SOUTH SEA EXCLUSIVE FOUNDATION

Internship report

Background information on a community-based sea cucumber grow-out farm

Floor Ambrosius

2/18/2010

This paper covers a literature study, data on field visits, interviews with stakeholders and NGO's, and background information that aims to help the South Sea Exclusive Foundation to start the implementation process of an additional sea cucumber grow-out farm livelihood project

CONTENTS

INTRODUCTION

Problem Description

Palawan, the largest province in the Philippines, is known by its large biodiversity and often described as 'the last ecological frontier' of the Philippines. Compared to other parts in the Philippines, Palawan is known for its large forest cover and valuable ecosystems, such as mangroves, coral reefs and rain forests with many endemic species of animals and plants. The 178 fishing grounds in the surrounding seas of Palawan are considered to be among the most important in the country. This also means that roughly 60 percent of the population in the coastal *Barangays*, (the smallest administrative division in the Philippines) depends on marine resources as a main source of income for their livelihood. Traditionally, fishermen could survive without exhausting the resource base. However, population growth, destructive fishing techniques, overfishing, and man-induced stresses such as pollution and destruction of reefs and mangroves resulted in a decrease in the resource base along the coastal zones in the Philippines, as well as Palawan (Malig and Montemayor, 1987; Sandalo, 1996).

Among the marine resources being harvested are sea cucumbers. The number of commercial species harvested from 1986 to September 2000 has increased from 16 to 24, with a number of 33 species being harvested today. The open access nature of the marine resources, high demand and high prices, population growth, and the relative vulnerability of the sea cucumber has led to a decrease in the sea cucumber population as well (Akamine, 2001; 2002; Trinidad-Roa, 1987). The high value of dried sea cucumber (also known as beche-de-mere or *trepang*), traditional harvesting, and a relative low-management of a grow-out farm of sea cucumbers means this can be a promising option for an alternative or additional livelihood for a coastal community in Palawan.

Structure

The South Sea Exclusive Company is interested in starting a sea cucumber hatchery in the future next to its other activities. The company, in cooperation with its foundation, is analyzing the possibilities to involve a coastal community in Palawan in the processing of sea cucumbers. The idea is to help this community with an additional source of income for their livelihood. In this way they hope to help a coastal community with a sustainable future and stable income and preserve the sea cucumber population in the long run.

This paper covers a literature study and data on field visits, interviews with stakeholders and NGO's, and background information that helps the South Sea Exclusive Foundation to start the implementation process of the additional livelihood project. First, background information on the project is being discussed, which includes the history of sea cucumber exploitation in the Philippines and Palawan, the biology of *Holothuria Scabra* (the species of sea cucumber being grown-out by the community), and an overview of the theory on livelihood approaches and projects. Second, a summary of different field visits, as well as the process of selecting a coastal community for the

project are being outlined. Finally, the process and strategy of implementing a livelihood project, derived from interviews and literature, will be reviewed.

BACKGROUND INFORMATION

Below, an overview of existing literature on background information of the sea cucumber grow-out farm is outlined. The history of sea cucumber exploitation and its importance on the international market, and especially China, will help us understand why this commodity has such a high value. The history of sea cucumber exploitation in the Philippines shows its historic value in the Philippine market and as a source of income for coastal communities. The biology of *Holothuria Scabra* helps us understand the important environmental factors for the location of a sea cucumber grow-out farm. And finally, theory on the livelihood approach reveals the underlying assumptions concerning alternative or additional livelihood projects.

Fisheries in Palawan

Palawan has 178 fishing grounds, of which the richest lie if the northern and the southern most part of the province. Palawan's rich marine base and coastal resources have lured the majority of the population to settle along the coastal areas for fishing and other marine-based livelihood activities. From the communities along the coast there is around 60 percent that depend on fishing activities for their livelihood. The fishing grounds of Palawan are being fished by both commercial and municipal fishers. There are reports and complaints that commercial fishing boats are encroaching in municipal waters, competing with the local sustenance fishers. In 1996 commercial production represented 27 percent of the total fish catch, while the municipal fishers who operate in the waters of El Nido, Coron, Taytay, Narra and Puerto Princesa contributed around 72 percent of the total fish catch in Palawan, of which more than 77 percent stays in the province. Seaweed farming was by far the most popular form of aquaculture activity in the province in 1994 and is produced on a commercial scale, with fishponds coming second. Despite the rich fishing grounds in Palawan and its rich natural resource base in the coastal areas, there are a number of issues that continue to plague the fishery sector in general: destructive fishing methods (dynamite and cyanide users) employed by a number of municipal fishers; and "*pa-aling*" fishing operators (use a methods of air bubbles from compressors to drive the fish from the corals into the nets) encroaching in the Palawan waters (Sandalo, 1996).

Social position fishermen

In the Philippines, Palawan, and in a lot of other coastal communities in the world, the process from catching fish and other marine resources to the international market goes through a lot of middlemen and traders. In Palawan, power is in the hand of the middlemen, meaning that local fishers get the price set by the middlemen and wholesalers.

After the harvesting of sea cucumber, the products are sold to middlemen, sometimes in a dried form and otherwise in a fresh form so that middlemen dry it into trepang and sell the products to wholesalers who grade the product in turn. According to Choo (2008: 129):

> "*The recent proliferation of non-Filipino middlemen in key cities outside Metro Manila poses strong competition among local middlemen… some big-time middlemen finance local contacts creating more competition among local traders… This can potentially drop the buying price making the local fishers the real losers.*"

However, the price for trepang, another word for dried sea cucumber, is still perceived high by local fishermen in Palawan and they are mostly harvested by the use of compressor diving. Gleaning (a technique used by fishermen when they collect sea cucumbers, among other species, during low tide) is another technique used by fishermen for the collection of sea cucumber. As mentioned earlier, middlemen and traders are the great beneficiaries in the value chain of the sea cucumber and fishers are not well compensated for their catches (Choo, 2008). It is estimated that local fishermen receive around 12-20 percent of the export price for *Holothuria scabra*, one of the high-value species of sea cucumbers that is going to be the species in the grow-out farm. The wholesale price of almost all sea cucumbers have increased, especially the high value species as *H. scabra*. In Puerto Princesa City, capital of the province of Palawan, the price of *H. scabra* has shown a steady increase over the years 1998 to 2000, while the prices of low valued species have appeared to be more stable during the same years.

Sea cucumber harvesting is one of many income earning activities in the coastal communities. Some coastal areas depend more on this form of livelihood activity than others, but it is almost always an additional form of income, than being it the only source (Schoppe, 2000). Many different species of sea cucumbers exists, but *Holothuria Scabra* is one of the easiest to harvest and high-valued sea cucumber on the international market. Below the biology and background of this species will be outlined first, before continuing with the history of sea cucumber exploitation in the Philippines and Palawan.

Sandfish, *Holothuria Scabra*

Holothurians are one of the five classes of echinoderms, the others being sea stars, sea urchins, brittle stars and father stars. There are about 1500 species of sea cucumber known worldwide, of which 42 are commercially important. The number of commercial valuable species is very likely to increase in the future, due to ongoing research (CITES, 2007).

Sandfish, or *Holothuria Scabra*, is one of the most valuable species of sea cucumber in the world when it is processed correctly into its dried form, also known as sandfish. Sandfish occupies most of the shallow waters in the Indo-Pacific; this makes it relatively vulnerable for coastal fisheries. The high price on the international market for this species as well as its easy accessibility makes it vulnerable for overexploitation. In the past, 20-30 years ago, sandfish was an important contributor to beche-de-mer fisheries, while now it is only a small contributor to income in coastal communities (Agudo, 2006; Pitt and Duy, 2003b).

So far, the most suitable sea cucumber species for a community based grow-farm has proven to be *Holothuria Scabra*, because this species of sea cucumber is least vulnerable for external threats, while

also being one of the most valuable species of sea cucumbers in the world. In Madagascar some trial community-based grow-out projects have recently been started (Robinson and Pascal, 2009).

Biology of *Holothuria Scabra*

Sandfish feed on detritus, i.e. organic matter in the mud or sand. They feed continuously using the peltate tentacles surrounding the mouth to place sediment into the mouth. Therefore, sandfish are mostly observed in sandy and muddy substrates in sea grass beds, partially buried in sediment. Their preferred habitat is usually less than 20 meter deep in shallow and tropical waters and is often found in patches of high concentration. They can tolerate reduced salinity, 20ppt, for a short period and are therefore sometimes found in brackish waters. The growth rate of sandfish depends on environmental conditions. Under good weather conditions, sandfish can grow up to 300 g in one year. They can get sexually mature at a size of 200 g. How old sandfish can get is still unknown, but is estimated around 10 years (Agudo, 2006; Pitt and Duy, 2003b).

Like other sea cucumbers, sandfish can regenerate some of their organs. This happens after long periods out of water, or being affected by the use of chemicals, being handled during collection and transport, or when stressed by predators. The regeneration of the internal organs occurs within 2 months (Agudo, 2006).

Grow-out

A grow-out farm of sea cucumbers receives juveniles from a hatchery or from wild catch. Experiments with grow-out farms from hatched juveniles differ. According to studies done in Vietnam and the Solomon Islands, transfer to ponds (or seabed pens/cages) at sizes of around 2 g has produced very variable results; some have grown well while others have disappeared for reasons unknown (Pitt and Duy, 2003a). In New Caledonia juveniles (1-2 g) were placed in 'bag nets' (4 m2 net pens with coarse mesh) in earthen ponds. Feeding was not necessary in ponds with good natural productivity, otherwise adding ground shrimp pellets help the growth process. In Vietnam, large sandfish (50-500 g) were stocked in ponds. Their survival rate was high (88-97%) until the start of the wet season came in when massive mortality occurred due to stratification and lethally low salinity (Agudo, 2006).

For good grow-out conditions, salinity below 20ppt, stratification due to heavy rain, excessive filamentous weed growth, very black (anaerobic) and putrid pond floor conditions should be prevented. According to Pitt and Duy (2003a: 17) the main barriers to commercial sandfish culture are:

> "*...the high costs of tank nursery (…) and the variable results of nursery and grow-out attempts in the sea or ponds. Plus of course the rather poor prices paid for the wet animals.*"

In general it can be concluded that the survival rate of sea cucumber in earthen ponds is much higher than in sea pens, after a study done in Vietnam. The same study showed that the survival rate of juveniles stocked densely in sea pens was high, but they did not grow, while a less densely populated sea pen showed higher growth rates and almost the same survival rate (90%). Although

the survival rate is much less in large sea pens, the management required is much lower (Agudo, 2006).

In Madagascar, a successful community-based grow-out farm of *H. Scabra* has been implemented, and their technical details tell us that the setting should border mangroves. They transfer 2 cm juveniles to an external tank near the grow-out farm, where they are maintained till they reach a length of 6-8 cm. The seawater in the external tank is changed twice a week and new substrates are added between each run. Here, the optimal density of juveniles is 20 individuals per square meter. Once the juveniles reach a length of 6-8 cm they are transferred into sea fences. Below this size, attack by predators, such as mud crabs, shrimps and fish can cause severe damage to the population. In the sea fences a density of 3 individuals per square meter is recommended (Eeckhaut et al., 2008).

Price for sea cucumber

When *H. Scabra* is sold in its wet form, fishermen only receive around $US1-3/kg, while processing weight loss into its dry form; prices are generally as high as 95% of the price of a wet sea cucumber. Higher prices are paid for larger specimens (Pitt and Duy, 2003b).

The lower price for wet sea cucumbers, compared to its dried form, is most likely known by local fishermen. This might cause problems when discussing the project with the local fishermen, as it would be more profitable for them to dry the sea cucumbers themselves and train them in the process of doing so.

History of sea cucumber exploitation

Balatan, Tagalog for sea cucumber, is a delicacy in the Chinese kitchen, and is known as an aristocrat food. The food has a high value because of its high nutritional value due to its high protein content, low fat content and absence of cholesterol, amino acid profile, presence of trace elements, and is known to empower physical and sexual energy according to Chinese beliefs. Nowadays sea cucumbers are also used for medicinal purposes against cancer and to cure arthritis. (Akamine, 2001; Icamina, 2009; Chen, 2004; CITES, 2007).

Sea cucumber is traditionally consumed by the Chinese, therefore the market in trepang is almost entirely ruled by Chinese traders, who have been looking for and buying trepang for over 1000 years. Commercial sea cucumber exploitation in the Philippines dates back to the late eighteenth century. But exports of sea cucumbers have increased dramatically in the last decades of the 19th century. The worldwide volume of sea cucumber has increased from 4,300 tons in 1950 to 23,400 tons in 2000, decreasing again to 18,900 tons in 2001, while in the Philippines it went from 250 tons in 1977 and 1189 tons in 1984, to 2123 tons in 1996 (Schoppe, 2000; Agudo, 2006). It seems that exports dropped since then to 1162 tons in 2006 (Icamina, 1996). The Philippines is the second largest exporter of dried sea cucumber in the world, after Indonesia, and it ranks 8th among the fishery exports of the country (Gambo et al., 2004). The absence of restrictions on the export of different species adds to this large volume and represents the commercial value of some of them, while threatened with extinction (Choo, 2008).

Most of the sea cucumbers harvested in the Philippines are destined for the international market, mostly to Asian countries, namely Hong Kong, Singapore, Republic of Korea, Taiwan Province of China, and Japan, of which Hong Kong in the largest international market in sea cucumber (Ferdouse, 2004). This is not surprising as nowadays 90% of sea cucumber harvested globally is consumed by Southeast Asia and the Far East. However, due to migration of Oriental people into other parts of the world, some trade takes place to North America and Western European market into Asian diasporas, also dominated by the Chinese (Ferdouse, 2004).

Sea cucumber in the Philippines

The total number of sea cucumber species in the Philippines is estimated around 100, of which 33 species are traded commercially nowadays, compared to five in 1900s and 24 in 1980s (Gambo et al., 2004; Choo, 2008; Akamine, 2001; 2004; Schoppe, 2000). While in the past only high quality, low volume species were traded like, teatfish and sandfish. Now high volume, low quality is traded as well. The species with the highest value in the international market are (from high to low) *Holothuria fuscogilva, H. scabra, H. whitmaei, Stichopus chloronotus, S. herrmanni, S. horrens* and *Actinopyga* (Choo, 2008). All year round collection of sea cucumber is a livelihood activity, with a peak season form March to June. The processing of sea cucumbers involves four major steps: cleaning, cooking, smoke drying, and sun drying. The duration of the process depends on size and specimen, and is done for the international market. Some fisher communities consume sea cucumbers, mostly in a fresh form (Schoppe, 2000).

The extraction of sea cucumber from the sea currently occurs in one of these three ways: commercial fishing targeted solely at sea cucumbers; artisanal fishing for sea cucumber as by catch; and gleaning in intertidal reef flats during low tide. Many Philippine coastal households depend on income from fisheries. In Mangsee Island, Palawan province, commercial sea cucumber fishing is not carried out on the subsistence level, but provides an additional source of fisher's income, as in many other parts of the province. It seems that most sea cucumber being harvested is done by compressor diving, at least in the southern part of the province, where I conducted my research. The technique of gleaning is not being used there, most likely due to overexploitation, as no sea cucumbers are found during low tide.

Overexploitation

Due to a rising demand in the Asian market, which corresponds to population- and economic growth, the population of holothurians declined and is still declining worldwide. The lucrative business of sea cucumbers is made even more attractive due to a rising price in the international market (CITES, 2007). The mechanization of fishing techniques like the use of hookah or SCUBA diving are rendering otherwise unexploited areas, and helps satisfying Asian demand for trepang. Another threat to the worldwide sea cucumber population is habitat destruction and loss. As many of the sea cucumbers are found in vulnerable coral reefs and coral beds, which are in turn threatened by climate oscillations, environmental disasters, and many human-induced causes (destructive fishing methods, coastal pollution and sedimentation) (CITES, 2007).

The open access nature of the sea cucumber (when one fisherman leaves a sea cucumber behind, another will take it), and a high demand fetching high prices in the international market resulted in overfishing of the sea cucumber population in the Philippines. A lack of knowledge on the ecology of the sea cucumber, and the use of destructive fishing techniques for finfish, as described above, which destroys corals and reef communities, is another contributing factor in the Philippines (Schoppe, 2000).

Nowadays the management of fisheries in the Philippines is regulated by the New Fisheries Code. However there seems to be no specific regulations on sea cucumber. As overfishing of sea cucumber is a current problem, fishermen looking for different sides to harvest sea cucumbers are becoming a problem as well. Fishing in foreign waters as well as fishing in Marine Protected Areas (MPA) occurs more often (Choo, 2008). There is a large amount of MPA's in the country and various management regimes for the protection of marine resources in the country exist, however regulations and control does not seem to be effective and enforcement on regulations and political will to prosecute those who violate the rules should be improved to overcome the problem of overfishing in these areas as well. Other reasons for management difficulties of the sea cucumber are its vulnerable nature, as they are easily harvested because of their sessile and defenseless nature, the low larval recruitment, the intermediate time of 2-6 years to reach maturity, as well as dependence on high animal density for successful reproduction (Choo, 2008).

Consequences for local communities

The problem of overfishing has consequences for poor coastal households, as many households in the Philippines depend on income derived from fisheries and gleaned products. Most of the time harvesting of sea cucumbers provide an additional income, instead of collecting them on a subsistence level, but it still can provide up to 41% of a household's income. Due to overfishing, households gathering sea cucumbers in deeper waters derive a better income compared to those who glean. According to Choo *"Gleaning is usually adopted by the self-employed, poor coastal fishers who cannot afford to be without work and livelihood"* (Choo, 2008: 132). However, it seems that in all of the communities I have been to, harvesting of sea cucumbers is being done through compressor diving instead of gleaning. This might show that sea cucumbers are over exploited as they cannot be found near the beach anymore.

