

Enhancing Capacity Building in Seaweed Cultivation System among the Poor Fishermen: A Case Study in Sabah, East Malaysia

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Received: September 7, 2014 Accepted: January 19, 2015 Online Published: June 5, 2015

doi:10.5539/ass.v11n18p1

URL: <http://dx.doi.org/10.5539/ass.v11n18p1>

Abstract

Community development issues in the context of sustainable development has been given serious attention from all parties namely government and private sectors. In this case study, a member of the community who wants to succeed in their life through development programmes should have positive attitude and take steps to develop themselves, while being supported by the government. This paper discusses the establishment of capacity building programmes among a poor rural community. The main objective of these programmes is to enhance the socio-economic status of the community through seaweed cultivation. Based on this, capacity building programmes were conducted for enhancing the level of community participation and high skills for the long term in the process of modern sustainable seaweed cultivation. The study was conducted between 2011 and 2013. Interviews were carried out with local fishermen and 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 by the Department of Fisheries Sabah exposed the community to new technologies such as using varieties of seeds, seeds and nursery management, fertilizing and tying of seeds, the activity of solar drying and using the casino table technique in the process of seaweed cultivation. The study is significant for the fishermen experiencing the process of lifelong learning and who can 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 and receive the new approaches in the production of seaweed cultivation.

Keywords: community capacity building, seaweed cultivation, fishermen, capacity building programmes

1. Introduction

Development and community are two things which cannot be separated (Ibrahim, 2007). Community development issues in the context of sustainable development have been given serious attention from all parties namely the government and private sectors. Sustainable development tend to inspire the community to enjoy all facilities and services from the aspect of social, economic and environment to live a better life and sustain. However, communities in rural areas especially the fishermen in many developing countries and underdeveloped countries commonly characterised with marginalisation in development issues such as infrastructure development and socioeconomic status (Ibrahim, 2007, p. 58). This situation contributes to the conflict and unhappiness among the community because they cannot afford to adapt themselves with the development ideas from 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. The main significant problem presently facing by the community is poverty (Ibrahim, 2007; Roddin & Sidi, 2013).

Poverty issue among the fishermen is considered as a common problem and is known by many parties (Hussin & Weirowski, 2013). Moreover, the poverty issue is not only a common problem among the rural fishermen, but also a common problem 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 what are the main challenges and limitations encountered by the fishing community. There were several factors contributing to fishermen living in poverty such as practising of conservative value, lack of capital and poor technologies in fish catching activity, being fully dependent on source of 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 which 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 in order to overcome these problems.

There are a number of factors which were identified as contributing to poverty and underdevelopment among the poor 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 demography factors (Getrude, 2003). To overcome these problems, relevant authorities and rural communities should be encouraged in order to increase their life to a higher level. Members of the communities who want to succeed in development are supposed to have positive attitude and take some initiatives to develop themselves. There are a number of capacity building programmes supported by the government and the communities should grab this opportunity without negligence. Changes in self especially changes in behaviour is the most important thing where they should accept the capacity building programmes as a big strategy to change (Roddin & Sidi, 2013, p. 663). Development programmes in the past decades were gradually developed by providing physical facilities and finance to new approaches namely on 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 as below:

‘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 where this programmes have the potential to change the poverty status among 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. A study regarding the capacity building involving rural fishermen was recently conducted in Semporna, Sabah. This study discusses the establishment of capacity building among the poor rural fishermen community. This is aim to bring the benefits to the community to make a better life and gain social advancement by participating in seaweed cultivation projects in their areas. Seaweed cultivation regarded as the main and secondary employment for the fishermen in Semporna, Sabah. Fishermen in this area practise seaweed cultivation as their main and secondary employment. But, there is a need to increase their livelihood to become better 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 the development. Lack of capacity building programmes in their areas lead them to poverty and thus they do not have the chance to adapt themselves with new modern development programmes. Several types of capacity building programmes are to be addressed such as programmes that increase their knowledge and skills related to the seaweed cultivation and exposure to new modern technologies. As a result, this study’s main objectives are as follows: (1) to identify the forms of capacity building programmes implemented which boost the knowledge and skills among the fishermen and (2) its implications.

