ariff (2006) who viewed seaweed cultivation as a proof that contributes to fishermen's incomes and also act as an effective instrument to combat poverty. The local community could also gain many benefits in the aspect of social and economy if they actively participate in the activity. For instance, a research by Majid Cooke (2004) asserted that seaweed cultivation brings benefits to the cultivators until they are recognised as 'seaweed cultivators' in Banggi Island, Kudat, Sabah. Besides that, seaweed cultivation gives positive values to the cultivators. Majid Cooke saw the seaweed cultivation in Kalingau Village, Banggi Island and concluded that it has the potential to make a strong relationship within the community and raise their income level. However, the research findings revealed that supports from the community towards government projects has led the community into believing and trusting the government until they are willing to get involved in the seaweed cultivation activity even though the project provides slow results. From the gender perspective in the employment aspect, women also play an important role in contributing to the side incomes of the family. The same scenario occurred in Msuya's research where the community that lives in the coast of Zanzibar, especially the women workers contribute to their families' income by getting themselves involved in seaweed cultivation activity (Msuya, 2011). According to Ali (2011) and Msuya (2011), it is confirmed that the same situation also occurred among the community in the District of Semporna and in the coast of Zanzibar, where the kids are also involved in seaweed cultivation activity.

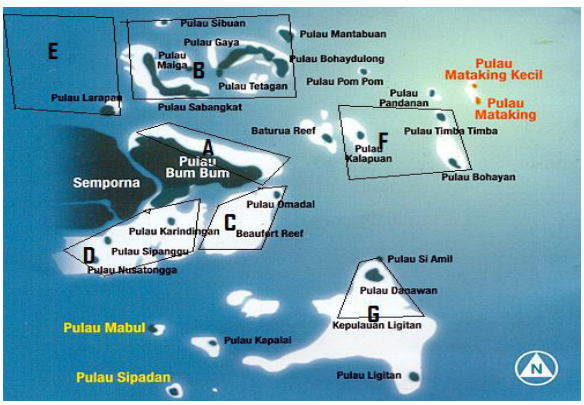
Research Methodology

This research was carried out in the District of Semporna, Sabah involving two islands, namely Selakan Island and Bum Bum Island (see Figure 1). These two locations were selected because majority of the fishermen in both locations participate in the seaweed cultivation activity as their main and secondary employment. A qualitative research approach involving an in-depth interviews and field observation were adopted to collect the data. A total of 10 informants from the fishing communities in both islands and two government officials (an officer from Seaweed Research Unit, UMS and an official from Department of Fisheries Sabah) were chosen based on the purposive sampling technique (Sekaran, 1992). These informants have the experience and interest in seaweed cultivation project in both islands. A series of interviews were conducted with the informants between the year 2012 and 2013. Informal face-to-face interviews were held with the Mini Estate Programme and Cluster System project participants as well as the government officials to get information on why and how the project was set up, the daily operations, impacts of the project, and how the community is involved and allowed to participate in the project. Moreover, all of the informants were asked about the capacity building programmes that were identified and implemented in the seaweed cultivation activity and how well the capacity building programmes bring benefits to the fishermen involved in the programmes. The interviews were mostly held in the interviewee's office for the government officials, while the fishermen preferred to be interviewed in their homes. The interviews lasted between 45 to 75 minutes. The interviewees were free to speak in either English or Malay, but most preferred to speak in Malay. All the interviews

were tape-recorded after the gaining the informants' permissions. The interviews conducted in Malay were then translated into English. All of the data gained from the interview were analysed using thematic analysis (Braun & Clark, 2006) and ensured to be in line with the research objectives.

Four themes were derived from the thematic analysis. The community capacity building programmes were implemented in Selakan Island and Bum Bum Island and after the thematic analysis; its implications to the community were identified and discussed. Hence, four themes were derived from the thematic analysis as follows: (1) Mini Estate Programme is a new approach of seaweed cultivation, (2) the practice and usage of new technologies to cultivators provided by the management of Mini Estate, (3) the process of learning new techniques in seaweed cultivation by Mini Estate Programme, and (4) speech and workshop programmes to boost up the motivation of the cultivators.