Overfishing in general is a problem for local fishermen, as well as the lack of enforcement of rules and regulations. Two coastal communities I visited seem to have a people's organization organized directly towards this problem. They are trying to involve the municipality in enforcing the rules and regulations set by the government, and both undertake actions themselves towards large fishing vessels entering their territory. However, their efforts seem not to be paid off and they both face the problem of decreasing catches due to illegal fishers, and fishermen using illegal methods.

The livelihood approach

The sea cucumber grow-out farm project of the South Sea Exclusive Foundation is meant to provide a coastal community with an additional form of livelihood and eventually help to reduce the

pressure on coastal resources, mainly sea cucumbers. Therefore the background of the livelihood approach will be discussed. This will open up and bring assumptions and goals behind additional and alternative livelihood projects to the surface. The livelihood approach helped shape the interviews that were held in different coastal communities, described later on, and shaped part of the selection process of a coastal community.

Background

In the academic sphere and professional world, there are a variety of livelihood approaches. Alternative, additional, and sustainable livelihood approaches are used in the field. It is a popular form of development to which households and the people are central in development. The livelihood approach seeks to improve rural development policy by emphasizing the adaptiveness of communities to cyclical changes and adaptations to environmental changes (Carney, 1999; Allison and Ellis, 2001).

A livelihood as often been defined in literature, but the most popular and most well-known is the one used and defined by Ellis (Jiwa and Wanjau, 2008; Allison and Ellis, 2001):

> "*A livelihood comprises the assets (natural, physical, human, financial, and social capital), the activities, and the access to these (mediated by institutions and social relations) that together determine the living gained by the individual or household*" (Allison and Ellis, 2001: 379).

This means that a livelihood is shaped by the access to different assets (natural, physical, human, financial and social capital) households have, which are in turn hindered or made available through social relations, institutions and organizations. Access to the different forms of capital, influenced by social relations, institutions and organizations, can and are also affected by external factors, also termed the vulnerability context by some, comprising trends and shocks that are outside the control of households. This can include natural hazards as well as political, macroeconomic and other external trends. This external context will shape the livelihood activities that are available for the household, which can be composed of natural resources or other household activities, such as trade, remittances, manufacture etc. This results in varying livelihood strategies for different households that are distinguished between livelihood security effects and environmental sustainability effects in this framework (Allison and Ellis, 2001; Ashley and Hussein, 2000).

Therefore, by looking at a household's assets and access to these assets, one can analyze household's survival strategies and use it as a process tool to enable participants in development programs to identify key constraints and opportunities for development intervention. Different branches of thought are developed from the livelihood approach, which all place the livelihood in the centre of analysis and therefore is people focused. Many development programs use this approach, such as the current Afghanistan opium poppy control, where they (mainly EU and United States) want to provide farmers with other sources of income to stop them from producing opium (AKDN, 2007; PAL Team 2007). The alternative and sustainable livelihood approach will be shortly discussed

below, as this idea is related to the project South Sea Exclusive Foundation is planning to implement.

Alternative livelihood approach

The alternative livelihood approach has been popular in coastal and resource management activities. The provision of other forms of livelihood strategies should result in environmental and social ideological objectives: the elevation of the socio-economic status of small-scale fisher farmers and a reduction of fishing pressure on overexploited fishing areas. In the end the provision of an alternative livelihood is meant to result in resource sustainability. Alternative income activities include mariculture projects, as the sea cucumber grow-out farm proposed by the South Sea Exclusive Foundation. The promotion of alternative livelihoods is based on several assumptions:

- It is often assumed that small-scale fishermen are poor and that this is related in many cases due to pressure on decreasing coastal resource stocks, such as fish and in this case sea cucumber.
- It is assumed that fishermen are willing to give up their fishing activities in exchange for more lucrative economic viable opportunities, such as sea cucumber farming.
- It is assumed that when fishermen are involved in more lucrative resource farming, pressure on fish stocks will decrease (Sievanen et al., 2005: 298).

According to a study done by Ellis and Allison (2001: 386): "*Encouraging alternative livelihood sources raises the opportunity income of fishing, with potential conservation and economic benefits*". The provision of an alternative livelihood also often contributes to diversification of livelihood strategies and alternative forms of income, which can and does strengthen households to overcome shocks and hazards (Sievanen et al., 2005). However, this does not always has to be the case and many of the projects in the past with a goal in sustainable resource management have failed, due to the ending of external intervention and funds.

Sustainable livelihood approach

Another branch of thought and closely related to the alternative livelihood approach is the sustainable livelihood approach that also works from a people-oriented view, in which the community is the central object of study. From thereon people in a community are being studied looking at their survival and livelihood strategies. Assets are also central in this study, for which different forms of capital are being used. The approach

> "*...aims to promote development that is sustainable not just ecologically, but also institutionally, socially and economically and to produce genuinely positive livelihood outcomes*" (Ashley and Hussein, 2000: 14).

Sustaining and maintaining their available assets and capabilities the household will only be sustainable if it can recover from shocks and stresses, while not undermining the natural resource base (Ashley and Hussein, 2000). This approach distinguishes itself as it is not only used for understanding a particular household or community, but is more used as a tool towards a sustainable environment in its most widely used form.

The access to assets of the livelihood will eventually determine their strategies and activities, which in turn will influence their resilience against shocks and influences livelihoods' well-being. Meanwhile people's own priorities shape their livelihood strategies, which can therefore differ between the households in the village. All this is influenced by the external environment (Ashley and Hussein, 2000).

An additional livelihood project, such as the sea cucumber grow-out farm, will affect the assets of the livelihoods involved. Mainly the financial assets will be affected. However, the real social consequences for the community have to be measured, as most likely the other capitals will also be affected in one way or another. An extra income is assumed to give the community more resilience against shocks and maybe lower catches from fishing activities. Of course this will depend on the successes of the farm and the willingness of the community to participate.

Ideal and goal of South Sea Exclusive Foundation

The project's purpose is to provide a coastal community with an additional livelihood project. The ideal behind the project is to make the community sustainable in the long run and provide them with an additional source of income. Most of the people living in coastal communities in the island of Palawan are dependent on fish and other coastal resources. Unsustainable fishing practices are resulting in a severe decline of the coastal natural resources. Through this project the South Sea Exclusive Foundation presents a sustainable alternative livelihood project aiming to reduce the pressure on natural coastal resources and decrease the poverty in Palawan. Although we don't expect the communities to give up fishing altogether, we will stimulate them to fish less frequently so the pressure on the fisheries and coral reefs will decrease. We will do this by educating them on the importance of the marine environment and in this way improve their environmental awareness. This project constitutes a pilot project aiming to serve as a model for the sustainable development of poor coastal communities in Palawan.

In sum, the project aims to reduce poverty in a coastal community in Palawan and at the same time reduce the pressure on marine resources in that area.

The livelihood approach in practice

The livelihood approach focuses on the (extended) household, and therefore does not directly discusses the external environment and even less is revealed about the community structure in which the households live. Differences within a household are not addressed either, and therefore gender issues should be analyzed some other way. To overcome these shortcomings a more thorough analysis is needed including these factors.

So far the most popular among alternative livelihood projects provided for fishermen, in the Philippines, are seaweed, oyster and mussel farming in marine waters and cage culture in inland waters. However, these forms of alternative livelihoods have been confronted with several problems like erratic prices due to overproduction, cut-throat competition, and the uncertain buying activities of wholesalers/retailers (Malig and Montemayor, 1987).

It is proven by several studies that it is not enough to simply provide a fishing community with an additional form of livelihood to raise income levels and standards of living. According to Malig and Montemayor (1987: 143)

> "… *if the concern is for equitable distribution of benefits within such communities, some basis for cooperative or community management of the activity that reduces entry barriers and distribution benefits on the basis of participation must be found and promoted.*"

Therefore it is important to gather information on other NGO's livelihood projects and the formation of people's organizations, cooperatives or the like. This information is being discussed later on in the report.

Another problem often encountered with alternative livelihood projects is the paying back of loans, once an alternative livelihood project is being implemented on the basis of loans it often proves to be difficult for the community to come back on their promises. Many reasons have been mentioned by the fishermen involved in various livelihood projects, of which poor catches were the main reason. Other reasons include: introduction of inappropriate technology; absence of market and post-production support facilities; peace and order conditions; distance of borrowers residence from the bank; dole mentality among fishermen; and other demands for cash such as medical expenses, children's education and the like (Malig and Montemayor, 1987: 136).

Risks and threats in previous experiences

Theft can be a major source of juvenile losses, due to its high price on the local market. This can be overcome by undertaking nightly surveillance in order to guarantee the integrity of their stocks over the entire grow-out period. Another major threat for the juvenile grow-out phase is the presence of natural predators: crabs and sea stars, as well as shrimps form a threat when the sea cucumbers are still really small. Therefore the regular checking of net integrity, as well as removing net fouling to ensure adequate water exchange is necessary for good maintenance of the project. Monthly checking of the growth-rate is also one of the tasks that must be done during night (Robinson and Pascal, 2009).

Lack of community involvement and responsibility can be a threat to the success of the project. In similar alternative livelihood projects in Ghana, the main failure was to involve the community and provide local ownership and control. In Ghana "*Some respondents viewed sericulture and grasscutter rearing as 'fashionable projects' which do not consider local community dynamics*" (Temeng and Abew, 2009: 222). This shows the importance of involving the community in deciding which livelihood project addresses their needs best, and therefore the South Sea Exclusive Foundation has to decide if they want to consider alternative options to the grow-out farm of sea cucumbers, if the coastal community demands this.

The ending of funds has been a major problem in alternative livelihood projects as well. When funds end a lot of people involved in alternative livelihood projects could not be self-supporting and eventually they go back to their old livelihood activities. According to experiences in Ghana the

factors which have mitigated against higher levels of success are: lack of adequate due diligence to assess the risks, assets and livelihood systems of the community; lack of understanding of community needs, skills and experiences which affects project appropriateness; inadequate community involvement and participation throughout all stages of the project; inadequate understanding of the market dynamics leading to poor marketing of products; and lack of funding beyond the initial stages of company support (Temeng and Abew, 2009; Sievanen et al., 2005). According to the research done by Temeng and Abew (2009: 224): "… *some of the possible flaws in project development that may lead to project failure are: a large project start-up gap, the psychological perceptions of those involved, project concept generation and project appropriateness and targeting*". Again this shows the importance of community involvement at all stages. Also the high gap between project implementation and the first mature sea cucumbers can be a problem, as results of their efforts only pay off after a year. This also means a large time gap for pilot projecting, and unsecure weather conditions.

Conclusion

Sea cucumbers are already being exploited for a long time in the Philippines, almost always as an additional source of income for the fishermen. A grow-out farm of sea cucumbers does not require a lot of maintenance and therefore does not take a lot of extra time for the fishermen involved. Also, the existence of a market by South Sea Exclusive already takes away some of the difficulties involved in livelihood projects. All this attributes to a potential success of a future livelihood project by the South Sea Exclusive Foundation. However, as mentioned above, livelihood projects are one of the most difficult projects to work with that often disturbs existing community relations and deals with people's morals, values and lives in general. Therefore they also have a high degree of failure and it should generally be kept in mind that a livelihood project can take several years for it to be independently operated.

VISIT SEA CUCUMBER GROW-OUT FARM

For more information on a sea cucumber grow-out farm - including the risks, threats, environmental criteria for a successful farm - I went to visit an existing sea cucumber grow-out farm in Caramay. Below the results of the visit are outlined, concluding with a short summary of the most important findings.

The goal of the visit was to find out what the criteria are for a good location of a sea cucumber grow-out farm, technical aspects, costs, and background of the cooperation. Below the results per subject are outlined and discussed.

Background of the cooperation

In 2000, a representative of the UNDP helped the people's organization in Caramay to build a cooperative for mariculture purposes. Members invested up to 8000 pesos into the cooperative, the higher their share the higher the percentage on revenues received from the cooperative. Nowadays, the cooperative has 114 members, of which 60 are actively involved. Women's participation is high among the most active members, as they joked: "Women are more willing to join the meetings".

During the years, when the cooperative became successful, more NGO's and funds got involved and supported one project after the other. The funds lasted from six months up to two years. At the moment, the cooperative is running independently without funds support from NGO's. However, from the 500.000 pesos loan of the Landbank there is still 166.000 pesos that has to be paid back. The cooperative also just started a microfinance project, where they provide credit to local initiatives.

The cooperative has different mariculture projects of which one is the sea cucumber grow-out farm. The cooperative buys small juveniles, smaller than 5 inches, from local fishermen for which they pay 5 pesos per individual. The only two species farmed by the cooperative are *H. Scabra* and *Stichopus horrens/S. hermanni* locally called kurttido, kiskisan, or putian, and hanginan respectively. The farm grows the juveniles to mature size, which takes up to one year depending on the size of the juvenile. Then the mature sea cucumbers will be dried and sold to a trader in Puerto Princesa City.

Horothuria scabra

Stichopus horrens and *hermanni*

The cooperative was thinking of introducing sea urchins in the farm, as sea cucumbers grow on the feces of the sea urchins. In this way they hope to stimulate the growth process of the sea cucumbers.

Location

Caramay, a small Barangay in the north of Palawan, lies around 150 km north from Puerto Princesa City. The shore is protected from open sea by several islands on the left and one on the right and is covered by mangroves. Caramay has a small bay where a river flows into the water. During rainy season floods come from inland, affecting the salinity of the seawater. The presence of a river might affect this salinity as well. Therefore the sea cucumber farm in Caramay is located around 1 km from the shore, not affected by the fresh water inflow of the river, which caused the relocation of the sea cucumber grow-out farm, further offshore, a couple of years back. Reduced salinity resulted in a massive harvest loss for the cooperative and reduced profits. Once relocation of the farm was decided, they also chose a deeper area in the sea, where the farm and sea cucumbers always stay under water, reducing sea cucumber loss due to dry sandbanks.

Other important weather conditions for the location of a sea cucumber grow-out farm include small tidal waves, a stable salinity, sandy and muddy substrates and the presence of sea grass.

Hazards and risks

Although, almost all of the criteria for a good location are met, still an average 50% loss of sea cucumber harvest is reported. This is mainly caused by natural predators, such as the blue crab and shrimps. The blue crab is the most dangerous predator and attacks small juveniles up to 6-8 cm. However, when small juveniles are absent, blue crabs might also attack the larger specimens according to the people interviewed.

The other main risk is the presence of holes in the nets of the farm, through which sea cucumbers can escape. These holes can be caused by different things, and are not really known by the cooperative. Therefore maintenance and net checks are important activities in the grow-out process of sea cucumbers. Once a hole is found, it needs to be fixed as soon as possible.

Technical aspects and costs

A sea cucumber grow-out farm does not require a lot of maintenance, and therefore labor input is minimal. The construction of the farm is simple, which only requires:

- A net (9000 pesos per bandelo (which can be compared to one square meter) and 45 000 in total for the farm in Caramay)
- A rope
- Labor (to build the farm)
- Maintenance (salary for the guard)
- Motorized bangka (a Philippine boat, often used for fishing) (10 000 to 12 000 pesos)
- Bangka (3 000 pesos)
- Hut for the guard
- Wooden sticks

The farm lies in shallow waters, with only one foot distance from the water surface to the substrate, which is 0,31 m. The wooden sticks are also buried up to one foot in the ground. The sticks are placed in a circle and are connected by a rope. The rope in turn carries the net that hangs in the water. There is no particular length for the net above the water, as it is hard for the sea cucumbers to escape living on seawater substrates.

The maintenance of the farm in Caramay requires only one guard, who lives in a hut on the sea. The guard is present 24/7. His task is to regularly check the nets and fix them when it is needed with stitching. Another task is to guard the farms of the cooperative and make sure that nothing is stolen.

The value of sea cucumbers, and eventually their profits, depends on the quality of the drying process. This is one of the most important processes in the trepang commodity chain. The cooperative sells the dried sea cucumber to a trader in Puerto Princesa City, and despite the 50 percent loss in harvest, the profits of the sea cucumber definitely outweighs the costs of production, as well as the money they pay for the small juveniles to the fishermen.

For the farm to be successful it is important to choose the right location at the beginning and make sure the sandy and muddy substrates get enriched with nutrients from the sea during tides, as it is a costly process to relocate the farm. Again, it is important to be careful of the freshwater inflow during rainy season, which affects seawater salinity and can cause deaths among the sea cucumbers.

Conclusions

For the selection of a location, we need to take different aspects into account. A long intertidal area is needed where the waves are not too big, and the currents not too strong. Sea cucumbers in general and thus also the grow-out of *H. Scabra* need a stable salinity of the seawater. The risk of floods during the rainy season should therefore be thoroughly analyzed. In relation to the risk of floods, the presence of a river nearby might increase this risk.