2. Literature Review

2.1 Concept of Capacity Building

The concept of capacity building is an abstract concept and has multiple dimensions (Merino & Carmenado, 2012). There were a few characteristics stated when the meaning of capacity building was examine 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 an ‘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 as ‘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) stating that the meaning of the capacity term is as having capacity to do something such as creates

new ideas, implementing the new and old ideas, and implementation through action and others. Honadle (1981, p. 577) also gives his view on the definition of the capacity where it has several characteristics which become a 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, what is the purpose of the capacity building generally? Simmons et al., (2011) stated that the purpose of the capacity building in general as address the primary determinants of health, enhance the quality of life, promote health and well being and to prolong the multiple health gains many times over.

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

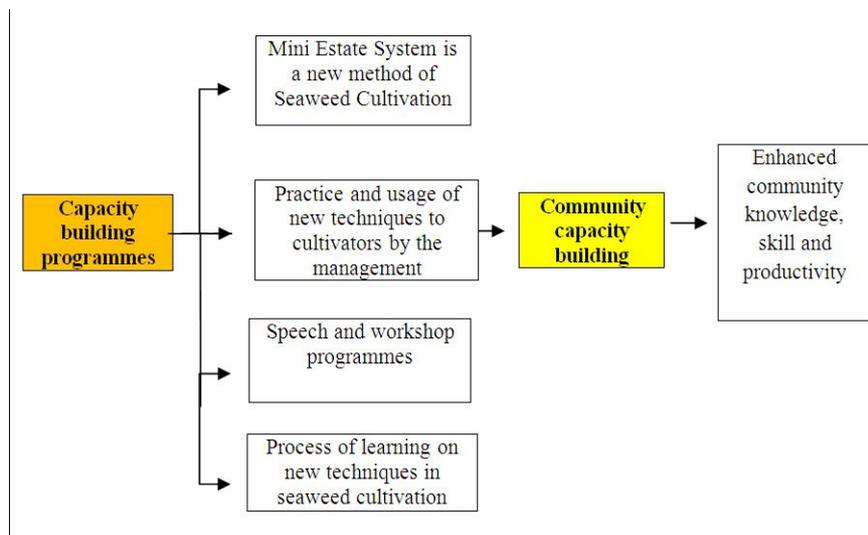


Figure 1. Conceptual model for community capacity building
Source: Fieldwork, 2013

2.2 Concept of Seaweed Cultivation

Seaweed cultivation is regarded as an activity conducted near to the coastal area and it is largely environmental basis and often conducted by the community in that area. The term seaweed according to the native language is *Sayur Hijau* or green vegetables which are 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 the seaweed to other countries in the world (Rouxel et al., 2001). In Southeast Asian countries like Philippines, Indonesia and Malaysia namely Sabah seaweed species which are commonly being cultivated are *Kappa* and *Euchema*. They are then exported to other countries (Sievanan et al., 2005, p. 298). There are several seaweed species which are largely being cultivated by the community in the coast of Malaysia. In Peninsular Malaysia, seaweed species like *Caulepa*, *Sarga* and *Ulva* are commonly produced by the community in the coast, especially fishermen (Phang, 1989). In Sabah, seaweed species like *Kappa* and *Euchema* are only cultivated by the community in the coast (Kaur & Ang, 2009, p. 4). Seaweed cultivation in Sabah is mainly being focused in Semporna, Lahad Datu, Kudat and Kunak which occupies 7535 hectares of the coastal area. The District of Semporna is given the 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.

2.3 Forms of Capacity Building Derived from the Literature

This section explains the forms of capacity building derived from the literature. Abu Samah (2011) in his writings explained that capacity of the community is a pillar of the community's development process implementation. Shulman (1999) reviewed that, incapacity of the development agents in promoting the

community capacity building enables the community to exit from the poverty issue. Development programmes should be planned wisely so that the development objectives could be achieved. Dalam (1989) stated that the common issue which has always been encountered in the third world countries is the community is dependent towards the 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. Socio-cultural and psychological problems were namely low level of education, attitude of the community, value system, traditional practice, and the people's mentality which is not in line with the development objectives. Thus, there should be a variety of capacity building programmes to 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 the manpower, producing viability and income of the community.