Figure 1: Research Locations



Source: Department of Fisheries Semporna, 2008

Research Findings

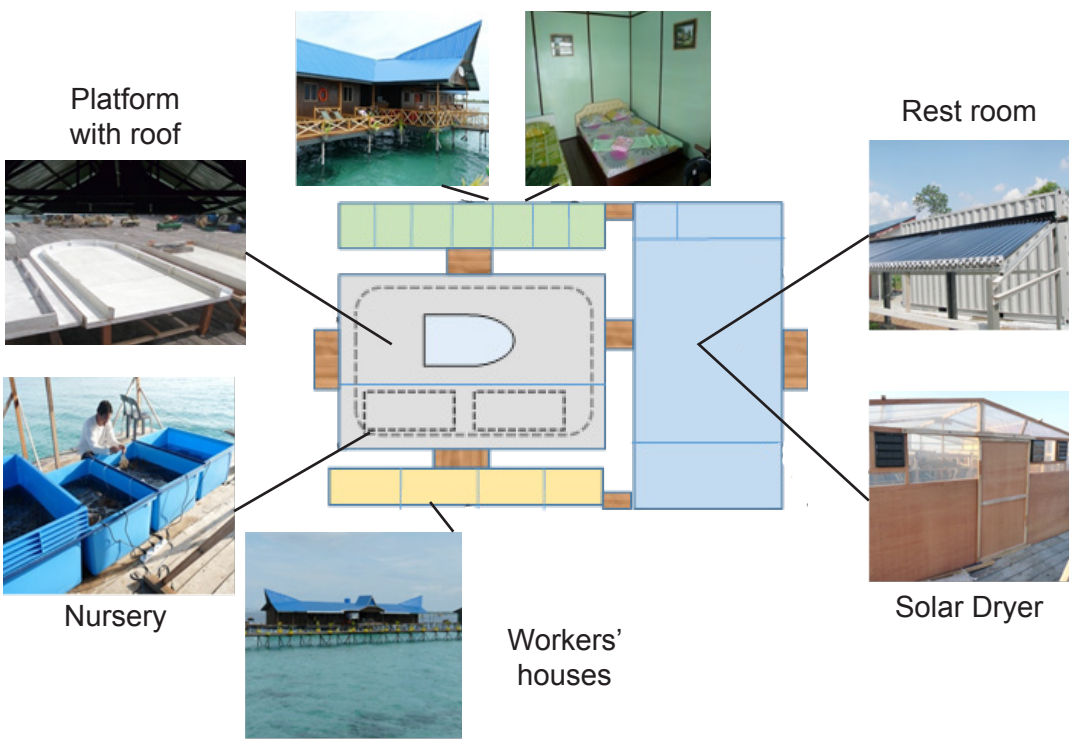
Mini Estate System or Programme is a New Approach of Seaweed Cultivation in Sabah

According to Yasir (2012), the Head of Researcher at Seaweed Research Unit, Universiti Malaysia Sabah (UMS), Mini Estate is a concept of management which was introduced by UMS to PEMANDU (Unit Pengurusan Prestasi dan Pelaksanaan di bawah Jabatan Perdana Menteri) where they manifest the innovation into reality. The seaweed cultivation project is fully funded by the government using the approach of 'community-based, commercial approach'. Mini Estate is a fine concept which is implemented in the seaweed cultivation programme in Semporna, Sabah. There are a few characteristics and definitions of Mini Estate System. A manual book entitled 'Sistem Mini Estet Industri Rumpai Laut Negara' was published by the Department of Fisheries Malaysia clearly mentioned about the background of Mini Estate System and its significance to the seaweed industry in Malaysia. According to the manual book, Mini Estate System refers to a better and new approach to the seaweed

cultivation. There has been a few important factors considered in the early process of seaweed cultivation activity, namely (1) Holistic management transformation-'poor-man industry to lucrative industry', (2) Science and Technology based mechanism, (3) Reduce labour intensive production, (4) Friendly and sustainable environmental management, (5) seaweed as a new commodity, (6)'community based, commercial approach', and (7) High quality yields and seaweed related products. There are elements in the Mini Estate System that could provide the local community and industry players with new knowledge and skills in order to embark on the new seaweed cultivation production in Malaysia.

Through the Mini Estate System, an important part in the seaweed cultivation activity is the availability of platform facilities (see Figure 2). The platform facilities and accommodation of the seaweed cultivators would enable them to be involved seriously. Previously, a high level of poverty level among the fishermen in both islands has led and forced them to carry out seaweed cultivation activities in a conventional way. Hence, the new technology and new approach have been introduced to assist these people to adapt themselves with the new process of seaweed cultivation which is hoped to enhance their livelihoods. In Mini Estate System, other facilities that have been introduced include: (1) holistic transformation (an enhancement of physically socio-economic image), (2) management system (previously 80% work in the sea and 20% at seaweed platform, but now 80% work at seaweed platform and 20% in the sea), (3) a complex integrative management of sea, (4) estate system, (5) block management, and (6) a model of entrepreneur development (Yasir, 2012). As a result, the Mini Estate System has transformed the conventional seaweed cultivation to a new and modern seaweed cultivation management.