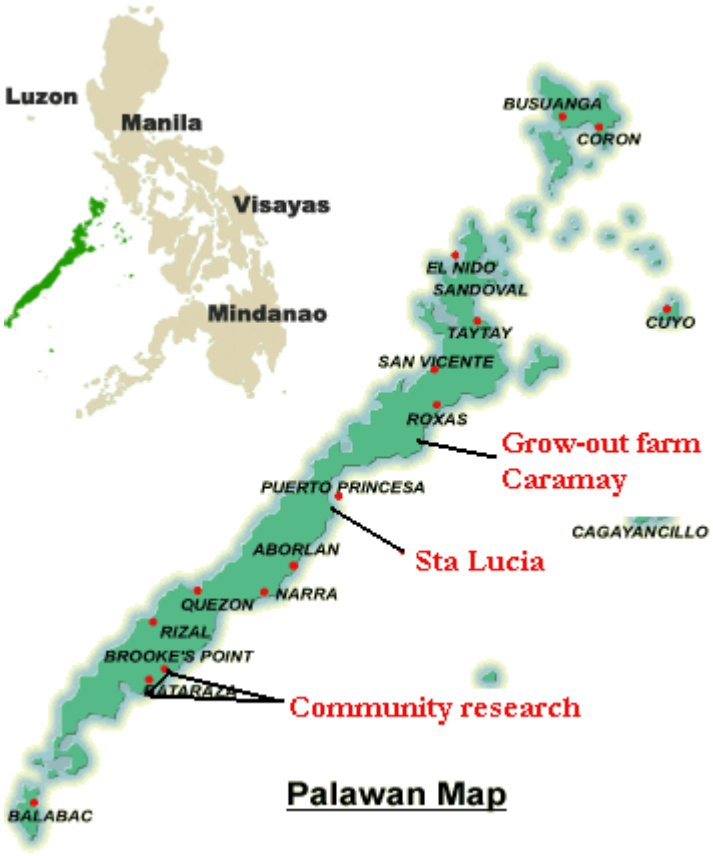
Also the risk of predators and maybe a way to overcome this risk should be thought of. As the example in Madagascar has shown, that juveniles first should be grown up to 6-8 cm can help to

overcome attacks by predators, such as the blue crab. The presence of sea grass will help the growth of sea cucumbers, and is therefore important in their reproduction as well. The eggs of sea cucumbers will attach to sea grass and therefore the chance for successful reproduction will be higher with the presence of sea grass. Also the height of the water should be taken into account and the difference between high and low tide. The sandy substrate should never be completely dry.

Total costs can go up to 100 000 pesos, maybe even more, when including the need for a motorized as well as an unmotorized bangka. Also the hut of the guard can create extra costs, but is a one-time investment. Maintenance costs are close to zero. So once the farm is in place, costs might decrease significantly. Maybe it would be interesting for the grow-out farm to buy small juveniles from local fishermen in the neighborhood as well or involve the children of the community, so that the fishermen and/or children will receive money for them. An additional repayment is that the sea cucumbers will be grown to mature size so that the chance for reproduction increases.

COMMUNITY SELECTION PROCESS

The South Sea Exclusive Foundation came up with the idea of a sea cucumber grow-out farm as alternative livelihood project, partly due to the company's interest in starting a sea cucumber hatchery in the future. As the form of alternative livelihood that the project intents to implement, has already been decided, the process of selecting and defining an alternative livelihood for a community goes the other way around (first the alternative livelihood then the community, instead of first the community then decide with the community what alternative livelihood). The assumption behind the project is that a coastal community is willing and happy to be involved in the alternative or additional form of livelihood, namely the sea cucumber grow-out farm. Instead of talking with communities and discussing and collaborating upon their problems to find possible forms of help and additional or alternative forms of livelihood, the task is to find a community that might be willing to be involved in the project and to find a community that needs this additional form of livelihood in the eyes of the foundation, myself as a researcher, and the community itself. Later on, collaboration with the community takes place and the real involvement and willingness of the community comes to the surface. We could not go over to a collaboration phase with the community, as it is not sure yet whether the foundation will start the project in the future, due to uncertainties with the company, among other things to start a sea cucumber hatchery. The additional form of livelihood will be the first project the South Sea Exclusive Foundation is going to start in cooperation with a community. Therefore, factors that influence the chances for success have played a major role in the selection of a community that might be willing to participate.



Selection of the Barangays

The project is to be implemented in Palawan, a province in the Philippines, as the South Sea Exclusive Company is based in on this island, in Sta Lucia. In collaboration with the company and the foundation the Southern part of Palawan was selected, as this is characterized by a high poverty degree, lesser tourism, political

stability and a natural habitat presence of *Holothuria Scabra*. The Sulu Sea on the eastern side of the island is the most suitable for a farm as it has low swell and is therefore much calmer than the South China Sea. This led to the area between Brookes Point and Rio Tuba.

Sander van der Meulen, an employee of the South Sea Exclusive Foundation, went there to explore the area and selected five communities that seemed to meet the environmental criteria of *Holothuria Scabra*, while considering the vulnerability of a sea cucumber grow-out farm. This led to the selection of five fishing communities in the following Barangays: Malis, Inogbong, Marangas, Buno-Buno, and Malihod. My task was to conduct a research in the former fishing communities to find out which community might be most suitable for a sea cucumber grow-out farm.

Goal of visits

The goal of the visits to the different Barangays is to analyze what the current livelihood strategies of fishermen are, if the community is organized at all and get a grip on property rights and how fishing activities are managed. Questions into the problems in the area and what they see as points for improvement are being used to give me some insight in what they think is important and if they are happy the way they are. By analyzing people's livelihood priorities, the project can try and help to meet their priorities or identify the priorities that are met by the project implementation and in this way help identify the right community for the project implementation. I am aware that me asking these questions, a white person, might bias some or a lot of the answers. However, it is hard to identify those answers that are biased, and I will try to treat the information as sensitive as possible.

Methods for research

For the interviews I used open semi-structured questionnaires. I arranged my interviews in different topics, based on a literature study of, among other things, the livelihood approach (described above), conversations with Jonah van Beijnen (Chief Executive Officer of the South Sea Exclusive Company), choices made by South Sea Exclusive Company and foundation, and a visit to the grow-out farm. As the focus of my research was on fishermen and their communities in the different Barangays I did not include other households in my community research. I did not use the prepared interview as a sort of questionnaire, but rather as a checklist. I tried to keep the interviews as open as possible, so I had the possibility to ask more if necessary (see appendix 1).

Every interview and visit to the Barangays has been influenced by local circumstances in one way or another. For example, the first time I went to the first three barangays. During the first visit the weather conditions were bad for fishing, which gave me a lot of time for interviewing the different fishermen. While during the second visit in Barangay Malihod a lot of the fishermen were out fishing, which led me to interview an old man instead of the young active fishermen in Barangay Malihod a Playa.

When processing the first results I already realized that I could have asked a bit more or maybe used the question 'why' more often. While doing the interviews I sometimes asked a question while giving

the answer or directing the answer the way I thought the answer would be. I realized the more you do these interviews the better you get the hang of it. Influenced by the above processes the results of the interviews led to the discussion described below.

Results and Discussion

There are a lot of pros and cons in every community I visited. All have their own characteristics and can be talked positive or negative in light of the sea cucumber grow-out farm. The results below are derived from the results of the interviews I held in the communities (see appendix 2, 3 and 4). The discussion and selection of a community is mostly done from a do-not-make-it-too-difficult-perspective. To minimize the difficulties with implementing the project as much as possible, two communities are selected that might be interested in being involved in a sea cucumber grow-out farm. We went back to Barangay Malihod and Buno-Buno a playa, as these communities seemed the most suitable for a sea cucumber farm due to, among other reasons described below, the existence of people's organizations amongst the fishermen. However, this second visit revealed many contradicting stories and results. All barangays are discussed below.

Barangay Malis a Playa

Barangay Malis a Playa has around 130 fishermen according to the Barangay captain. The live scattered along the shoreline. All of the fishermen interviewed are completely dependent on fishing activities for income generation, according to their answers. The fishermen fish individually or in groups with a maximum of five fishermen. When fishing in groups they go to deeper areas and divide the catches or fish with their own boat and gear. Some of the fishermen argued that there is not enough cash and a lack of capital in the area to buy gasoline for the boat or other equipment for fishing. They can only save small amounts of money for primary needs. Others argued that illegal poachers (big boats from Manila) using high-tech equipment is the problem, leaving less fish for them.

One fisherman said they sometimes ban fishing as motorboats destroy 'things', but according to him there is still a lot of fish in the sea. All of the fishermen interviewed seem to be aware of the illegality of dynamite and cyanide, and know that it destroys corals and kills small fish. Almost all of the fishermen mention that there is still a lot of fish in the area, but that weather conditions sometimes stops them from fishing.

The fishing community is very diverse and large. Community organizing and involvement of fishermen can pose a problem when introducing an additional livelihood in this community. 130 households in a first livelihood project can be really challenging. However, their needs seem to be met with an additional livelihood project which derives more income for the fishermen, as money to buy gasoline and lack of capital is mentioned by several fishermen.

Fishermen harvest sea cucumber from the wild, also *Holothuria scabra*, although in lesser quantities, the habitat requirements for this species are met. The only problem is that the community and the

seashore are relatively open to sea and not protected by any kind of bay or islands. All of them mention a rough rainy season, which might pose threats for the farm.

The presence of sea cucumbers might mean that starting a sea-cucumber grow-out farm here does have a positive effect on the sea cucumber population. However, the harvesting and drying of sea cucumber by the fishermen means that they know the price for sea cucumber goes up when they dry the sea cucumbers themselves. This can be hard to convince them to sell the sea cucumbers back alive to the company.

Barangay Inogbong a Playa

The fishing community in Barangay Inogbong a Playa consists of only eight households. The people are Badiau, an indigenous population known as gypsies. As there are only eight households in the community the group seemed really tight as well, which also led to a group interview, with the answering done by the missionary in the village as he speaks English. This probably biased a lot of the interview, because most of the answers were given by him instead of the fishermen themselves.

The people came in the area around 10 years ago, fleeing from Mindanao. They are seen as the outskirts of the Barangay, according to the missionary, and are known as dwellers that travel from one place to another. Most of the members of the community stayed there for 10 years, while some of them went away to work somewhere else. A Christian Korean organization provided the community with a church and a literacy centre. The missionary's work is comprised of schooling and providing church activities. The fishermen fish all days except for Sundays.

According to the missionary the main problem in the community is a lack of technical people and training and therefore to provide the community with technical training or fishing gear would help them. I think it is worth to mention that the missionary first said compressor diving was not used while later he said that this was one of the techniques used for harvesting sea cucumbers. The missionary is better schooled and probably knows better what the correct answers are. Therefore I am not sure about all the answers given to me.

Holothuria scabra is harvested in the area and sea grass is present. Again, a rough sea during rainy season was mentioned. This makes the habitat suitable for the species of sea cucumber, but the farm relatively vulnerable for weather conditions and openness to sea. The community is really small and therefore easier to organize. However, the influence of the missionary and church is hard to measure and takes bit more research to figure out the power relations.

Barangay Marangas

This Barangay is probably the richest of all and has two fisher communities. One has a land owner and almost all of the fishermen eventually work for her, as she buys all the fish from them. The area is hers as well. This can mean two things, the hierarchy is obvious and steady which might be helpful in implementing the sea cucumber farm. However, there are still a lot of fishermen involved and it needs a lot of organization as well I think. The cons against a sea cucumber farm in this place, is that it is hard to intervene in a community where the hierarchy is so clear and to really reach the people

we'd like to help. Any outsider intervention with their own ideas might cause threats to the existing hierarchy. When we only involve the poorer fishermen it is probably hard to track the money, giving the clear hierarchy in the community. We can say something for both ways, but I think we can be sure that introducing the sea cucumber farm is full of risks.

The second fishing community felt strange, with sensitive power relations and a clear difference between somewhat richer fishermen and the poorer. All fishermen fished individually and owned a bangka, according to the women interviewed. However, the size of bangka's differed significantly between the fishermen. Again difficulties might arise when introducing a sea cucumber farm here, mainly because it might be hard to determine whom to involve in the project. This can cause tensions within the community, and although it is clear that different power relations exist, it is hard to map them in one visit. The community does have an organization, but this only seemed to be used for contacts with outsiders. All in all I think this is not the easiest community to implement the sea cucumber, due to power structures and wealth differences among other things.

Barangay Buno-Buno a Playa

This fishing community is relatively small of around 20 fishermen and it has a people's organization for the fishermen in the Barangay. The man we spoke to, Alyusa Hampson, in our first visit, seemed to have a high passion for the thing he does and is really aware of his environment and their dependence on it. According to Alyusa, the people's organization is mainly used for their fight against illegal fishing activities, and they are trying to activate the government for more control and punishment. However, during our second visit we have spoken to other fishermen in the community, and all of them told us another story about the people's organization and its function. There seemed to be a 'conflict' between the fishermen on the different sides of the river and the people's organization has been started due to intervention of the Bureau of Fisheries and Aquatic Resources (BFAR), according to one man we spoke to. BFAR gave free fishing nets to the community, however, only a small proportion of the fishermen actually received the nets, which disappointed the fishermen on the other side of the river. The second visit to the Barangay showed the importance of talking and interviewing many fishermen in the community. Dynamics and underlying tensions and relations are really important to understand before one can conclude whether or not this community might be interested and needing to start a sea cucumber farm.

The fishing community is relatively small, which makes implementation and involvement less complex and more manageable. However, this community seemed to be helped most when government officials take their job of protecting the environment and the local fishermen a bit more serious and internal 'conflicts' may be overcome. Although the people's organization seemed to be disappointing to come of them involved, they said they would be willing to organize again if an opportunity and purpose strikes. Of course, this might be said because we asked him the question directly and we cannot argue his answer. But we cannot see or feel how deep their disappointment is and the tensions between fishermen in the community.

Maybe the environment poses a problem as well. Although sea grass was/is rampant in the area according to Alyusa and there is a natural presence of mangroves, the waves during the stormy

season and its relative openness to the open sea might cause a problem for the construction and survival of the sea cucumber farm.

Barangay Malihod a Playa

According to the first man we spoke to in this community, the community seemed to be organized into a people's organization as well, which use their collective action against illegal fishers in their area and report them to the police. At the first visit I spoke to only one man in this community as most fishermen were out fishing and due to time constraints. This has biased the information on fishing activities in the area. We knew after the first visit that sea cucumbers are being harvested, so they do exist in the area. But these are mostly caught in corals and not in the sandy and muddy substrates, which is the habitat of *H. Scabra*.

However, we decided to visit the community a second time as the relative small number of fishermen and the existence of a people's organization sound promising, it became clear that fishermen we spoke to were not aware of the existence of a people's organization at the moment. One man told us that there has been a people's organization, but it only lasted for a month due to different opinions. He did not know what the purpose of the organization was.

We tried to map their willingness and needs for an additional form of livelihood by trying to know if they had other jobs in the past and/or have other jobs now when there is need for it. Also by asking how they think about their life and if they could think of any improvements. These questions showed that some had other jobs, while others not. Jobs in the area were difficult to find, and all of them said they would be willing to get a job when the opportunity is there. All of them were happy to live they way they live as this provides their living, and some said that things could be improved, but some were not able to try and identify what would improve their lives. One of the fishermen said that tackling illegal fishers would help them, and that when capital is available a small piece of land to farm or starting a sari-sari store would be nice. The women we spoke to were happy with their lives and would not know what would improve their lives. But they also said that they were willing to learn something new. Again, it is really important to understand more of the communities' dynamics, livelihoods, and relations within the community, problems and needs. This would give the South Sea Exclusive Foundation a much better and clearer view on what is going on in this community and if a sea cucumber farm would help them to improve their lives.

From a technical perspective this community seems most suitable to implement a livelihood project. The presence of baklad's (a construction of wooden sticks and nets to trap fish after high tide), which have almost the same construction as a simple sea cucumber farm, shows that a sea cucumber farm might hold in this area. However, the biggest threat to the baklad's are the presence oysters in the area eating the wooden sticks, and a rough sea with high currents from November till March.

Environmental factors seem to be fit for a sea cucumber farm as well. The shore is protected by Antonyo Bay, where the fishermen fish, and is everywhere covered by sea grass. These factors make this community, or at least the environment, maybe the best suitable for the implementation of a sea

cucumber farm, as most environmental criteria are met. The relative small number of fishermen does add up to these positive aspects.

Selecting

After the first visits I decided that both Barangay Malihod a Playa and Buno-Buno a playa, have the most suitable characteristics for a successful sea cucumber grow-out farm. Both fishing communities have a relatively small number of households and both did seem to be organized in a people's organization. The existence of a people's organization made me assume that a general coherence on some goals within the community exists. Fighting illegal fishers, which in their case means fishing in their area or using illegal fishing methods, both showed a general conscious of their dependence on marine resources. These organizations, their individual purposes, and hierarchy could have formed a profound and stable basis for the implementation of a sea cucumber grow-out farm, on the assumption they might be interested in the project of course. The environmental aspects of both communities and especially the presence of the bay and the relative protection from open sea played a role as well.

However, the second visit to these two Barangay's (Malihod a playa and Buno-Buno a playa) showed me a complete different picture of the communities and learned me that one visit with a couple of interviews will never be enough to get a clear picture of the communities' structure and fishermen's view on their livelihood and lives in general. It showed me that it is really important to interview not just one or a couple of fishermen, but that it needs a thorough livelihood analysis and needs assessment which takes a couple of weeks before a conclusion or impression might be drawn. My first impression was completely from the second, a couple of extra interviews made me realize that. It showed me that it is important to include all those who fish in the area within the analysis. This gives a better understanding of fishermen relations and dynamics

All communities seem to be surrounded by sea grass and harvest their sea cucumbers through compressor diving, except for community 3. I am aware that the power differences and the impression I got from this community influenced my choice as well. The missionary village and the influence of the church made me doubt if this community is the right one, even though the small number of households and tightness of the community seem to increase the chances for success. It is interesting to go back and conduct research when the missionary is not there, so one can really talk with the fishermen.