Salim (2005) in his writing entitled 'A challenge to public intellectuals' states that through education, capacity building enhancement, 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 through many angles such as cultural explanation and structural explanation. Cultural explanation gives emphasis on the poverty issue where it is often related to the community behaviour. This situation influences them to decide and relate the socialisation process in their early life. The structural explanation on poverty, however, is emphasis on the imbalance of opportunities within the society. Unbalance distribution of opportunity lead to imbalance of economy and resulted into two situations which is rich and poor.

Credit micro scheme started to be implemented in many developing countries and gives attention to effective strategies on enhancing people's incomes. It was introduced in Bangladesh in the mid-year of 1970s with revolution of 'credit as a human right for people' (Omar, 2010). This initiative was undertaken by Grameen Bank, considered as an effective way to eradicate the poverty where this scheme gives emphasis on poor people in Bangladesh. This programme has a concept which is based on self-assistance with giving loan in a small scale and has 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 which enhance the people's capacity in financial management, moral support, advice, consultation and skill training. This is as an initiative to develop the small scale industries with the participation of the Bumiputeras. Research findings by Syuhada Abdul Halim, et al., (2013) indicate that sponsoring through micro credit by AIM and SAHABAT in AIM changed the participants' lives. If we survey deeply, the changes in SAHABAT participants' lives are not only in the increase of incomes, but also in materials.

To enhance the 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 in an organisation including workers in low and high levels. This is because the human resource could influence the quality of the product which is based on the suitability of education, training, skills and experience. This is meaning to say that if a person has these stated elements, hence the quality of the product in the organisation will increase. Other than that, again Kadir Arifin (2009) argued that there were a few management of resources which are not really important in quality management system namely source of supply, providing of infrastructure, and working environment. Forms of capacity building which provide to the community in all development projects depend on the suitability of the needs to ensure that the objectives would succeed. For example, livestock project of catfish and processing of dry fish which involve 131 local communities in Batang Lupar, Sarawak. All the participants in the project were given assistance 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 focus only on the productivity of growing of 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 usage of new technologies in agriculture could help to enhance the agriculture productivity and change the result from small to big scale. The usage of new technologies in producing organic fertilizers and new species allows the usage of other techniques which could help to produce better productions. In relation to this, 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 to enjoy a better livelihood, but it also benefits the country. Poverty eradication programmes are a few of the programmes that have succeeded in contributing to less social problems within the community and increasing the economic income by having a high productivity.

However, to realise the success in 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 an effort to enhance their livelihood. Moreover, these kind of qualities in the officers are needed by the community and the country.

2.4 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 Mohd Ariff (2006) who viewed seaweed cultivation has already proved that it does not only contribute to fishermen's incomes, but has also become an effective instrument to combat poverty. The local community could also gain many benefits in the aspect of social and economic if they actively participate in the activity. For instance, a research by Majid Cooke (2004) inserted that seaweed cultivation brings benefits to the cultivators until they are recognised as a '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 a potential to make a strong relationship within the community and raise their incomes level. However, research findings revealed that supports from the community towards the government projects lead the community into believing and trusting the government until they are willing to get involved in the seaweed cultivation activity even though the project gives slow results. From the gender perspective in the employment aspect, women also play an important role in contributing to side incomes for the family. The same scenario occurs 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 involve in seaweed cultivation activity (Msuya, 2011). According to Ali (2011) and Msuya (2011), the same situation also occurs among the community in the District of Semporna and community in the coast of Zanzibar, where not only involved in seaweed cultivation activity but also their kids.

3. Research Methodology

This research was carried out in the District of Semporna, Sabah involving two islands namely Selakan Island and Bum Bum Island. These two locations were chosen because the majority of the fishermen in both locations participate in seaweed cultivation activity as their main and secondary employment. In depth interviews and field observation were conducted in order to collect the data. A total of 10 respondents were chose based on purposive sampling (Sekaran, 1992) where these people have the experience and interest in the seaweed cultivation project. They are from the government officials and local community. Interviews were conducted with the respondents between the year 2012 and 2013. Interviews were tape-recorded after the researchers gain their permissions. All of the respondents were asked about the capacity building programmes which were identified and implemented in the seaweed cultivation activity and how well these capacity building programmes bring benefits to the fishermen who are involved in the programmes. The interviews were usually held in the interviewee's office for the government officials, while fishermen preferred to be interviewed in their homes. The interviews lasted between 45 to 75 minutes. The Interviewees are free to speak in either English or Malay, but most preferred to speak in Malay. The interviews conducted in Malay were then translated into English. All of the data gained from the interview were analysed using a thematic analysis (Braun & Clark, 2006) and have been ensured that they were in line with the research objectives.