Figure 2: Model of Mini Estate System (facilities and accommodation dimension)



Source: Yasir, 2012

Moreover, it is a concept of management that considers the locals' participation with community acting as the aim of the Mini Estate System. It has received attention from the government and has become one of the transformational programmes through National Key Economic Area (NKEA).The seaweed cultivation programme is identified as one of the 16 pioneer projects EPP (Entry Point Project). It was categorised as EPP 3. The target of EPP is to transform the seaweed cultivation activity into an industrial activity by commercialising it via Research and Development (R&D) assistance and infrastructure. Compared to the Mini Estate Programme, community capacity building via Cluster System has little differences. This is because the Cluster System is a continuous initiative under the Mini Estate Programme and the difference can only be seen in terms of the focus and target of the participants. However, this one difference could clearly invite different approach when implementing this project. Mini Estate Programme focuses on the local industry while the Cluster System focuses on the community participation. The importance of Mini Estate in seaweed cultivation activity would solve many problems related to the activity such as cultivation that is not environmental friendly as well as low in productivity. This is to ensure that the objectives of the Mini Estate Programme could be achieved, in which to promote a good management of seaweed cultivation system as well as to increase the income of the community. Moreover, the aim is to efficiently use the manpower especially the women's in the seaweed cultivation activity. A research officer in the Mini Estate Programme (informant 1) gave his opinion on the importance of Mini Estate Programme as below:

"Before the existence of Mini Estate Programme in these islands, only men were working in sea and tie the seaweed, where the women not afford to do. After the introduction of the Mini Estate Programme, women also can work at their respective homes such as tie the seeds of seaweeds and after bring them to seaweed processing location only. By having this method, usage of manpower could maximise, productivity could be enhanced as well as their incomes'…" (Informant 1, Research Officer at Seaweed Research Unit, UMS, 18 January 2013).

From his response, it can be concluded that Mini Estate Programme in both islands has given many benefits to the fishermen, especially in terms of socio-economic aspect. The usage of manpower particularly the role of women is important in seaweed cultivation activity in order to ensure that the productivity could be enhanced and sustained.

New Practice and Usage of Technologies to Cultivators Provided by the Management of Mini Estate Programme

Seaweed cultivation activity should be transformed with the usage of new technologies in order to increase the productivity. Recently, the capacity building programmes such as the usage of new technologies in seaweed cultivation activity has been widely implemented in these two islands. The implementation of new technologies in seaweed cultivation activity is regarded as a fine strategy which could enhance the productivity. New technologies such as fertilizers and tie of seaweed seeds, machine for harvesting, and solar dryer have the potential to increase the productivity, to

effectively use the manpower, and to consume less time at the location. The usage of new technologies in seaweed cultivation activity such as fertilizers are expected to be part of the capacity building programme to ensure that the production of the seaweed is good and automatically enhanced the productivity in both islands. Systematic usage of fertilizers in seaweed cultivation makes the seaweed to be good and resilient when it is exposed to threat of diseases. Fertilizers used in seaweed cultivation are a product of Green Leaf Synergy industry with the collaboration research by UMS. They are some instructions and procedures on the usage of fertilizers in seaweed cultivation. For instance, 200ml fertilizers need a 20 litter amount of water. After the seaweed cultivation activity, the seaweed will be harvested after a period of four months. Seaweed harvesting involves two workers. In the context of Mini Estate, seaweed harvesting will be conducted using combined harvester which plays a role as a machine of harvesting to help the cultivators, and it is less time consuming. With the help of the machine, it makes it easier for the cultivators to finish their work on time.

After the fishermen have successfully finished the harvesting work, the seaweed that has been harvested needs to be dried for the upcoming process. In the conventional system, the seaweed was dried under direct sun light where it is placed on top of roofs of homes. The dried seaweed turned into white and yellow in colours. To be more productive, the solar dryer was introduced to help the seaweed drying process. With the help of the solar dryer, the duration of drying takes less than 3 days compared to the 8 days conducted through the conventional method. This solar dryer method could also increase the quality of the dried seaweed. After the drying process, the dried seaweeds will be placed into a big plate and nicely arranged. This is to maintain the quality of the seaweed and to avoid it from being eaten by mice and cockroaches. Before being placed inside the store, all the dried seaweeds are put into sacks. After that, they are sold to the suppliers and manufactures.