Concluding

After the visits it is still hard to decide upon the selection of a community. If the South Sea Exclusive Foundation wants to influence the pressure on marine resources, it is best to involve those who use illegal fishing techniques. However, this is hard to find out, as nobody will really want to admit if they use illegal fishing techniques. If they just want to help a community with some extra income, and make sure the South Sea Exclusive Company receives mature sea cucumbers in return, it is best to keep implementation simple and somehow treat the fishermen involved as employees. If they want to help and empower a community it might be best to analyze what they really need and

how their needs can be met and helped with effort from outsiders. Or it can be an idea to involve the community in the drying process of sea cucumbers as well. However, in all three cases, the best way to help a community is to find out what they really need and analyze if you help them best with a sea cucumber grow-out farm. And in any of the cases, chances for success often increase when there is a lower number of households in the community.

Again, the best environmental conditions seem to be met by Barangay Malihod a playa and Buno-Buno a Playa. Here the number of fishermen is around 20 to 30, compared to 70 or 140 in two other Barangays, this is relatively small. In none of the communities a stable people's organization exists, which can make management, monitoring, and community organizing a big challenge. Barangay Inogbong a playa has only eight households and the community seemed really tight with no clear 'conflicts'. Here, community organizing and involvement of different fishermen cannot pose a real problem at first sight. This might be a promising community when the South Sea Exclusive Foundation together with the company wants to implement a sea cucumber grow-out farm to help a community with 'just' an additional source of income. Sea cucumbers are harvested in the area by use of compressor diving, and helping them with a sea cucumber grow-out farm might release pressure on the sea cucumber population. Although the shore is not really protected from the open sea, a more stable construction of the farm might overcome this problem. The small number of households may make it easier to monitor and organize the community and its management of the farm. Again, it is important to conduct research before hand and get a grip on community dynamics and needs.

A general remark

The main assumption behind this alternative livelihood project, described earlier, is that the community is willing to participate and willing to take any form of additional income when it is provided to them. It is also assumed that additional income will provide the fishermen with a better life and therefore are not satisfied with their livelihood activities and quality of life they have now. An important question that has to be answered before starting implementing this farm is if it helps the community at all and if you help the community with providing them an additional form of income. A thorough livelihood research on dynamics and livelihood strategies, as well as their needs and problems gives more insight into this question and the willingness and need for the community to be involved in such a project. It might just be that implementing a sea cucumber farm in a community will disturb existing relations and might inflict conflict instead of prosperity. Another thing that we have to be aware of is that a lot of projects failed in the past and that it is an 'outsider' intervention, which means that it is not necessary that this project provides the wants and needs of this community. Therefore we cannot assume involvement and responsibility on the part of the community, which have to be triggered in some way or another.

It is therefore really important to collaborate with the community and make sure before hand if they want a sea cucumber farm at all and we should be aware of the implications it might have on this community. To increase involvement and responsibility it is really important to involve the

community as much as possible in the organizing aspect and the structure of the organization and rules surrounding this farm.

STRATEGY FOR LIVELIHOOD PROJECT IMPLEMENTATION

For the more practical part of a livelihood project implementation I visited many NGO's (see appendix 6) and organizations who had experience with livelihood projects in some way or another. During these interviews and during my literature study on livelihood projects different factors that influence a success or failure in implementing additional or alternative forms of livelihood came to the fore. Different factors, such as marketing analysis, community organization, workshops and trainings attribute to a successful livelihood project, which will be further outlined below, including different forms of community organizing, and the different trainings required to prepare a community for a livelihood project.

Marketing Analysis

The South Sea Exclusive Company is interested in starting a hatchery in sea cucumbers in the future. Their idea is to involve a community in the process to maturity and exports. This will work as follows: the community will buy juveniles from the company, grow them to mature size and sell mature sea cucumbers back to the company. The long-term relation between the community and the company gives them a stable future and income (ideally), and this will take away maybe part of the problems with the end of funds. For a regular income the idea is to buy juveniles from the company regularly (frequency should be decided with the community) so that this will give them a frequent additional income.

The existence of a market takes away a lot of the problems involved with a stable market, finding trading partners and exporters for their products. Therefore, marketing analysis, in the case of the sea cucumber grow-out farm is not necessary. However, there are some tips to take into account, building on existing literature. These tips and principles (Jiwa and Wanjau (2008: 8)) are further outlined in the appendix (see appendix 5) and might be used when other additional forms of livelihoods are discussed and implemented in the future. Especially the principle of 'formalization of ownership' should be taken into account when implementing the sea cucumber grow-out farm and will empower the coastal community involved in the project. All other principles should be taken into account; however, most of them are already met when implementing a sea cucumber grow-out farm in cooperation with the South Sea Exclusive Company.

Community organizing

Different forms of community organization exist in practice, all of them with their own strengths and drawbacks. When a large number of households are involved in the sea cucumber grow-out farm a stable and good organization should be made and is necessary. Of course it is also always possible to involve individual households, when not everybody wants to participate. However, with

a small number of households in the community it is possible to do it individually. Below several possibilities of household involvement are discussed and outlined.

Individual household involvement

When a community has just a small number of fishermen it is possible to involve households individually. This is probably the best approach when not all fishermen in the coastal community are willing to be involved in a sea cucumber grow-out farm. Here, the fishermen who are willing to participate have their own small sea cucumber grow-out farm in which they buy juveniles from the company individually. In this way, every household is responsible of their own farm, which can increase the chances for success.

However, as jealousy is a common problem in the Philippines when it comes to job provision and projects, it is possible that those households not included would later on get jealous with those who are. Another problem is the higher costs of individual farms. A way to overcome this is to provide them with loans that can be paid back with every box of grown sea cucumbers. But this will also bear the risk of failure of repayment due to problems with the grow-out farm; wrong attitude etc., which in turn can cause costs to go up considerably.

People's organization

Building on people's organizations is one of the most common forms of livelihood project implementation in Palawan, according to the research I have been doing. It is also an important aspect and argued to be a stable basis for an alternative form of livelihood implementation. The presence of some sort of community organization within a Barangay represents a common goal of the members of the organization, and thus some sort of community coherence and collective action. Another important aspect is the existence and basis of a community hierarchy within the organization. This might be used for the alternative livelihood project. However, according to Grizelda Mayo-Ando, assistant executive director of ELAC (see appendix 8), understanding the community dynamics, also in the presence of a community organization is really important. An outsider cannot see different power relations within the community and the actual activities of the people's organization. Many of these dynamics can only be found out during a thorough research within the community which can be complemented with a livelihoods needs assessment.

Building on a people's organization, some NGO's start a cooperative before any form of alternative livelihood is implemented. Below the idea and aspects of a cooperative will be further outlined.

Cooperative

The idea behind a cooperative is that the business belongs to the people who use it. The people have organized themselves into a cooperative to provide themselves with the goods and services they need. The cooperative is owned by its members who share equally in the control of the cooperative. Control and regulation is done via regular meetings with its members and detailed reports and they elect directors among themselves that regulate the cooperative for a certain time. The selected directors in turn hire managers that regulate the day-to-day activities of the cooperative in a way that services the members' interest.

The members invest money in the business to provide the cooperative with capital for a strong and efficient operation. Savings (profit) that are left after all bills have been paid and the money that has been aside for improvements and operations are returned to co-op members, depending on the amount of money they invested.

Cooperatives seem to last for only a short time in the Philippines. A common problem is the lack of interest of its members after a while that eventually results in its downfall. An existing organization in the community might help as a stable basis for the start of a cooperative, but should be collaborated on as well. For a cooperative to work well, one has to make sure that participation in meetings and involvement of its members is realized.

Principles generally used by cooperatives:

1. 'Open and voluntary membership. A cooperative is open to anyone who can use its services and is willing to accept the responsibilities of membership.
2. Democratic Control. Members are equal co-owners in the business and have a say on a one member, one vote basis (in contrast to one share, one vote in private companies).
3. Limited Interest on shares. Investments in the cooperative pay limited interest to insulate the membership from those who would invest purely for speculative return.
4. Return of surplus to members. All net earnings (profits) are returned to members proportionally to their patronage with the business. These returns are commonly made partially in cash and partially in cooperative dividends.
5. Constant education. Cooperatives provide education in the principles and practices of cooperative business, so that members will be good decision makers and so the general public will better understand cooperatives.
6. Cooperation among cooperatives. Cooperatives work together at the local, regional, national and international levels to further economic democracy.' (Center for cooperatives, 2010)

However, the start of a cooperative might take years for it to work properly and independent. But once it works, it is supposed to be a stable basis for more activities or other ideas that might come up. Other negative side effects are that costs might go up because of the training it involves and involvement and responsibility of its members. Training and education might take up a lot of the costs involved in starting the sea cucumber farm. Starting a cooperative increases the costs of the project. Another problem is that starting cooperatives in the Philippines knows a lot of failures as well, as most of the time involvement of members is one of the biggest problems to overcome. A lot of the members do not see the importance of the meetings, and therefore lack the willingness to join.

In Caramay the cooperative has been started with external intervention from the UNDP. A people's organization formed the basis of this cooperative as well and its still running today quite successfully.

Trainings and workshops

My visits to various NGO's gave much inside information into livelihood projects. Almost all of them mentioned the importance of community involvement and responsibility. Therefore one of the first tasks to complete is to make clear the importance of the project and change the mindset, if necessary, of the people involved. Make sure, that they feel the importance of a successful project and show them the advantages it will give in the long run. There are various means to accomplish this. One of them is to involve them in the whole process. But actually, according to many people I spoke with, to let ideas and needs come from the community itself would increase their involvement most of all. However, as the idea for a sea cucumber grow-out farm has already been decided upon, it is important to collaborate with the community on the process, ideas, and management of the project as much as possible. This will give them responsibility as well as the feeling of involvement and increases the feeling that it is *their* project and therefore *their* responsibility. Of course, this process is to be supported with training and education on the project material and knowledge of the sea cucumbers and management. Group binding, capacity building, teambuilding workshops, leadership training, as well as financial management courses are all to be given to increase the chances for success.

Community capacity building

The idea behind community capacity building is "the capacity of the people in communities to participate in actions based on community interests, both as individuals and through groups, organizations and networks". Therefore, to make the community prepared for a sea cucumber grow-out farm, when this is the chosen additional livelihood, community capacity building needs to be done in relation to this farm. Action to build social capital is one of the trainings that need to be conducted: building relationships, trust, shared norms and networks. This involved people taking part in community initiatives, groups and organizations. Community capacity building can also be defined as:

> "*Activities, resources and support that strengthen the skills and abilities of people and community groups to take effective action and leading roles in the development of their communities*" (NOS, 2002:: 1).

The key purpose behind community capacity building is collectively to bring about social change and justice, by working with community to: 'identify needs, opportunities, rights and responsibilities; plan, organize and take action; evaluate the effectiveness and impact of action' (NOS, 2002).

Community capacity building can be seen as the overall goal of a livelihood project. There are several means, trainings and workshops which attribute to community capacity building.

Team Building and groups bonding

Team building is one of the first workshops that should be given. This is to identify capabilities of the different people involved. Natural talents and individual strength should come to the fore and be identified to divide the different management tasks accordingly. This will help shape a stable basis of

the project and will represent a natural and chosen leader for the project, who is thought to be reliable and responsible. Other tasks that need to be divided are a financial manager, checking up on nets and the technical aspects of the farm, and finally a guard is necessary to safeguard the farm with its sea cucumbers.

Financial management training

The financial management training should be a simple overview of costs and profits. The training has to be simple in order for the community to understand, according to Lotta Creancia, Dean of WPU (see appendix 7), as often community members did not receive higher education on financial management or something similar. Costs have to be verified by receipts for all expenses and profits must be updated in the book, but can easily be controlled by the South Sea Exclusive Company. The financial management has to be done by someone who is chosen by the community and therefore (hopefully) trusted by them. Someone who controls the financial manager and expenses is also to be trained, to make two people responsible for the finances.

Leadership training

For the selected leader, leadership training is necessary, to provide the person with the right attitude towards the groups and give the individual the respective qualities that are needed for a leader. With the community it is useful to discuss the type of leader they want, what they expect from a leader, the leader's responsibilities etc. An organization providing leadership development programs discusses three qualities a leader must have or develop: authoritarian, participative, and delegative (Clark, visited at 16-2-2010). Different activities concerning the three aspects of leadership can be done. These activities can give the community more insight into what type of leader they want and who would be the right person to lead to organization.

Monitoring and Evaluation

During the project implementation and the start of the project, monitoring is a necessary requirement (Jiwa and Wanjau, 2008). As there are many threats and difficulties in livelihood projects, and especially with financial management, monitoring of expenses and management of the farm is necessary and can take up to 3 years, if not longer, before it is operating completely independent. The article by Jiwa and Wanjau (2008: 20) mention five different considerations when it comes to enterprise monitoring, which can be helpful in the case of the sea cucumber farm as well. These are:

- 'When tracking enterprises or businesses, combine the development (social & environmental) measures with aspects from the financial performance of a business.
- The goal of the enterprise is to generate value and hence M&E (Monitoring and Evaluation) should focus on what is relevant to the businesses – Profitability, Service delivery, customers and markets, etc. Hence try to balance the information need for project purpose and that which an enterprise can reasonable provide.

- Identify 3-4 key indicators that will measure what is relevant to the enterprise, and agree jointly with enterprise on which kind of indicators can be measured, and explain the reasons and information required.
- Agree on the frequency, documentation, external/third party verification.
- Finally determine how M&E will help both the enterprise and the development organization?

This system of monitoring should be complemented with impact measurement on social, economic and environmental levels. This can include measurements in income, number of participants accessing the livelihood project, growth in enabling environment for enterprise growth, growth in pastoralist fishermen capacity to manage the sea cucumber farm in this case.

Objectives that can be measured from the South Sea Exclusive Foundation perspective might include impact, outreach, sustainability, cost-effectiveness. From an enterprise perspective this includes profitability, increased market access and growth, increased knowledge and skills business and management, enabling business environment and services (Jiwa and Wanjau, 2008). Finally, financial management monitoring is one of the most important types of control that need to be done, as many NGO's that have experience with livelihood projects mention the failed corrupt leaders where money disappears. Monitoring of finances is important, however, the distance to the project might cause problems for regular monitoring activities. As the project might be implemented in the South, it is difficult and time consuming to go there on a regular basis.

Concluding

A livelihood project, which is part of a community capacity building initiative, is a very challenging form of development. Especially in the case of the sea cucumber grow-out farm, as the project is already chosen. The South Sea Exclusive Foundation has to make sure that this form of development really is a form of livelihood that helps and is supported by the coastal community, by doing a thorough livelihood research before hand. It will also take a lot of community development trainings before they are prepared to start the farm. The role of the foundation is really important in this process, and it can be helpful to work on the project in cooperation with a local NGO, experienced in livelihood projects.

RISKS AND THREATS

Although a sea cucumber grow-out farm seems a good additional form of income for coastal communities due to its low maintenance input, relative simple technology, high value of sea cucumber, and the importance of sea cucumber in generating income in some coastal communities, implementation does not go without any risks and threats. Below a short summary from the above threats and risks are discussed.

Sandfish are easy to grow-out: they feed themselves on sandy-substrates and nutrients in the soil. However, reduced salinity, the presence of cyanide in the water, absent enrichment of muddy substrates, and the presence of natural predators are among the environmental risks for the sea cucumbers to grow-out. The construction of the grow-out farm is challenged by high tides and a rough sea during rainy season when the weather gets tough. The wooden sticks might loose their stability due to oysters in the sea.

Psychological aspects of the people involved (or not involved) form another threat, which are the most difficult to overcome. Jealousy has been an often recorded challenge. Individuals that are not included in the project might develop some sort of envy for the people who are. This can create problems for the project and pose additional threats, such as theft and destruction of the farm. Within the group of fishermen involved in the project, mentality problems, such as responsibility, involvement and group bonding, form a challenge for the management of the farm. Especially financial management has often been a failure in existing projects of the NGO's interviewed, which reflect a lack of responsibility and involvement.

Environmental risks are relatively easy to influence. Visiting additional sea cucumber grow-out farms might give a clearer picture on what other threats there are and how to overcome these. An existing community-based sea cucumber grow-out farm in a Barangay near Quezon can still be visited, and another one in Espanola is in its starting phase. However, the threat of cyanide in the seawater is harder to tackle.

Discussion on ethics

When introducing an alternative or additional livelihood, one interferes in somebody else's life. The sustainable livelihood approach argues that when a livelihood can overcome shocks, disasters and changes in their environment, which in turn affects their assets, the livelihood is sustainable. However, when introducing an additional form of livelihood, SSEF will make this particular coastal community dependent upon income derived from the sea cucumbers. In the long run, when the project succeeds, they will derive a monthly income from this project. However, as they will not be their own boss, but rather have to sell life sea cucumbers to the SSE they will be dependent upon SSE's performance as their trading partner. This dependency affects their livelihood activities and relation with outsiders, but also income derived from the project will be dependent upon SSE. I am

not saying this is directly a bad thing, as SSE will probably be a reliable partner in the future. However, is this creation of another or extra form of dependency a good thing or a bad thing? It certainly affects their position in society in one way or another. But what if we left them do their 'natural' livelihood activities without interfering: would their position have been better or worse? The research I have done showed different difficulties and problems in the area, that can be divided in a lack of capital and problems with institutions and politics. Some argued that fish stocks were declining while others did not mention this. But most fishermen do not have another option than to continue fishing for their livelihood, therefore an alternative form of livelihood might be an option for future income generation and preservation of the environment.