Four themes were derived from the thematic analysis. Community capacity building programmes was identified after the thematic analysis and its implications to the community who are participating in it. Community capacity building programmes are implemented in Selakan Island and Bum Bum Island as follows: (1) Mini Estate System is a new method of seaweed cultivation, (2) practice and usage of new technologies to cultivators provided by the management of Mini Estate, (3) process of learning on new techniques in seaweed cultivation by Mini Estate and (4) speech and workshop programmes to boost up the motivation of the cultivators.

4. Research Findings

4.1 Mini Estate System Is a New Approach of Seaweed Cultivation in Sabah

According to Yasir (2002), 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. Moreover, it is a concept of management and considers the locals’ participation. The aim of the Mini Estate is the community. It receives attention from the government and is one of the transformation 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 industrial activity and commercialise it via Research and Development (R&D) assistance and infrastructure. Compared to Mini Estate System, community capacity building via Cluster System is not much difference. This is because the Cluster System is a continuous initiative under the Mini Estate System and the difference could only be seen in terms of the focus and target of the participants. Yet, this difference could clearly bring different approach when implementing this project. Mini Estate System do focuses on the local industry whereby Cluster System focuses on the community participation. The importance of Mini Estate in seaweed cultivation activity is it would solve many problems in the activity such as cultivation which is not environmental friendly as well as low in productivity. This is to ensure the objectives of the Mini Estate could be achieved which are to promote a good management of seaweed cultivation system as well as to increase the income of the community. Moreover, it also aims to efficiently use the manpower especially the women in the seaweed cultivation activity. A research officer in the Mini Estate seaweed programme (respondent 1) gave his opinion on the importance of Mini Estate as below:

“before the existence of Mini Estate System 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 System, 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 enhanced as well as their incomes’...” (Research Officer at Mini Estate on 18 January 2013)

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

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

Seaweed cultivation activity should be transformed and the usage of new technologies is important in order to increase the productivity. Capacity building programmes such as the usage of new technologies in seaweed cultivation activity has recently been widely implemented in these two islands. The usage 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, effective usage of manpower and less time consume in the location. The usage of new technologies in seaweed cultivation activity such as fertilizers are expected to be part of capacity building programme whereby they make sure that the production of the seaweed is good and this automatically enhance the productivity in both islands. Systematic usage of fertilizers in seaweed cultivation makes the seaweed 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 of fertilizers need 20 litter of water. After the seaweed cultivation activity, seaweed can be harvested after a period of in four months. Seaweed harvesting involves two workers. In the context of Mini Estate, seaweed harvesting will be conducted by using combine harvester whereby it plays a role as a machine of harvesting helping the cultivators and is less time consuming. By having the machine, it makes it easier for the cultivators as they can finish their work on time.

After the fishermen successfully finish the harvesting work, the seaweed that has been harvested needs to dry for the upcoming process. In the conventional system, the seaweed was dried under sun light where it is placed on top of roofs of homes. The dried seaweed turned to white and yellow in colours. To be more productive, the solar dryer was introduced to seaweed drying process. By having the solar dryer the duration for drying becomes less than 3 days compared to 8 days in the conventional method. This solar dryer method could also increase the quality of the dried seaweed. After the drying process has finished, the dried seaweeds will be placed into a big plate and nicely arranged. This is because the quality of the seaweed will be maintained and will not be 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.

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

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

“yes, they teach us how to select the good ones, how to remove those affected by the diseases.. in that way...” (Salbiah Binti Salib, former worker Mini Estate System on 17 December 2013).