Process of Learning on New Techniques in Seaweed Cultivation by Mini Estate Programme

The selection of seeds, cutting of seeds, and Casino tables are the early process of seaweed cultivation and they are considered as important capacity building to the fishermen to cultivate the seaweeds in their areas. In Mini Estate Programme, the selected seaweed seeds must be good and fertile in order to ensure the quality of the product. In relation to this, the workers are taught on how to select and separate the seaweeds. The selected seaweeds are cut into seeds, and they must be good seaweeds. Before tying the seaweed using the tie-tie string, the seaweeds that have been cut are placed on the Casino table to see whether they could become seeds or could only be dried. The unselected seaweeds are placed inside a bowl and soaked for some time to make sure it is fresh. Seaweeds which are selected to become seeds are cut into smaller size for the next process which is tying. The method for cutting the seaweeds involves the use of a sharp knife because the size of the seaweeds must be small and nice to see. In Mini Estate and Cluster System, the workers are taught to only select the good seaweeds and leave those which are affected by the Ais-Ais diseases. This is supported by the following response (informant 8):

"Yes, they teach us how to select the good ones, how to remove those affected by the diseases."(Informant 9, former worker of Mini Estate Programme on 17th December 2013).

This is also supported by informant 9 who was involved in the project as follows:
"True. First, cut the seeds, grow in sea...yes must be select the good ones...if anything wrong in the seaweed we must remove it..."(Informant 9, participant of Cluster system on 18 December 2013).

Once the first process is finished, the fishermen will be informed with the new techniques that involve the tying of seaweed seeds. To make sure the Mini Estate Programme is in a good progress, the management always provide guidance and demonstration to the workers on how to tie the seeds of the seaweeds. Other than that, the workers are exposed to the benefits of tying the seeds of seaweeds using tie-tie string compared to Raffia String.

Capacity Building through Workshop Programmes to Boost up the Motivation of the Cultivators.

Other than that, capacity building programmes through speech and workshops are also seen as a good strategy to enhance the level of capacity among the fishermen who are involved in the seaweed cultivation activity. Despite using the new technologies in seaweed cultivation activity, the Mini Estate and Cluster System also conduct speech and workshops for the workers and participants to increase their level of motivation and as a platform to identify the opportunities in this field if they are seriously participating. The speech and workshops have managed to encourage the workers and participants. The findings revealed that the existence of speech and workshops organised by the Department of Fisheries Sabah and UMS have given good impacts to the workers in terms of the chance to learn something new from the workshops. One of the participants agreed that she gained some knowledge and experience after participating in the workshops. Besides that, she also agreed that she has learned a few things such as the seaweed must be clean before it is put for sale. Knowledge gained from these workshops has made the participants to be more motivated in cultivating the seaweed in their islands. This is in line with her statement (informant 9):

"Yes, we need to make clean in order to our product to be sell easily. If we attend the seminar and workshop in a day means, we got the knowledge ready."(Informant 9, participant Look Cluster system on 18 December 2013).

Conclusion and Implications

The findings revealed that there is an existence of capacity building towards the participants in the seaweed cultivation activity in both islands. The themes revealed from the thematic analysis clearly show that the capacity building programmes in both islands empower the community to actively participate and to enhance their level of livelihood. New initiatives are introduced by Mini Estate and Cluster System in the seaweed cultivation activity through the building of community capacity to make their life better. Initiatives such as the establishment of Mini Estate System or Programme and Cluster System, usage of fertilizer, usage of harvesting machine during harvesting process, usage of solar dryer, techniques of tying the seaweed seeds, selection of seeds of seaweed and Casino table, speech and workshop have enhanced the community's level of knowledge and skills in seaweed cultivation activity in Selakan Island and Bum Bum Island Semporna, Sabah. These capacity building programmes influence the changes on people's mentality and provide new experience in order to motivate them to actively participate in seaweed cultivation activity. This study also observed that the new technologies implemented in seaweed cultivation activities in Selakan and Bum Bum Islands have provided the fishing communities with new skills and experience in their daily operation, and these programmes could be a tool for community development and poverty alleviation (Sade et al., 2016).

From the policy making and planning perspectives, this Mini Estate System has been successfully implemented and has given impact to the local communities, especially the poor fishing communities. In addition, good supervision and monitoring system at the district level and state level could be useful in order to sustain the industry for the long run as well as a strategy for community development. This study has its limitation due to the focus being only on the two islands (Bum Bum and Selakan). Empirical research is still needed for other islands located in the District of Semporna. Therefore, future studies are needed especially in other island communities (East Malaysia & Peninsular Malaysia) who are exposed or involved in the Mini Estate System for their livelihood or community development. In addition, it would be useful to carry out more impact studies of the new fishing community programme and further identification of impacts are needed. It is hoped that the findings from this study will contribute to the future stakeholder's interventions to focus more on future community development and livelihood related programmes. As a conclusion, the capacity building programmes introduced in Selakan Island and Bum Bum Island have successfully enhanced the fishermen level of understanding and knowledge as well as skills in the seaweed cultivation activity.

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