Thus, returning again to the discussion on dependency. The reason why the community might be have this dependency relation in the long run, is that it buys its juveniles from SSE, and they have to sell life sea cucumbers back to SSE, as the drying process is the highest value-added process in the sea cucumber commodity chain. So, one could say that the 'selected' coastal community is in effect the employee of SSE, instead of acting as an independent social agent. The drying process is an important aspect in this chain of events, as this process receives most value-added. Letting the community do this process and sell the products to their own trader, will take away part of this dependency relation and maybe empower them more.

Again, it is hard to say dependency is a bad or good thing, and we should let the community decide. However, proposing the project already affects and influences many of the decisions that can be made and will be made in the future. How the proposal is being proposed influences the process as well, and therefore it is important to point out this mutual dependency relation, on part of the South Sea Exclusive Foundation, to the community that might be involved.

RECOMMENDATIONS

First of all, a sea cucumber grow-out farm seems a good livelihood project for a coastal community in Palawan, as the farm requires minimal management input and low costs, as well as its relative simplicity of the techniques involved. However, the large time gap between the start of the farm and its first results poses a challenge. Environmental conditions and its challenges for the construction of the farm are still unknown throughout the year. It is clear that the sea gets rough during 4 months of the year and the construction might hold, but oysters can cause problems. Also natural predators might be different in this part of Palawan compared to the farm in Caramay. Psychological aspects for the large time gap form another challenge for the fishermen involved, as most fishermen do not plan a year ahead.

Livelihood projects are one of the most difficult projects to work with. This is one of the first things that have to be kept in mind. Most of the NGO's I have spoken to, work with communities for three or more years when it comes to livelihood projects, and many have faced a lot of difficulties during the starting phase and later on, while some have failed and other succeeded. Most of the NGO's start working with a community they have already known for a longer time or with communities that come for help to the NGO. First, together with the community they start identifying their needs and problems and let them propose possible solutions with the help of the NGO. A thorough understanding of the dynamics of the community is needed before a project can start and many built on an existing people's organization in the community. The community visits already showed some contradictions concerning the existence of a people's organization, as well as different stories by different individuals. These aspects, which provide a good basis for the start of a livelihood project are all absent in the potential communities in the Southern part of Palawan: there exists no solid ground to work from; no existing relation between the community and SSEF; no people's organization; and no thorough understanding of the communities' dynamics. Here, the environmental risks concerning the grow-out farm are not yet mentioned, as this will be hard to discuss not knowing all the seasons throughout the year.

Therefore, research still needs to be done. Social dynamics and people's responsibility, involvement and willingness are one of the most important and difficult things which influences a successful livelihood project. I would suggest the foundation to do a livelihood analysis and community dynamics research on the potential community the foundation wants to work with. Of course, one has to make sure before hand that the right environmental conditions are met, and maybe get some more information on weather conditions in the Southern part of Palawan, concerning the sea cucumber grow-out farm. As there can be strong currents, high tide, and a rough sea during rainy season, the structure and material of the farm can make it a success or failure.

There are several options for the foundation to proceed, when deciding to start a livelihood project. Many NGO's or livelihood projects work with a local NGO which is based in the area and have strong relations and trust with communities. In this way, the foundation can built on existing

knowledge and relationships and start institutionalizing their NGO in Palawan. Or, the foundation can build this relationship and knowledge from the ground. Here, it is important to get an understanding of community dynamics through research. A student in anthropology or sociology might be willing to be involved in this process. The student can recommend starting a livelihood project or not: the research might show the difficulties of a livelihood project as well as the community's needs, strengths and problems, and their willingness and responsibility.

Once implementing a livelihood project in the community, involvement of different individuals must be decided upon. A common problem in the Philippines with projects and jobs, NGO's and companies provide is jealousy. When some households are included and others not, conflicts might arise, which is already been shown by the nets BFAR provided to Barangay Buno-Buno. The selection of a small community in which all fishermen can be included is therefore the best option. Group bonding workshops, as well as the selection of a leader by the community, might overcome the problem of jealousy. This means a maximum of 30 fishermen in the community, especially as it is the first project SSEF will work with. But still, it might cause problems to inland households that are not included in any project and SSEF must be aware of the problem of jealousy.

Finally, I would suggest the SSEF to have an open attitude towards the needs of the community, as almost all NGO's argued the importance of community involvement in selecting a livelihood project according to their needs. It might just be possible that the community suggests different forms of community support, than the introduction of a sea cucumber grow-out farm. However, the second visit to Barangay Malihod and Buno-Buno a playa showed that many fishermen do not have a clear picture on additional livelihoods or ideals that improves their lives. Therefore, it might be valuable that the foundation makes an interesting and profitable proposition to the community, which triggers their attention and interest.

REFERENCES

Adeel, Z. and Safriel, U., 2008, "Achieving Sustainability by Introducing Alternative Livelihoods", *Integrated Research System for Sustainability Science and Springer*, Vol. 3, pp 125-133

Agudo, N., 2006, '*Sandfish Hatchery Techniques'*, Australian Centre for International Agricultural Research (ACIAR), the Secretariat of the Pacific Community (SPC) and the WorldFish Center.

Akamine, J., 2001, 'Holothurian Exploitation in the Philippines: Continuities and Discontinuities', *TROPICS*, Vol. 10, No. 4, pp. 591-607

Akamine, J., 2002, 'Trepang Exploitation in the Philippines: Updates information', *SPC Beche-de-mer Information Bulletin*, No. 17, pp. 17-21

Akamine, J., 2005, 'Role of the Trepang Traders in the Depleting Resource Management: A Philippine Case', Indigenous Use and Management of Marine Resources, *Senri Ethnological Studies*, Vol. 67, pp. 259-278

AKDN, 2007, 'The Poultry Sector: Creating Alternative Livelihoods in Rural Afghanistan', *Aga Kgan Development Network*, Kabul, Afghanistan, September 2007

Allison, E.H. and Ellis, F., 2001, 'The livelihood approach and management of small-scale fisheries', Elsevier Science Ltd., *Marine Policy*, Vol. 25, pp. 377-388

Ashley, C and K. Hussein, 2000, 'Developing Methodologies for Livelihood Impact Assessment: Experience of the African Wildlife Foundation in East Africa', Chameleon Press, *Overseas Development Institute*, London, February 2000

Author unknown, 2009, 'Sea Cucumber Hatchery and Culture to Tackle Overfishing', *Gaia Discovery*, visited on 17/11/2009

Clark, D.R., 2004, 'Big Dog's Leadership Training and Development Outline: VIII Leadership Styles', Retrieved February 16, 2010 from http://www.nwlink.com/~Donclark/leader/leadtrn.html

Carney, D., 1999, 'Sustainable Livelihood Approaches: Progress and Possibilities for Change', *Department for International Development*,

CITES, 2007, 'Interpretation and implementation of the Convention: Species and trade and conservation issues: SEA CUCUMBERS', *CITES 14th meeting*, Convention on International Trade in Endangered Species of Wild Fauns and Flora', Fourteenth meeting of the Conference of the Parties, The Hague (Netherlands), 3-5 June

Choo, P.S., 2008, 'The Philippines: a hotspot of sea cucumber fisheries in Asia', in: V. Toral-Granda, A. Lovatelli and M. Vasconcellos (eds), Sea cucumbers, a global review of fisheries and trade, *FAO Fisheries and Aquaculture Technical Paper*, No. 516, Rome, FAO, pp. 119-140

Cooperative Center: Federal Credit Unit, 'What is a Cooperative', website visited at 13-1-2010, http://www.coopfcu.org/ASP/financial.asp

Eeckhaut, I. et al., 2008, 'Madagascar Holothurie SA: The first trade company based on sea cucumber aquaculture in Madagascar', *SPC Beche de Mer information Bulletin*, No. 28, pp. 22-23

ELAC Inc., 2005-2007, 'Who We Are', Retrieved February 6, 2010 from http://elac.org.ph/content/index.php?option=com_content&task=view&id=30&Itemid=48

Ferdouse, F, 2004, 'World markets and trade flows in sea cucumber', *Beche de Mer information Bulletin*, FAO Fisheries Technical Paper 463, pp 101-117

Gambo et al., 2004, 'The status of sea cucumber fishery and mariculture in the Philippines', Chapter: status of resources and utilization, Advances in sea cucumber aquaculture and management, *FAO Fisheries and Aquaculture Technical Paper*, No. 463, Rome, FAO, pp. 69-79

Haribon Palawan, 2007, 'Haribon Palawan', retrieved February 9, 2010 from http://www.tarabidan.org/haribon.php

Hartmann, M., Jahnke, H.E., and Peters, K.J., YEAR, 'Poverty Allevation through Diversification: The Case of Integrates Agriculture Aquaculture, Palawan, Philippines',

Icamina, P.M., 2009, 'Saving the Sea Cucumber in the Philippines', *Wild Singapore news*, website visited at 13-12-2009 on http://wildsingaporenews.blogspot.com/2009/06/saving-sea-cucumber-in-philippines.html

Jiwa, F. and K. Wanjau, 2008, 'Alternative livelihoods development framework: guidelines for the identification, selection and development of alternative enterprise opportunities', *A document of care Kenya's livelihoods diversification and marketing technical working group*, May 2008

Kühlmann, K.J., 2003, 'Evaluations of marine reserves as basis to develop alternative livelihoods in coastal areas of the Philippines', Kluwer Academic Publishers, *Aquaculture International*, Vol. 10, pp. 527-549

Malig, J.B. and J.R. Montemayor, 1987, 'Exploitation and Management of Marine Fishery Resources in the Philippines', *Bureau of Fisheries and Aquatic Resources*, Quezon City, Philippines

PAL Team, 2007, 'Project for Alternative Livelihoods in Eastern Afghanistan (PAL): PAL Quarterly Progress Report', *PAL Management Unit*, No. 3 January to March, Jalalabad, April 2007.

Pitt, R and N.D.Q. Duy, 2003a, 'How to produce 100 tonnes of sandfish', *SPC Beche-de-mer Information Bulletin*, May, No. 18, pp. 15-17

Pitt, R. and N.D.Q. Duy, 2003b, 'Breeding and culture of the sea cucumber Holothuria Scabra in Vietnam', ICLARM The World Fish Center, *Reseacrh Institute for Aquaculture*, No. 3, pp 36-39

Pomeroy, R.S. et al., 2008, 'Evaluation of policy options for the live reef food fish trade in the province of Palawan, Western Philippines', Elsevier Ltd., ScienceDirect, *Marine Policy*, Vol. 32, pp. 55-65

Rivera, R. and G.F. Newkirk, 1997, 'Power from the people: a documentation of non-governmental organizations' experience in community-based coastal resource management in the Philippines', Elsevier Science Ltd., *Ocean & Coastal Management*, Vol.36, Nos 1-3, pp 73-95

Robinson, G. and B. Pascal, 2009, 'From hatchery to community – Madagascar's first village-based holothurians mariculture programme', *SPC Beche-de-mer Information Bulletin*, No. 29, pp 38-43

Rosario, W.R., 2008, 'The Philippines', in: A. Lovatello, M.J. Phillips, J.R. Arthur and K. Yamamoto (eds), FAO/NACA Regional Development Workshop on the Future of Mariculture: A Regional Approach for Responsible Development in the Asia-Pacific Region, Guangzhou, China, 7-11 March 2006, *FAO Fisheries Proceedings*, No. 11, Rome, FAO, 2008, pp 225-240

Schoppe, S., 2000, 'Sea cucumber fishery in the Philippines', State Polytechnic College of Palawan, Aquatic Science and Technological Institute, Santa Monica, Puerto Princesa City, Palawan, Philippines

Sievanen, L. et al., 2005, "Weeding through assumptions of livelihood approaches in ICM: Seaweed farming in the Philippines and Indonesia", *Ocean and Coastal Management*, Elsevier Ltd., Vol. 48, pp 297-313

Temeng, V.A. and J.K., Abew, 2009, 'A Review of Alternative Livelihood Projects in Some Mining Communities in Ghana', EuroJournals Publishing Inc., *European Journal of Scientific Research*, Vol. 35, No. 2, pp. 217-228

APPENDIXES

Appendix 1: Interview coastal communities

Background of community

- How many households does the community have?
- What do households do for a living?
- How many are there involved in fisheries activities? Or rely on marine resources?
- What are the different livelihood strategies of the households in the community?
- Are there any regulations on what people are allowed to do for a living and what not?
- Do you think there are areas for improvement in the community?
- Is there a difference in tasks between men and women in a household?
- How big are the households?
- What is the average number of children in a household?
- What is their task in the household?
- Do children also go to school? And what type of schools (elementary and high school?)
- Can all children go to school? Why/why not?
- How is the community organized?
- What kind of income generating activities do households have in the community?

Community organization

There is the possibility to build on existing organizations with the implementation of the sea cucumber farm. Therefore an analysis of community organizations and how they function can help us in choosing a community.

- How is the community organized?
- Is there any people organization within the community?
- How does the community organization function?
- Who is involved?
- What does the community organization do?
- Is there a cooperative?
- Who is involved?
- How many members does the organization have?
- How long does it exist?

Property rights

As most of the time fishing is already organized in one way or another, it is important to know existing relations concerning property rights and rules around fishing in the community and competition with other fishers nearby. The organization of the community can be helpful in the implementation of the farm. However, this organization should be analyzed thoroughly exploring the existing hierarchy and social and gender relations. As this is probably impossible in a one-day visit, I have to come up with some good and not too sensitive questions to try and get the most out of it.

- Are the fishermen organized in the community?
- How many fishermen do you have in the community?
- Do you have any competition with neighboring barangays or commercial fishing?
- Is the community organized?
- Can all fishermen fish at the same time?
- Are there any rules between the fishermen?
- Are there any criteria on fishing gear and methods fishermen use?
- Does the community organization regulate property rights concerning fisheries?

Background of the fishermen: livelihood strategies (assets and capital)

As many fishermen have an uncertain catch and income from fishing. Their survival strategy is probably adapted to this. Also their relation with the traders can have an important role in their livelihood strategies. Maybe traders provide them with equipment and social security.

- What do fishermen catch?
- Where do they derive their income from?
- How do they get their equipment? Do they buy it themselves?
- What do fishermen do when catches are declining?
- Do they have some other form of income generation next to fishing?
- What is their relation with the traders?
- Do the traders come here to buy their products? Or do they have to go to the traders (wherever that is)?
- Who is involved in the selling of the fish and sea cucumber?
- Is the trader that buys the sea cucumber the same as the trader that buys the fish?
- Do the fishermen dry the fish and/or sea cucumber? Or do they sell them still alive?
- Do they have loans for their equipment or boats?
- Who owns the boat?
- Do fishermen work for someone? Or do they work for themselves?
- What do fishermen receive for their products?
- What do fishermen receive for sea cucumber in particular?
- What do fishermen receive for *H. Scabra*?

- Do you share catches?

Techniques fishermen use:

- What kind of fisheries techniques do fishermen use catching their fish?
- What are the illegal fishing methods?
- Is their need for illegal fishing methods?
- Are there any illegal fishing methods?
- Why are these methods illegal?

Environmental views/awareness:

- How do fishermen perceive their environment?
- What do fishermen do to keep the catches stable?
- What do they do for environmental sustainability?
- Do the catches fall?

If so:

- Why do you think they fall?
- Is their anything fishermen do about it?
- Is every fisherman for him, so that there is a strong competition between the different fishermen?
- Have you ever thought of starting your own fishpond? Or starting a fishpond with the community?
- Have you ever thought of a grow-out farm of sea cucumbers?

Sea cucumber knowledge:

- When is the spawning season of sea cucumbers here?
- When do you catch more sea cucumbers?
- Do you think the rainy season affects the catches of sea cucumbers?

Environmental Factors

An important factor for a successful implementation of an *H. Scabra* sea cucumber grow-out farm is the **environmental factor**. Important environmental parameters for the growth of sea cucumbers, derived from the sea cucumber grow-out farm near Roxas, are a long intertidal area where the waves are not too big, and the currents not too strong. Sea cucumbers in general and thus also the grow-out of *H. Scabra* need a stable salinity of the seawater. The risk of floods during the rainy season should therefore be thoroughly analyzed. In relation to the risk of floods, the presence of a river nearby can add up to this risk, affecting the salinity of the water. Taking this into account I come up with the following questions:

- Is there any river nearby?
- Do you harvest sea cucumbers here?
- How do you harvest the sea cucumbers?
- Where do you harvest them?
- What kind of techniques do you use for the harvesting of sea cucumbers?
- What kind of sea cucumbers lives here and which species do you catch?
- Where do these sea cucumbers live?
- Is the current strong here?
- Are there any big waves during the year?
- During the rainy season are there any floods coming into the sea?
- Do you have a lot of floods during the rainy season?
- Have you experienced low catches during the rainy season?
- Do catches fall during the year?
- Do catches fall during the rainy season?
- What other species do fishermen catch during their fishing activities?

Previous experience with NGO's

Previous experiences with NGO's or organizations can have an influence on the attitudes of the people in the Barangay. If people already have many experiences with NGO's that have not been positive, or projects have failed before, their willingness and participation will be lower, and maybe they do not want to participate in the project. If their experiences have been positive, it might be possible to contact that NGO, or to build on existing relations which have already been built up by other NGO's.

- Have you had experience with NGO's?
- Have there been projects by NGO's?
- Does the barangay have experience with previous projects implemented by different NGO's?