This also supported by respondent 9 who become participant in the project as follows:

“true..cut the seeds, grow in sea...yes must be select the good ones...if anything wrong in the seaweed we must remove it...” (Roslizah Binti Amat Banang, participant Look Cluster system on 18 December 2013).

Once the first process is finished, workers which are fishermen will be informed with new techniques involving tying of seaweed seeds. To make sure the Mini Estate is in a good progress, the management always give 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 seeds of seaweeds using tie-tie string compared to using Raffia String.

4.4 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 which are involved in seaweed cultivation activity. Despite using new technologies in seaweed cultivation activity, the Mini Estate and Cluster System also conduct speech and workshops for the workers and participants. This is because it could increase the level of motivation among the workers and is a platform to identify the opportunities in this field if they are seriously participate. Speech and workshops been given good impact and encourage the workers and participants. The findings revealed that the existence of speech and workshops organised by the Department of Fisheries Sabah and UMS, give good impacts to the workers in terms of they got a chance to learn something new from the workshops. One of the participant agrees that she gain some knowledge and experience after participating in the workshops. Besides that, she also agreed that she has learnt things such as seaweed to be put on sale must be clean before it is put on sale. Knowledge in these workshops has made the participants more motivated to cultivate the seaweed in their islands. This is in line with her statement (respondent 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..” Roslizah Binti Amat Banang, participant Look Cluster system on 18 December 2013).

5. Conclusion

The findings revealed that there is an existence of capacity building towards the participants in seaweed cultivation activity in both islands. Such themes revealed from the thematic analysis clearly show that the capacity building programmes in both islands empower the community to actively participate and their level of livelihood could be enhanced. New initiatives are introduced via Mini Estate and Cluster System in seaweed cultivation activity. They build the community capacity building and make their life better. Such initiatives like establishment of Mini Estate System and Cluster System, usage of fertilizer, usage of harvesting machine during harvesting process, usage of solar dryer, techniques of tie of seaweed seeds, selection of seeds of seaweed and Casino table, speech and workshop 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 give changes on the people's mentality and give new experience in order to motivate them to actively participate in seaweed cultivation activity. As a conclusion, capacity building programmes that have introduced in Selakan Island and Bum Bum Island have successfully enhanced the fishermen level of understanding and knowledge as well as skills during seaweed cultivation activity.