If so:

- What kind of NGO?
- What kind of project?
- Has it been successful?
- What do you think of NGO's?
- Have the experiences been positive or negative?
- What did the NGO do or not do?
- When was it?
- Do you think the project was better for the community?

- Would you again participate in a project by an NGO?

Political Factors

According to Ask (2003) political factors can determine the successful implementation of a project. Therefore it is important to know the institutional environment surrounding the implementation of a sea cucumber by an NGO, and the institutional environment of fisheries in general.

- Who regulates coastal activity in this barangay?
- What is the local political system?
- Who is in power of the coastal activity?
- Are there any regulations on coastal activity?
- Is their control by local officials at your barangays?
- Who is in power?

General information on problems in the area

- Do you think there are problems concerning the fisheries?
- What do you think the community needs to be better off?
- Is there anything the community needs?
- What do you think the problems of the community are?
- Can things be improved around here?
- What do you think is a good investment for improvement?

Appendix 2: Results interview coastal communities, first visit

On 17 December I went to Brooke's point with Rebecca to interview two Barangays for a possible implementation of a sea cucumber farm. Before going to the fishing communities I first tried to approach the Barangay captain to let them know of my visit. However, in Inogbong the Barangay captain was not there and therefore should be approached later on if we decide to implement the sea cucumber grow-out in his Barangay. Below the results of the interviews are outlined.

Community 1: Malis a playa

Barangay Malis has around 560 households according to the Barangay captain, with an average of four household members and a maximum of eight. The Barangay captain has been in place for two years and they vote for a new Barangay captain every 3 or 5 years. His task is to improve the Barangay and joked "to make many buildings". Most of the households derive their income from sea, rice and/or coconut. The fishing community consists of around 130 households which all live near the seashore. According to the captain illegal fishing methods consist of dynamite fishing, which is sometimes checked by the Barangay guard, also called the Barangay tanod.

The Barangay has known a cooperative with around 80 members, but got bankrupt a couple of years back. The cooperative was private owned and meant for the rice farmers and the fishing communities. At the moment there is no community organization whatsoever. There has also been no experience with NGO's in the past and the Barangay functions almost independently with sometimes the involvement of the municipality. The captain said the last time they saw someone from the municipality was to give the animals an injection.

After talking to the Barangay captain we got send to the fishing community at sea. Approaching the different houses at sea we interviewed 5 fishermen of the approximately 130 fishing households in the Barangay, to get an idea on their livelihood strategies and the environmental and social factors surrounding this fishing community.

Fisherman 1:

This household is completely dependent on the sea for income and household activities according to the fisherman. He did not do anything else to derive an income nor had other sources of consumption. He owned a motorized bangka, which costs around 25 000 pesos in total. The fishing methods he used was long line fishing and catches *bosogo* with it, which, according him is a big fish. Another technique he uses is called tauban, which is used for catching octopuses with a spear. The octopus is sold to a middleman, which then sells it to market in Brooke's Point. The price he gets from the middlemen is the same as when he would sell it to the market himself. His fish catch is

delivered to the market in Brooke's point by his wife. Compressor diving is not used by him and he does not catch sea cucumber, maybe because of this.

In the case of low catches and thus low income, they sometimes buy fish from another fisherman and sell that to the market in Brooke's Point. The exact nature of this relationship I did not find out and just started to think of this. But this may be some kind of social capital in the community.

The fisherman avoids using trawl techniques, dynamite and compressor diving techniques for fishing. According to him compressor diving its illegal, but if they use the technique anyway it is ok, as some do not know the technique is illegal, according to the fisherman. The time he devotes to fishing is early in the morning most of the year. However, in the rainy and typhoon season he does not go out to sea, as the waves are too big and it is too dangerous to go out there. The blurry water coming from the rivers in the rainy season does also affect the species in the ocean.

His maximum catch is around 30 kilo's of fish per time he goes out. With typhoons there is no catch and later his wife sais that the catch is always lower than 30 kilo's. However, when they go to the border between Malaysia and the Philippines the catches are bigger. Sometimes they go out there with a group of fishermen, sharing the expenses, such as gasoline and food. Catches are not shared as they use their own equipment when there.

There is no control on illegal fishing methods in the area according to the fisherman. The municipality cares for illegal fishing methods and goes sometimes out there to check. The Barangay has no control whatsoever and I think the control of the municipality is as low as can be.

The sea has a sandy and muddy substrate

When the fisherman does not have enough cash to buy gasoline or other equipment for fishing, he uses gillnets for fishing. However, the fish population is not as high close to shore as deeper in the sea. He does not have access to loans, as he will not be able to pay part of his loan back to bank every week. And he concludes by saying that the lack of money it the major problem.

Fisherman 2:

According to this man there are more than 100 fishermen in the area and he sells its fish at the market in Brooke's point as well. His main catches are dalaganbuket, suno, mulmul, la bahita. He also catches sea cucumber as lobster. The lobster is collected in the coral, while most of the sea cucumber is found in the sandy and muddy substrates. The species of sea cucumber hatched are brown beauty and susuan. The fisherman is not familiar with putian, or *H. Scabra*. The sea cucumber is dried by the fisherman himself and then sells it in Puerto. The lobster is sometimes sold to a middleman or sold in Puerto Princesa City. The trader in Puerto is called Willieti, who has a Chinese nationality.

The techniques used by the fisherman are compressor diving, long line and gillnets. The fisherman does not own a bangka, and therefore pays other fisherman to go fishing with them. He also uses a snorkel and his only income is derived from fishing activities. In the typhoon season there is no

income from fish. From August to November, a typhoon strikes with an average of three times a month. According to him the catches fall when the current gets too strong, which is mostly around the typhoon season.

Environmental awareness:

According to the fisherman there is still a lot of sea cucumber and fish in the sea and sometimes they decide with a group of fisherman to stop fishing for a while as the motorboats destroy 'things'. He does not use the method of dynamite fishing.

Fisherman 3, Elmar Pahayahay:

This fisherman has four children and lives with six in their household. The methods he uses are fishing and diving, and he uses the spear as well. He owns a motorized bangka and catches a lot of different sorts of fish: labahita, mulmul, lobster. He also hatches sea cucumbers: balatan, bullybully, susuan, red beauty, brown beauty, putian, talipan. He also sees small sea cucumbers in the sandy and muddy substrates, but leaves them there and does not sell in to the local traders. He also dries the sea cucumber himself and sells it to a trader in Puerto Princesa, mostly once in a month, sometimes twice. He goes out to the corals at night and sometimes they find coral with a lot of sea cucumber still.

His income is also only derived from fishing activities and sometimes he earns 15 000 pesos in one fishing trip and divide it between five fisherman, when they fish with 5 fisherman, mostly at night. At one night they can catch up to 2000 fish, when expenses are 700 pesos in total. The rest is divided between the fishermen. These expenses are comprised of gasoline, ice, battery, coffee, sugar, cigarettes, and food.

According to him one cannot use cyanide. Some fishermen use it without permission, while corals die and are damaged as well as it kills the small fish. He sees the damage of the use of cyanide and therefore does not agree with its use, he is telling me. According to him compressor diving is forbidden during the day, while you can use it at night.

In the typhoon season when there are strong currents, there are almost no fish in the sea.

According to him the problems in the area consists of illegal poachers (big companies) from Manila, using high-tech equipment and there is no capital in the area and are only able to save money for primary needs, while not saving large amounts to buy an expensive thing.

Fisherman 4, Rolando Argonsola:

His household also consists of 6 members, four children, his wife and himself. He also owns a motorized bangka and uses hook fishing, diving, and long line as fishing techniques. His main catches comprise bisugu, lapolapo, mulmul. He also catches sea cucumber with a spear, but does not hatch sea cucumber as he does not have a compressor. This means that most sea cucumbers are

derived from deeper areas in the sea, and therefore they do not use the leaning technique, which is more commonly used in the north of Palawan.

Sometimes he goes with other fishermen into the deeper areas and then catches fish for almost 3000 pesos and divides it between the three fishermen he goes with. Everyday they sell their products to the market in Brooke's Point. However it is not sure if they go there always themselves or that the buyers come to their place. Sometimes the vendors (ordinary people) come to their fishing community, collect the fish and go to the market in Brooke's point.

The problems he thinks are most pressing, it the money for gasoline. He reckons there is still enough fish in the area. They go out everyday, but only weather conditions stop them from catching fish, like typhoons.

Fisherman 5:

This was the son of the women who Sander spoke to, although he was not there, I held a short interview with the women. Her son goes fishing and has four children. His catch is comprised of lapolapo (snapper), tulinghan, dambato (fish in the corals). His techniques are long line and hook fishing. He does not use gillnets or compressor diving. He used to use the technique of compressor diving, he stopped because of physical damage and thinks it is dangerous. They also deliver their products to Brooke's point.

Concluding:

The fisher community in this Barangay is very diverse and there is some kind of organization, but this seems to be between couples of fisherman, probably relatives. The houses at the sea shore are scattered, but everybody seems to know each other. The fisherman seem to try and catch what they can, it depends on the equipment they own, what type of fish they catch. It is not clear to what extent they use illegal fishing methods. Some say compressor diving is illegal and others say it is only illegal during the day. It is obvious that nobody would admit if they use dynamite or cyanide as fishing methods.

The rainy season has a strong effect on fishing practices. However, it was not clear if it had an effect on fish stocks as well, while some say it has and others say that they just do not go out fishing during the rough weather. The biggest problem the fishermen identify in their community is the lack of capital for improvements. What kind of improvements they can receive with more capital is not always clear. But the access to gasoline would improve their lives. What is clear is that all these fishermen are completely dependent upon fishing practices for their income and survival strategies.

Community 2: Inogbong a playa

The Barangay captain was not present at the time of arrival, so we let us drive to the fishing community of the Barangay. This Barangay seemed really scattered, with houses all over the place and just a small fishing community, which had only 6 households. The size of the community also

led to a group interview, instead of individual interviews with the fishermen. The community is in the presence of a missionary who did most of the talking, as his English was excellent.

Background of the community

The fishing community is seen as sort of the outskirts of the Barangay and the people are generally seen as gypsies throughout the Philippines, and are also known as the Badiau, which is an indigenous population in the Philippines. The Badiau are also known as dwellers, which travel from one place to another. Most of the fishing community stayed there for 10 years already, while some of the members went away to work somewhere else, most of them come back with Christmas.

A Christian Korean organization provided the community with a church and a literacy centre. The missionary's work comprises of schooling them and providing church activities. It is a real friendly and tight community that fled from Mindanao. The Badiau were once Muslim but got converted to Christianity in the past.

Fishing practices

The fishers go mostly with two men in one boat for safety reasons. Pastor Hobi fished with his father and the communities catches and hatches almost everything, except for the species that go extinct (sea lions, sea cow, sea turtle), according to the missionary, who did most of the talking, and is also best schooled, and probably knows what to say. The things they catch are: fish, sea cucumber, sea shell, lobster, octopus or squid. The species of sea cucumber hatched by them are putian, susuan and hanginan, and some others as well. The techniques they use are spears, diving, hook & line, gillnets, and long line. The community owns a couple of boats. According to the pastor they do not use compressor diving as it is considered to be too dangerous, the technique they use is free diving.

However later on it becomes clear that when the sea cucumbers cannot be found in shallow waters, they use compressor as alternative. I guess they are well aware that this technique is illegal? They swim up to 16 meters depth for the sea cucumbers, and spend around 3 liters of gasoline per time they go out in the sea, which depends on the form of the seabed. How far into the sea this is, I do not know. A suitable place for sea cucumbers is a couple of miles in the sea.

Sea grass is common in the area and the river is just a couple of meters away. In the rainy season they do not go out fishing as this is considered to dangerous. May is the month in which most fish and sea cucumbers are caught. The dried sea cucumbers are sold in Rio Tuba and Puerto Princesa City. According to them susuan is the most expensive species of sea cucumber, the price of putian lies lower than susuan. Rio Tuba is considered very rich by the community, as they have a lot of capital and equipment, most likely because of the mining activities. The fish is sold at the local market and at Brooke's Point.

When nature allows they go out fishing everyday in the morning till 2 o'clock except for Sunday. The relation with the trader is one that is called in local slang: *suki*. This means that they have a

dependent relationship. The trader provides the fishers sometimes with fuel and they give their catch to the trader. The only thing they sometimes get from the trader is thus fuel, nothing else.

According to the pastor/missionary, there were more sea cucumbers in the sea a couple of years back. They started to laugh when I asked them how this happened and then the pastor said this was because of too many fisherfolk. Later he explained to me that destructive fishing techniques are probably the biggest cause of this. Catches fall because of the use of cyanide and explosives. According to the missionary this is politically hard to stop, as the buyers of fish and marine species provide the fishermen with explosives and cyanide, as the buyers urge the fishermen higher quantities of fish. According to the missionary the buyers of fish are the one who initiate the destructive fishing techniques.

The community lack technical people and training, so they do not have any ideas to start a farm.

The community never received any support from the mayors in Bataraza and the Barangay captain. There has also been no experience with NGO's in the past and according to the missionary the NGO's are out there but they do not see them.

During rainy season – typhoon season – big waves hit the area, and they find it too dangerous to go out fishing at sea. Once the waves hit their houses, but that happened only once according to the missionary, who has not been there for 10 years I think. The waters in the sea are shallow and you can walk up to 30 meters, and the tides are normal, just like everywhere in the area according to the missionary.

The missionary said things can be improved around here. The provision of fishing gear or technical training with new technology would help them if they would catch more fish.

Concluding:

This gypsy community seems really close and is obviously really small as well. Half of their day is devoted to fishing practices. However, I did not find out what they do during the rest of the day. They do have some kind of trusting relationship with their trader, who provides gasoline to them. The main problem, according to the missionary, is the lack of technical training and the absence of access to financial capital.

However, I spoke most of the time to the missionary and sometimes the fishermen were asked as well. What can be a problem though is that it is a gypsy community who are dwellers. Although they seemed really settled and have been there for 10 years in the area. According to the missionary the people would stay in the area if they can derive an income there. So if somebody invested in the area they would not flee.

The rainy season also seemed to be a big obstacle. According to the missionary, the sea is too rough during rain season and it is too dangerous to go out at sea.

Community 3: Barangay Marangas (a playa)

Before going to the fishing community Sander has spoken to, I first went to the Barangay captain. His name is Melvin Narasi and it was the first captain that was a bit skeptical and curious about my visit. I told him that I was doing my thesis on livelihood strategies of fishermen, which was ok I think.

The Barangay consists of around 1005 households, according to the last study that was done in 2007, with an average of four children per household. The captain estimated that around 10% of these households derive their income from fishing activities. The community is not (yet) organized as a whole, as well as the fisheries. No cooperatives exist for the fishing communities, however, the rice farmers and coconut farmers do seem to be organized in cooperatives. But, according to the captain, the general problem in the area (and maybe in the Philippines or Palawan as a whole) is that cooperatives do not really last for a long time. The cooperatives start of enthusiastically but after a while they die out: the members are not that interested anymore and only a couple stay active. Around 5% of the members seem to turn up at an assembly meeting. According to the captain, many members saw that their income did not rise because of the existence of the cooperative, which discourages other citizens of the Barangay to become a member. Nowadays starting a new cooperative is hard, because of the negative experiences in the past.

The community has a number of cooperatives and organizations: Marangas Irrigators Association (a rice farmer organization) and Cocoped (a coconut farmers organization, however is ranked 4 out of 10 according to the captain). The Barangay also has also two women's organization, he said they are really popular in Palawan and are often used in politics during elections. One is organized by the women themselves and the other is initiated by the province, from higher hand.

According to the Barangay captain the catches have declined over the years as well as the size of the crabs in particular. In the 1980s crabs were much bigger, but their size decreased by 30-40%. Illegal fishing techniques are used in the area and some of the fishermen go to jail when they are caught according to the captain, but most of them do not have any alternatives. In the Barangay there are two fisher communities: Agro a playa and Narasin. Narasin is owned by the family of the Barangay captain. His grandfather owns the area and the island near the shore. Around 100 fishermen live there with just a few big fishing boats. They use *pangalong* as a fishing technique in Narasin. This is a big boat which is operated by 10 fishermen.

Later on, we were brought to Narasin by the Barangay captain to conduct our research. So next time we still have to visit the other fishing community in the Barangay, and I think Sander went their as well.

A Playa Narasi

Here I spoke to Nori Narasi, they call her Mam Nori. She is the aunt of the Barangay captain. Nori Narasi buys the products of the fishermen and in turn she finances the boats and fishermen by buying their products. The fish they catch is mainly and I think only anchovies, which is called *dilis* in tagalog. Nori Narasi dries the fish and buyers come here to buy it from her, which then ship it to Manila. The family owns an island, Maduara Island, and that's where the people fish. The fishermen

have 5 big fishing boats, which operate during day time, at night they have two boats operating. The boat uses nets and a big light for those boats that operate during night time. There are at least 10 fishermen operating one boat, therefore she has at least 70 fishermen working for her. The fishermen catch around 10 to 20 buckets of anchovies during one day in good weather conditions. Bad weather conditions include a blurred sea and big waves, this prevents the fishermen from seeing where the fish are. The place is surrounded by two rivers on both sides and according to Nori Narasi the year before they had a lot more catches than this year, which is maybe because of the use of cyanide and dynamite by other fishers.

During rainy season Nora Narasi, and I think that includes the family, plant rise. The fishermen move to other sites according to her and look for a financier to finance their expenses. Therefore she obviously does not provide this kind of service to her fishermen. A lot of fishermen live on her property with their families, and according to her the fishermen own the boats themselves (obviously just a couple) but she finances them to go out fishing with fuel for example.

The family does not have a really good relationship with he mayor of Bataraza and therefore the municipality does not come to their fishing grounds.

I interviewed only one fisherman on her property as it was time to go back to Brooke's point if I wanted to get the last jeepney. The fisherman's companion operates the boat he is working on and he is dependent on the weather conditions for the volume of his catches of anchovies. Sometimes he also catches *talakitok* and tuna. He has no income when there is no fish. The fisherman is not really happy with his way of life and would rather be in the position of Mam Nori. He says it's better to have own capital to buy a boat, like Miss Nora.

Concluding:

This Barangay has two fishing communities. I have been to only one that is owned by the Barangay captain's family. All these fishermen work for the land owner and do not have a chance for future improvements, so it seems. The land and water is owned by this family, which can be a problem for the implementation of a grow-out farm in this area, and it probably makes us dependent upon the families' rules as well. Although the fishermen could use some extra help the land owner can be an obstacle. The other fishing community should still be visited in the Barangay, but we have to be aware of the captain's relationship with the fisher family.

I did not yet find out anything about the presence of sea cucumbers in this area. I think this will become clear when I have spoken to the other community.

Appendix 3: Results interviews remaining Barangays

Results interviews fishing communities (Malihod and Buno-Buno a playa + other fishing community in Marangas)

On the 9th of January I went to Brooke's Point for the second time to visit the other 2 communities and go back to the third community. Here, again, I first tried to approach the Barangay captain, but in both cases the Barangay captain was not there. So they are not aware (yet) of any visits to their barangay and fishing communities.

Community 5: Barangay Malihod a playa

At the time of our visit (9.00 am) most fishermen were out fishing, so we talked to an old men named Rescipio Querone. The fishing community in the Barangay knows around 50 fishermen, who fish the waters of Antonyo Bay, in front of their community. They catch a variety of different marine species: different sorts of fish, crabs, shrimps, and also hatch four different species (susuan and duduan among them) of sea cucumbers near the corals. The fishing techniques they use are nets and baklad (which is a sort of trapping system). To hatch the sea cucumbers they use compressor diving to go into the deeper areas, up to 25 meters. Fishermen normally fish individually, but sometimes group together for commercial purposes and to go further into the sea.

The fishermen are organized in a people's organization just for them. Membership is obliged, but I think institutionalized as well. The people's organization watches over their bay and report violations to the police when they see them. For example, visits of larger boats and the use of trolling techniques within their bay are not tolerated by the organization and their fishermen. The organization does not deal with resource control or any kind of limit to the fishing activities. As the man said: "What will be, will be". There is no control on mesh sizes either, but according to the man, "fortunately they use the big ones". However, they are not allowed to throw trash around, which counts for everyone. (But later we were walking back to the road, and there was a lot of trash on the paths.)

Most of the fishermen are entirely reliant on fishing for their income, while others do sidelines with farming, mostly rice farming, when they owe a small plot of land. The community has small boats (peddle boats) for the shallow waters, and bigger boats for the deeper areas, all owned by individual fishermen. Most of the time catches are high enough, but when the sea gets rough – from November till March – catches fall. According to Rescipio the catches depend on luck, as it depends on the 'walk of the fish'. When their time is not spend on fishing, they do not do 'anything' (What this anything or nothing means, I am not sure). However, they go out fishing when the sea is calm, come back when the boat is full, but will go out again if the weather and sea allows it. As an indication of the roughness of the sea, the water will come to their houses. During the rainy season,

according to that man, the weather is good enough to fish and the sea is 'really fine'. During the rough season, they rely on the television for weather forecasts and as a leisure activity. During the rainy season, inflow of fresh water is controlled with piles of rocks in the rivers, so that there won't be any floods.

Women in the community are mostly involved in selling the fish at the market, while the men do the fishing. According to Rescipio there is no special relation with the trader and they do not receive anything from him. And so far the community has no experience with NGO's or other external organizations. Rescipio does think the fish stocks are decreasing, according to a growth in the fishermen population. Too many fishermen result in decreasing stocks, according to him. Back in the days, there were just a couple of fishermen using large nets, nowadays everybody does.

The fish is sold in Bataraza (fish, shrimps and crabs), the money they receive can go up to 10 000 pesos for one day, but this mostly counts for those who own baklad's. The sea cucumber and lobster is sold in Puerto Princesa City, but sometimes a buyer from Rio Tuba buys the sea cucumbers.

In Antonyo Bay you see several 'farms'. I thought they were farms, but they are called 'baklad's'. 'Baklad's' are wooden poles with nets that they use as fish traps. The mesh size is relatively big according to Rescipio, and this will make sure they catch the big fish instead of the smaller ones, which they won't sell anyway. If the construction of the 'baklad' is strong they can resist the rough sea, but after two months it's not sure if the baklad will hold, as tiny oysters will eat the wood, so the construction gets weaker anyway.

The community and the people's organization do not control any kind of fishing activities including the techniques they use. However, the municipality is very strict with cyanide and or dynamite fishing, according to the men. But he also said there was no control at all from government officials. He said, that those who are caught using these illegal techniques are brought to Bataraza.

According to Rescipio, one of the problems for the fishermen is the lack of nets. They do not have problems catching fish, there is still enough I think. The profit is ok, however nets do not last forever.

Environmental factors:

The area of the fishermen, Antonyo Bay, has sea grass in the whole area. It seems protected from the open sea, but it has a relatively long season of rough and high water, with strong currents. They do catch sea cucumbers in the area, but I did not find out what the four species of sea cucumbers were. They did not hatch the sea cucumbers from the sea grass, so I am not sure if putian or *H. Scabra* is one of them. However, the presence of sea grass might be a good indication.

The use of 'baklad's' shows that poles with nets do seem to hold, although there quality is being diminished during the rough season, and the presence of oysters makes these weaker. However the water is shallow for a long time, and you could see baklad's deeper into the sea as well. This might

slow down some of the roughness of the sea, and maybe if the poles are made of plastic, or some other material, the farm will be a bit stronger and the chance of destruction is lower.

Community 4: Barangay Buno-Buno a Playa

In this Barangay we didn't get to speak to the Barangay captain either, as he wasn't home. So we went to the fishermen by ourselves. Here we spoke to Alyusa Hampson, who is also the chairman of the fisher organization in the Barangay. There are around 20 fishermen in the area, with their families. The fishermen catch fish, big shrimps, but no sea cucumber, as they do not use air compressors, because they are illegal. The only fishing techniques they use are nets.

According to Alyusa, illegal fishing techniques are rampant in the area, which is also one of the main problems the fishermen in the community face. The fishermen of Barangay Buno-Buno do not use these illegal fishing methods, as they are aware it's harmful and hazardous for the environment.

It is interesting that this Barangay also has a people's organization for the fishermen. This is mainly being used for their own protection, as they feel a lot of competition from outsiders: commercial fishing boats and dynamite and cyanide users. The people's organization therefore deals mainly with the protection of there fishing grounds and fight against illegal fishers. They feel disappointed by the municipality and government officials that only make rules, but do not control for any kind of illegal fishing method. The People's organization arranges meetings and tries to tackle illegal fishers and report them to the Bureau of Fisheries in Bataraza. Alyusa is aware of Republic Act 8550 that states the prohibition of active gear (the use of big boats) within 15 km of the shore. However, he does not feel a lot of support from the municipality and politics. According to him the wrong people are in the wrong places and politics is filled with family ties and knowing the right people to get the job. Therefore, politicians do not employ the skilled people, but their relatives.

Due to these big boats the fishermen have to go further into the sea. There is not control and support whatsoever. However, they sometimes get support from a congressman who provides them with nets. This is being done through an officer from the municipality who comes to the fishermen.

According to Alyusa the fishing stocks are declining due to this rampant use of illegal fishing techniques. There is also a huge difference in the environment since 1997. Back then, there were sea cucumbers in the shallow areas and bigger fish. A lot of mangroves have been logged for the use of fish ponds and the making of charcoal.

Environmental factors

There area is on one side protected from the open water by a peace of land. There would be sea grass in the area if they were not destroyed by the small mesh sizes. During high tide the water gets to the houses on shore as well. This happens anytime during the year, it does not have to be a rainy season or a stormy season. And according to Alyusa the bad weather season for fishing is during November and December mostly. I guess it includes the typhoon season and thus rainy season in the Philippines which start from September. During the rainy season floods of freshwater come

from the rivers that flow into the ocean. Sometimes it goes from the rice fields into the river into the sea.

Just after fool moon the catches are higher. With full moon there is a lot of reflection from the moon on the sea surface and they cannot see the fish at night. The fish can also see the nets with full moon, and are therefore alert to the fishing activities. This story shows that they fish at night or really early in the morning when it's still dark.

Most fishermen only rely on fishing for their livelihood. However, some also derive income from coconut farming, when they own coconuts. Here tasks between men and women, referring to fishing activities, are clearly divided. Men fish and women sell the fish to a man, Mr. Martillana, in the market in Bataraza. He owns a small space in the market place, where he sells the fish. According to Alyusa there is no real alternative to fishing as a livelihood income, so when catches are low they have to deal with that in one way or another.

The man seems to be aware of his environment and his dependence on it. He knows that a lot of mangroves have disappeared and that there is probably less fish because of this trend as well. The fishponds that are built in the mangrove areas are used for shrimps and milkfish production.

There is no real competition between the fishermen. However, the competition really exists with the outsiders. They fish individually from 4am in the morning till around 7am. This is a daily routine and they rest during the rest of the day. However, if they have to work, they work. What resting and work is exactly is not clear, and it might be that they use it for other 'daily routine' activities. The fishermen do not really have a special relation with the buyer, but they buy their gasoline from their trader, and do not get it as a gift or something. Maybe the price they pay for the gasoline is a bit lower, but this is not sure as well.

The main problem in their area and the problems the fishermen, or at least Alyusa, face, is its competition with outsiders; the big fishing boats as well as the dynamite and cyanide fishers. They put a lot of effort in the legal aspect on fisheries regulations that only seem to come from them and not from the political and official authorities. Talking with the authorities on these matters and pushing them in control and forcing these regulations would help these fishermen most.

Community 3: Barangay Marangas

During my last visit I talked to the Barangay captain already and visited one of the two fishing communities in the Barangay. This land was owned by the family of the Barangay captain and a lot of fishermen worked for the landowner in one way or another. Now we went to the other fishing community as well. This was kind of chaotic and we talked to one of the large boat owners, Tess Santos, to get some more information on the community.

This fishing community has around 50 fishermen in the area. All of them own a bangka which differs in sizes. Tess Santos owns a large boat and 7 fishermen work for her on the boat. They mainly catch bisogo (the English or scientific name I don't know). According to her there are no sea

cucumbers in the area, they only catch fish. I do not know if this only counts for this woman or for the whole fishing community. But we saw one sea cucumber being dried. They use nets for the catching of sea cucumbers. But were silent and said "no comment" when asked if they used any other fishing techniques, which mainly meant cyanide and dynamite.

The fishermen in the area have to secure a mayor's permit from the Barangay to be allowed to go fishing, also called a Barangay clearance. To get this permit they have to be a member of the Barangay or municipality and have to pay a community tax.

The fishermen catch their own things depending on the net they use. They work independently from each other, although, there is a people's organization for the fishermen. However, this organization is only used for contact with the municipality or Barangay. When the municipality needs to talk with the fishermen or have any new regulations or rules to pass on, they only have to call one person, the contact person to reach the fishermen. They are contacted about 2/3 times a year on illegal methods and regulations. According to the women there is no control whatsoever on their rules, and not even on the price of the fish.

Impression:

The first impression of this Barangay, including the fishing communities, is that it seems a rich Barangay with money and power in the hands of a few. The last time I went to the community, much of the water, as well as the island, is owned by one family, with a lot of 'poor' fishermen working for them. Now the larger boats are obviously owned by the ones who have more money and power. This community already *seems* a bit chaotic with large differences between the fishermen. It also *seems* that the ones who have the most also use the illegal techniques. And I *think* that they provide the fishermen with these illegal techniques, so more fish is hatched and can be sold. A lot of fish was being dried there as well, which implies high catches and too much for being sold fresh at the market place.

Appendix 4: Results second visit Malihod and Buno-Buno a Playa

2/5/2010

Barangay Malihod a playa

Interview 1: Mr. Bonjo Rizo (Buding)

1) How many fishermen live here?

Estimation: ate least 20 fishermen in this barangay

2) Are they organized in one way or another?

There was an organization before that lasted for 1 month. But it did not progress, was not successful. They had different point of views. He doesn't know what the purpose of the organization is.

3) Are there any rules between the fishermen?

He's aware of the prohibited fishing methods (poison & dynamite), he's not practicing that.

4) If they see another fishermen using illegal methods. Do they do something about it?

They report it to Bataraza police, so they can take good care of their resources. The police will catch those people.

5) Do you catch enough during the year (2009)?

Just enough to live from with his family (5 kids)

6) Do you do something else to generate income besides fishing?

Only fishing, but his wife has a small sari sari store. The profit from the sari is just enough for food.

- They make their own fishing gear.

7) Did he have other occupations before?

He came from Masbate, where he also used to fish. In 2000 he moved here in Bataraza with his wife.

8) Are you happy with your job?

He's happy, he has no other choice, nothing else to do. He's willing to do other jobs if there 's an opportunity.

9) What would you like to do?

If he had money he would like to buy land to farm or start a sari sari store.

10) In the community, are there people who do other jobs then fishing?

No they are all fishermen.

11) What do they catch?

If the weather is wavy, they catch only fish. If the sea is calm, they catch also crustaceans and sea cucumber. They sell it in Rio Tuba, there are many buyers there. They sell the lobster's life and the sea cucumbers dried.

12) What species of sea cucumber?

Buli buli (most common), Susuhan, hanginan, lig lig, putian (hoop dat ik ze zo goed schrijf :P)

13) When you go fishing, how you go and who with?

They go with 2, he and his 18 year old son. He has his own Bangka. His son is in first year high school in Bataraza

14) Frequency of fishing

Everyday, from 2 to 9 am, if the sea is to rough then they go from 7am to noon.

15) Are there any problems or positive points in the area? Things that can be improved?

The problem is that there is not much fish anymore to catch.

16) Do you see a difference between when you first came here (1999) and now?

There is a big difference in the quantity because of the illegal fishing methods used. Before there were many fish, now only few.

17) What do you do when catches are low?

Nothing, even if the catch is low, he still keeps fishing, because he has not other option

18) Is there any control for illegal fishermen?

Illegal fishermen are fined and then released when caught by the police. (later he mentions that there is also a prison sentence)

19) People catch more when using illegal methods?

1:3 kg ratio (legal: illegal)

20) Why don't you use illegal methods?

I don't want to get caught and go to prison. The BFAR has laws.

21) Do you understand why illegal methods are illegal?

He doesn't know, but later on he mentioned that due to illegal fishing methods, fish stocks decrease.

22) Where do people get illegal gear?

He doesn't know

23) Are there many coral reefs here?

Yes, many coral refs, still many life corals

24) What will you do when catches keep decreasing?

He doesn't know. A solution would be to stop illegal fishing, this will increase the number of fish.

Interview 2: Muslim family, we spoke to 3 women. Two of them are the wife's (mother and daughter) of fishermen, who fish together. During the interview one of the 2 fishermen joins the interview.

1) What do the women do?

Stay in the house and take care of the children.

They sometimes help the men or go and sell the fish in the market. The mother goes to the neighborhood to sell the fish.

2) They have other income?

Other income: every 3 months they harvest the coconuts and dry and sell it. (mainly the job of the husband of the 3rd women).

3) What is the catch per day?

Depends on the weather. Max is 7 kg for one day, min is 1.5 kg for one day or nothing.

4) When is the bad weather season?

All months have the same regarding quantity of catch

5) Are you happy with the way you are living now?

She has nothing to do with it, it's her life, she's happy.

6) What would you wish to do?

No wish, if they can eat 3 times then its ok. She doesn't know what other livelihood she would do.

7) Is there any organization within the fishermen community?

There's no organization

8) The other women, what is het husband's work?

In charge of the coconut (copra) production. The other rime he is resting.

9) Do the women have skills or wishes to start a business if there is an opportunity?

They don't have skills, only elementary school.

10) Are you willing to learn skills?

Yes

11) Do they see problems in the area?

They have not enough money to buy food.

They have no gear to catch fish. He has a boat but no net. He borrows it from his neighbor and gives him fish as payment.

Nobody will borrow money to them.

One baklot is p 16,500

Gear for fishing with Bangka (net): p 850 per net (lambat) They need 6 bundles.

12) There is an opportunity to work somewhere else?

He doesn't have the education for that and they don't know how to do labor work.

13) Do you catch sea cucumbers?

If the weather is calm, they catch lobster and sea cucumber. They pick it up, dive with a compressor. He borrows the compressor.

They also do spear fishing with the compressor, like parrot fish and samara, who live in the corals. They do this from 7 pm to midnight.

The lobster and balatan they keep in a net in the water so they don't die.

Barangay Buno Buno

Interview 1: Aldin Humpson (brother of…)

He had rice fields before but he lost it when he had debts. Since 2009 he is a fisherman. He has 2 motorized Bangka's, of which one he gave to his son. He has 3 children.

There are 10 fishermen in the Barangay at present. Before they were organized, but there was no action from the top. The organization started in 2008. It was active for one year. It had more then 20 members, all fishermen. The other 10 are not fishing anymore.