References

- Abdullah, R. (2008). Orang Asli dalam Arus Pembangunan Nasional di Terengganu. In M. Redzuan, & S. S. Gill (Eds.), *Orang Asli; Isu, Transformasi dan Cabaran* (p. 46). Serdang: Universiti Putra Malaysia Press.
- Abu Samah, A. (2011). Pendayaupayaan komuniti ke arah pemupukan komuniti sivil berkualiti. In K. Alavi, R. M. Sail, & N. A. Kamarudin. *Pembangunan komuniti membina keupayaan dan potensi masyarakat*. Serdang: Universiti Putra Malaysia Press.
- Ali, M. (2011). *Projek Pengkulturan Rumpai Laut (Seaweed) dan Cabarannya dalam Kalangan Komuniti Nelayan Miskin Di Semporna, Sabah* (Unpublished Master's Thesis). School of Social Sciences, Kota Kinabalu: Universiti Malaysia Sabah.
- Ali, M., Hussin, R., Yasir, S. M., & Abdul Rahman, A. T. (2013). *Projek Estet Mini Rumpai Laut dan Pembangunan Komuniti Nelayan di daerah Semporna, Sabah*. Paper presented at Social Transformation Conference 2013 (pp. 438-450). Kota Kinabalu: Sekolah Sains Sosial, Unversiti Malaysia Sabah.
- Amin, S. M., & Salim, S. S. M. (2012). Pembasmian Kemiskinan di Malaysia: Keperluan Kemahiran Pekerja Komuniti. *Akademika*, 82(1), 81-89. Retrieved from <http://www.ukm.my/penerbit/akademika/ACROBATAKADEMIKA821/Akademika82%281%29%20Bab%209-L.pdf>
- Arifin, K. (2009). *Sistem Pengurusan Kualiti Proses dan Pelaksanaan di Malaysia*. Bangi: Universiti Kebangsaan Malaysia.
- Aziz, U. (1987). *Jejak-jejak di pantai zaman*. Kuala Lumpur: Jabatan Penerbitan Universiti Malaya.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative research in Psychology*, 3(2), 77-101. <http://dx.doi.org/10.1191/1478088706qp063oa>
- Dalam, A. (1989). *Isu-Isu Mengenai Penduduk dan Kemasyarakatan*. Kuala Lumpur: Penerbitan Pustaka Antara.
- Firth, R. (1966). *Malay fishermen: Their peasant economy*. Kuala Lumpur: Dewan Bahasa dan Pustaka.
- Gang @ Grace, G. C. A. (2003). *Sikap komuniti miskin terhadap pembangunan*. Kota Kinabalu: Universiti Malaysia Sabah Press.
- Halim, S. A., Selvaratnam, D. P., & Bakar, N. A. (2013). Pembasmian Kemiskinan Melalui Program Amanah Ikhtiar: Kajian Kes Cawangan Kota Setar, Kedah. *Prosiding Perkem Viii, Jilid, 1, 355-370. The Malaysian National Economic Conference*. Bangi: Universiti Kebangsaan Malaysia.
- Honadle, B. W. (1981). A capacity-building framework: a search for concept and purpose. *Public Administration Review*, 41(5), 575-580.
- Hossin, A., Hussin, R., Kanyo, N. I., Yasir, S. M., Abdul Rahman, A. T., Salleh, N., ... Rosli, N. (2013). *Estet Mini Rumpai Laut dan sistem kluster sebagai strategi pembasmian kemiskinan: satu analisis di Semporna, Sabah*. Paper presented at Social Transformation Conference 2013 (pp. 32-46). Kota Kinabalu: Sekolah Sains Sosial, Unversiti Malaysia Sabah.
- Hounslow, B. (2002). Community capacity building explained. *Buletin*, 1, 21-22.
- Hussin, R., & Weirowski, F. (2013). Dari perikanan kepada pekerjaan ekonomi alternatif oleh komuniti nelayan Pulau Mantanani, Kota Belud, Sabah: Terpaksa atau Relevan untuk Berubah? *Proceeding Persidangan Kebangsaan Masyarakat, Ruang dan Alam Sekitar MATRA 2013* (pp. 52-78). Hotel Eastin, Pulau Pinang 26-27 oktober 2013.
- Ibrahim, Y. (2007). Komuniti Pulau Dalam Era Pembangunan: Terpinggir atau Meminggir? *Akademika*, 70, 57-76.
- Ismail, R. (2004). *Kesedaran dan sikap masyarakat terhadap pengkulturan rumpai laut di Pulau Banggi*. Kudat, Sabah. Kota Kinabalu: Universiti Malaysia Sabah.
- Kamarudin, K. H., & Ngah, I. (2007). *Pembangunan Mapan Orang Asli*. Skudai: Universiti Teknologi Malaysia.
- Kaur, C. R., & Ang, M. (2009). *Seaweed culture and utilization in Malaysia: Status, challenges and economic potential*. Paper presented at MIMA Seminar on Developing the seaweed aquaculture sector. Kuala Lumpur.
- Littlejohns., Baugh, L., & Thompson, D. (2001). Cobwebs: Insights into community capacity and its relation to health outcomes. *Community Development Journal*, 36(1), 30-41.
- Majid Cooke, F. (2004). Symbolic and Social Dimensions in the economic production of Seaweed. *Asia Pasific Viewpoint*, 45(3), 387-400.

- Merino, S. S., & Carmenado, I. D. L. R. (2012). Capacity building in development projects. *Procedia-Social and Behavioral Sciences*, 46, 960-967. <http://dx.doi.org/10.1016/j.sbspro.2012.05.23>
- Msuya, F. E. (2011). *The impact of seaweed farming on the socioeconomic status of coastal communities in Zanzibar, Tanzania* (pp. 45-48). Baton Rouge, LA USA: World Aquaculture Society.
- Omar, M. (2008). Rancangan Pengumpulan Semula (RPS) Masyarakat Orang Asli: Pencapaian dan Cabaran. In M. Redzuan, & S. S. Gill (Eds.), *Orang Asli; Isu, Transformasi dan Cabaran* (pp. 189-190). Serdang: Universiti Putra Malaysia Press.
- Omar, M. Z. (2010). *Pembasmian Kemiskinan di Malaysia Pengalaman Amanah Ikhtiar Malaysia*. Pulau Pinang: Universiti Sains Malaysia.
- Phang, S. M. (1989). Seaweeds of Cape Rachado Port Dickson. *Nature Malaysiana*, 10, 9-15.
- Porodong, P. (2001). Kemiskinan dan pembangunan global. In R. Hussin, B. Parasuraman, P. Porodong, A. Idris & D. Mulok (Eds.), *Globalisasi beberapa pendekatan Sains Sosial*. Selangor: Dewan Bahasa dan Pustaka.
- Roddin, R., & Sidi, N. S. S. (2013). Pembinaan keupayaan dalam pelancongan orang asli: satu kajian kes dalam komuniti Mah Meri. *Proceeding of the International Conference on Social Science Research, ICSSR 2013* (pp. 656-664). 4-5 June 2013, Penang, MALAYSIA. e-ISBN 978-967-11768-1-8.
- Rosli, N., Hussin, R., Lunkapis, G. J., Abdul Rahman, A. T., & Hossin, A. (2013). *Masalah nelayan dalam mengkultur rumpai laut: Kajian kes di Semporna, Sabah*. Paper presented at Social Transformation Conference 2013 (pp. 665-679). Kota Kinabalu: Sekolah Sains Sosial, Unversiti Malaysia Sabah.
- Rouxel, C., Daniel, A. Jerome, M., Etienne, M., & Flurence, J. (2001). Species identification by SOS-PAGE of red algae used as seafood or a food ingredient. *Food Chemistry*, 74, 349-353.
- Ruperez, P. (2002). Mineral content of edible marine seaweed. *Food Chemistry*, 79, 23-26. [http://dx.doi.org/10.1016/S0308-8146\(02\)00171](http://dx.doi.org/10.1016/S0308-8146(02)00171)
- Sade, A., Ali, I., & Ariff, M. R. M. (2006). The Seaweed Industry in Sabah, East Malaysia. *Jati*, 11, 97-107.
- Salim, E. (2005). *A Challenge To Public Intellectuals dalam Economic Prospects, Cultural Encounters and Political Decisions: Scenes in a Moving Asia (East and Southeast) The Work of the 2002/2003 API Fellows*. Tokyo: Asian Public Intellectuals Program.
- Sekaran, U. (1992). *Research Methods for Business: A skill building approach* (2nd ed.). New York: John Wiley and Sons.
- Shaari, I. (1990). *Ekonomi nelayan: Pengumpulan modal, perubahan teknologi dan pembezaan ekonomi*. Kuala Lumpur: Dewan Bahasa dan Pustaka.
- Shulman, L. (1999). *The Skills of Helping Individuals, Families, Group and Communities* (4th ed.). Illinois: Peacock Publisher.
- Sievanan, L., Crawford, B., Pollnac, R., & Lowe, C. (2005). Weeding through assumptions of livelihood approaches in ICM: Seaweed farming in the Philippines and Indonesia. *Ocean & Coastal Management*, 48(3-6), 297-313. <http://dx.doi.org/10.1016/j.ocecoaman.2005.04.015>
- Simmons, A., Reynolds, R. C., & Swinburn, B. (2011). Defining community capacity building: is it possible?. *Preventive Medicine*, 52, 193-199. <http://doi:10.1016/j.ypmed.2011.02.003>
- South, R. G. (1993). Edible seaweeds of Fiji: An ethnobotanical study. *Botanica Marina*, 36, 335-349. <http://dx.doi.org/10.1515/botm.1993.36.4.335>
- Yasir, S. M. (2011). *NKEA-Agriculture EPP 3-Seaweed Mini Estate (Community based-Commercial approach)*. Paper presented at NKEA Workshop Department of Fisheries Malaysia. Melaka.
- Yasir, S. M. (2012). *Algae Farming via Mini Estate System in Sabah* (pp. 24-26). Paper presented at Bio-Borneo. Kuching, Sarawak.

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