The fishing technique they use is a lambat (net).

The species they catch: sap sap, bisugo, burrow, bagudlong

They don't fish for lobster and sea cucumber with a compressor. Sometimes they are in their net accidently. His sons are divers, but they don't have a compressor.

When using dynamite you can catch a lot of fish, but it is forbidden and he doesn't know how to do it.

The barangay didn't support the people's organization, which fight illegal fishing. But he's willing to start such organization again.

If possible he would like to use other fishing techniques like, long line with many hooks.

Problems in the area:

-illegal fishermen

-sodium, dynamite, fishermen that are not aloud in municipal waters but go there anyway.

Ideas:

-beach resort

-fishpond (they have not money to hire people for that)

The people in the neighborhood are the costumers and sometimes they bring it to the market. Costumers like lapu lapu, guraw, maya maya.

Would he like to do something supplementary to earn more income?

-he's willing to

Are there any opportunities here?

-fishponds. They are starting to clean the area for fishponds. It's not prohibited to remove the nipa, because they are the ones who planted it.

Do you know why illegal methods are illegal?

-he doesn't know why.

Is the coral reef here in good shape?

-some corals are already dead, more dead than alive.

Close to the shore there are sea grasses. Illegal trolls from Brooke's point, destroy it. The government in Bataraza is not strict.

Are there any jobs in the area?

-there are my rice fields, but they don't hire people for that.

People offer labor but they prefer to fish.

The go fishing from 4 am to 8 am. The rest of the day he does nothing. His wife makes nipa, for roofing.

Do they still have meetings with the people's organization?

-the last meeting was a year ago.

Is he willing to work together with other people of the barangay?

-they have unity, they can work together in a harmonious way. Only the top is a problem. Like BFAR, their needs do not meet.

Before the BFAR and the barangay supported them but later not anymore.

How did they organize at the beginning?

-Because of illegal fishing they gathered to fight that, and they elected officers.

Other aquaculture in the area:

There are no seaweed farms, because there is freshwater inflow.

There are no fish cages.

There are 4 operators who have fishponds.

There is one island where they culture pearls (Bugsog island, part of rio tuba), it's a private island. They have a closed area with many fish.

Marihangin island: people are diving for sea cucumbers and lapu lapgu using illegal methods. They also take the shelves (oysters) where pearls are normally in. There are no pearls.

His other brother has a rice field.

Interview: Mosran Ating & Sergeli Mohamed (76 years old) (grandson-grandfather)

The grandfather is already here for a long time 9since 1975), He came from a place where there was war. First he farmed rice, but there was chaos because it was not clear who owned the land. Then they came to a playa to fish. His son is a policeman in Bataraza.

They live on the other side of the river.

They use lambat (nets), but their net is too short. They don't have the capital to buy nets.

They have 3 motorized Bangka's. But the motors are getting old. Sometimes they have to paddle when the motor breaks down, then it's very hard to get back to the shore.

Before there was HTI, a lending company who borrowed them money, they had to pay it back in 6 months on a weekly basis, it's already paid back.

The max catch is 120 kg for 1 day with their own small nets.

They borrowed along net and share the fish with the owner. They catch 240 to 700 kg a day with that net.

They fish far away from coral reefs, so they don't catch grouper and sea cucumber. They do catch lobsters.

With low tide, sea cucumbers can be found on the beach, they don't get it because they don't have buyers.

They were a member in the people's organization but when Mitra gave the barangay materials (very little) they were not included. The organization divided the nets to the fishermen who don't have a Bangka.

Why did the organization fail?

They did nit distribute the nets equally so there was a conflict. There was a list (they were on it), but some people who were not on the list got their net.

There are 9 fishermen on this side of the river.

The nets given by Mitra were very small. They distributed them in December 2009. They had a meeting, but they didn't attend. They organized again because the government had something to give.

They are still willing to join a project or organization together with the other fishermen.

If there's something to give it shouldn't be done through the organization, because it isn't distributed fair.

Problems:

- No problems in fishing
- They lack gear

They have enough income to live from. Fishing is their only income. They have no ideas or dreams for other income.

The market is a problem, no good access. They sell it to someone who comes here, and they sell it on the market.

Normally they fish from 4 to 8 am.

They dry the small fish.

For the dried fish they get:

1kg dili: 100 pesos

1 kg sap sap: 30 pesos

They make nipa when they have an order and if they need it themselves.

Appendix 5: Making Market Work for the Poor Principles

Source: Excerpt from Farouk Jiwa's Presentations on Enterprise Development, in Jiwa and Wanjau (2008: 8)

Principles

1. Mix Grant AND Investment

Utilize and Blend both Grant and Investment Capital, with;

- Grant capital to cover start-up costs that a private sector investor would not reasonably assume. E.g. capacity building, community mobilization, etc and;
- Investment capital for normal business costs

2. Engage the Private Sector Commercially

- Engage Not just in Philanthropy with CARE or other NGOs as a 'mirror' But
- As a Social Enterprise…with CARE as 'window'

3. Think Beyond Credit and utilize the Three Pillars of Enterprise, which are:

- Access to Capital;
- Business Development Services and
- An Enabling Environment

4. Aggregate Supply and Demand

- Aggregate supply to leverage the benefits of economies-of-scale for poor communities and small and micro entrepreneurs.
- Aggregate demand to create economies of scale thereby providing substantial buying and consumption power for the low income earners.

5. Formalise Ownership

- Formal recognition of the assets & equity through legal registration
- Legally recognized documents are transferable and can be used to secure credit lines e.g. share capital, land title, etc.

6. Start with the Market and work backwards

- Use a demand-driven approach versus supply-led, and work backwards from the market demands in order to identify points of leverage for opportunities

7. Adhere to Business Basics…

- People respond to incentives, so Integrate management and business skills training
- Develop a business plan and use standards business benchmarks and financial statements to measure profitability
- … But localize for success

Appendix 6: List of NGO's visited in Palawan

PNNI (Palawan NGO Network Inc.)

Address: Rizal Avenue
Puerto Princesa City
5300 Palawan, Philippines

Contact: Atorni Bobby Chan
(048)434-5525

The PNNI is the network for NGO's and people's organizations in Palawan. It was formed in 1991 by the mainstream organizations. 'The motivation was to present a broader NGO consensus that would carry more weight in the policy making process in various local government units in the province'. Many NGO's are ascribed to this network to help each other and coordinate with one another to maximize the impact of their respective programs (PNNI website, visited 8-2-2010).

Dean WPU (Western Philippine University)

Address:

Contact: Lotta Criencia

Lotta knows a lot about extension work. She is an expert in how training and workshops must be conducted when intervening in coastal communities and assisting them with additional or alternative forms of livelihood in aquaculture.

ELAC (Environmental Legal Assistance Centre)

Address: Carlos Sayang Compound
Mitra Road, Sta. Monica
Puerto Princesa City
5300 Palawan, Philippines

Contact: Grizelda Mayo-Anda
(048)723-0241
gerthie@mozcom.com
elacpalawan@gmail.com

The Environmental Legal Assistance Center (ELAC), Inc. is an environmental non-governmental organization established to help communities 'uphold their constitutional right to a healthful and balanced ecology'. As part of the assistance to communities, they provide legal representation in environmental court cases, legal advice in drafting environmental laws, and paralegal trainings for both community volunteers and government law enforces. Many issues are related to the access to and the use of natural resources both inland and coastal (ELAC, visited on 6-2-2010).

NATRIPAL (Nagkakaisang Tribu ng Palawan – United tribes of Palawan)

Address: Bardecca Makkauline road
Puerto Princesa City

Contact: Loretta Indai
09-202917350

5300 Palawan, Philippines

NATRIPAL is an organization established for the tribal population in Palawan. Their goal is to strengthen their position in whatever means possible. The organization is already well-established and institutionalized. Most of the time communities come to them for help, instead of the other way around. In turn, NATRIPAL will try and support them by providing alternative or additional forms of livelihood.

CSPG (Center for Strategic Policy and Governance)

Address:	Palawan State University Tiniguiban Heights Puerto Princesa City 5300 Palawan, Philippines	**Contact:**	Michael D. Pido, PhD (048)434-9524 09-209009158 mdpido@yahoo.com

The centre was established in 2002 as a special unit for networking and external linkages for the Palawan State University, with its goal to provide Palawan with an institutional arm for policy making and technical assistance, as well as to undertake catalytic research. In the future it also wants 'to formulate a framework to strengthen the role of the province in the security and development of the country within the context of the East Asia/Pacific area'. The centre started one alternative livelihood project in Honda Bay, together with UNDP and PATLEPAM, concerning seaweed production.

CI (Conservation International)

Address:	Rizal Avenue Puerto Princesa City 5300 Palawan, Philippines	**Contact:**	

Conservation International has an overall conservation strategy in the world. In Palawan they provide technical support to numerous government, NGO, and community organizations to help establish or strengthen the protected areas. In Palawan they are conducting biodiversity surveys, resource assessments, and community consultations with the aim of creating a 130,000 hectare protected area, in the Mt. Mantalingahan forest range (CI website, visited 8-2-2010).

Palawan Conservation Corps

Address:	Valencia Street 98-E Puerto Princesa City 5300 Palawan, Philippines	**Contact:**	Edon Magpayo (048)434-5343

The PCC is a non-governmental organization that dedicates itself to youth, aged 18-24, who cannot go to school anymore for one reason or another. Out-of-school youths take part in PCC's 10-month residential program. The youths receive various training programs, keeping in mind the PCC's values and morals as environmental consciousness, community service & leadership as Corpsmember work as volunteers at the Puerto Princesa Subterranean River National Park. Part of their program is the provision of alternative livelihoods for the Out-of-school youth. The PCC has experience in three

alternative livelihood programs in the past: production of arts and handicrafts; Biosan filter; and Ferrosementag.

Haribon Palawan

Address: Rizal Avenue
Puerto Princesa City
5300 Palawan, Philippines

Contact: Rose Magallanis

Haribon Palawan is a dedicated to the conservation of Palawan's biodiversity. "*It aims to build a constituency for environmental issues by prioritizing conservation actions on ecosystems protection through community-based resource management approach and socio-economic research*". The organization was established to advocate against commercial logging in Palawan and evolved into an organization operating from community-based resource management approach to care for nature (Haribon Palawan, visited on 9-2-2010).

Appendix 7: Interview with Dean of WPU, Lotta Creancia

The WPU is not really active in an alternative livelihood project themselves, but have more experience with management of coastal resources and working with the communities. In Roxas they are involved in technology promotion together with the Landbank. This project is being done via the cooperatives active in the Barangays.

According to Lotta there are several things important for a successful implementation of the project. Training and workshops are required on the biology of the organism, culture system, management of the farm, financial aspects, dividing specific tasks of the members, and team building workshops. Dividing tasks among its members can increase involvement of the community, as well as including them in the whole process will. When giving the community a grant, the communities' responsibility is one of the challenges to tackle. Therefore giving them some other form of finances, for example in the form of a loan, will give them some more responsibility over their future farm. Team building can help identify different talents among its members, leader qualities and provide them with a stronger bond.

Lotta argued that bigger groups are harder to manage, which of course differs per community. However, as an average number she would suggest a number of 20 people as the maximum for a first livelihood project. All of them should be included in the whole process, so that they feel and are part of the whole process. The financial aspects within the training should be kept as simple as possible, as a lot of them did not receive any schooling, and therefore it will be hard for them to learn an advanced financing system. She suggested a simple balance sheet, where expenses and incomes are written down. It is important that they justify all their expenses with receipts and that there is one person who checks the finances, so that transparency is guaranteed. Lotta explained that it is important for the foundation to be there a lot of the time, to check on the training, management and finances.

It can take two years or even longer for the project and the community to be completely independent. A timetable that shows this trajectory and the goal towards independency gives the community an incentive towards independency and knowledge of the time it may take. To increase their responsibility it is possible to give them a share in the project.

Other external risks, according to Lotta, is bad weather conditions and toxic subsistence in the water because of cyanide fishing in the area. It is also possible to involve the children in the community, by letting them catch small sea cucumbers in the area and sell them to the farm for a small price.

Appendix 8: Interview with ELAC, Grizelda Mayo-Anda

Background of ELAC

The Environmental Legal Assistance Center (ELAC), Inc. is an environmental non-governmental organization established to help communities 'uphold their constitutional right to a healthful and balanced ecology'. As part of the assistance to communities, they provide legal representation in environmental court cases, legal advice in drafting environmental laws, and paralegal trainings for both community volunteers and government law enforces. Many issues are related to the access to and the use of natural resources both inland and coastal (ELAC, visited on 6-2-2010). Although ELAC does not work with livelihood projects anymore, it has done in the past and Grizelda Mayo-Anda, Assistant Executive Director of ELAC, was able to give me very useful tips.

Information on alternative livelihoods

According to Grizelda, alternative or additional livelihood projects are one of the hardest to implement. They are the most challenging, even for NGO's, because they deal with people's values, communities, and in the end it has to result in a qualitative improvement in their communities and everyday lives. Most of these communities are not empowered, which is a great difficulty and challenge to overcome, also with an alternative livelihood project.

Before starting a livelihood project, getting to know and understand community dynamics are really important, according to Grizelda. Thinking about the inflow of money, one has to make sure it goes to the right places and that there will be no misuse. This already is a great challenge, and understanding community dynamics might give more insight in future effects. It also reveals more information on the activities of the community organization and if it is active at all, power relations, and relations with outsiders.

An important aspect for a successful project is the personality and quality of the leader of the people's organization responsible for the livelihood project. Some aspects that must be met is responsibility, accountability, and a good financial management system (not necessary a leader's task). Capacity building for these qualities is another important task to manage these difficulties and making the chance for success higher.

It is very important, according to Grizelda that the idea for the alternative livelihood or the kind of support they receive comes from the community itself. Otherwise one might as well let the project fail immediately. A livelihood needs assessment is necessary to identify communities' needs and ideas as to how to improve their lives. Knowledge on their asset capacity and the capability of the community reveals the knowledge and capabilities the community already holds and do not need to be supported from by outsiders.

Once a project is chosen, piloting of projects is a good way to start the alternative or additional livelihood, so the community has the chance to prove itself and the responsibility and capability they

hold. With a pilot project, monitoring is the most important task of the organization involved, so one can analyze if they manage their funds well, manage the project and divide the different tasks. Experts in the field are really a prerequisite, as they hold a lot of experience and know the implementation risks and threats, as well as identify the communities' strengths and weaknesses sooner.

Another tip Grizelda came up with, is the cooperation with other organizations and NGO's already active in the area SSE wants to implement the project. Grounding by one of these organizations might already be done, and their knowledge and experience in the field can help the project a lot.

Appendix 9: Interview with Haribon Palawan

Background information:

Haribon Palawan is a dedicated to the conservation of Palawan's biodiversity. "*It aims to build a constituency for environmental issues by prioritizing conservation actions on ecosystems protection through community-based resource management approach and socio-economic research*". The organization was established to advocate against commercial logging in Palawan and evolved into an organization operating from community-based resource management approach to care for nature (Haribon Palawan, visited on 9-2-2010).

Past activities:

In 1998 till 2995 Haribon Palawan started livelihood projects in 13 coastal Barangays in Palawan. This project is taken over in 2005 by Palawan Fisher Community-Based Fisherfolk Alliance. They started the project by selecting Barangays based on environmental richness criteria and a high percentage of fishermen in the village, roughly around 70 percent. Together with the people they created people's organizations and organized the community, using leadership training, paralegal training, and capacity building and team building. First an inventory of environmental assets is made to analyze what the resource base near the community can handle. Then together with the people's organization they choose what kind of livelihood project would better their lives. The selection of a leader can be a long process: up to one year. Once the leader is being decided upon, the community can choose how often new elections take place. In the beginning this can be more often, but mostly this is every year of every two years.

According to Rose and Cafarino organizing the community actually never stops. There are always small conflicts or mismanagement problems that need to be overcome. However, especially the first couple of years can be quite challenging compared to a mature people's organization which experienced a lot already. The different projects that came out of this process were most of the time fish caging, and also sea cucumber culture and the use of traps for fish.

The most common problems with livelihood projects were of a management nature. This refers most of the time to failures in financial management and failure of collecting the money.

Appendix 10: Interview with PNNI

The Palawan NGO Network was established in 1991 by the mainstream NGO's and people's organizations in Palawan. Their goal at the time was to 'present a broader NGO consensus that would carry more weight in the policy making process in various local government units in the province'. Participating NGO's hope 'to maximize the impact of their respective programs by being able to consult and coordinate with one another' (PNNI website, visited at 8-2-2010). The purpose of the visit was to get an idea of- and more information on different NGO's and organizations working with livelihood projects and/or sea cucumbers in Palawan.

Different areas in Palawan with experience in sea cucumbers:

Balabac: an island in the south of Palawan where many sea cucumbers are being harvested. PNNI has contact with Barangay Sibaring on this island, who could give you much more information on sea cucumbers. When the South Sea Exclusive Foundation wants to go there for more information, they have to contact PNNI. This area, however, is known by political instability and tourists are warned not to go there.

Espanola: A barangay in the Souther part of Palawan, just above Brookes Point, have started a sea cucumber grow-out farm three years ago in cooperation with ELAC, which was funded by CEPF (Critical Ecosystem Partnership Fund). However, they told me this project failed due to climate change.

Quezon: Barangay Perong in Quezon has a community-based sea cucumber grow-out farm. They culture sea cucumbers in fish cages and the mariculture farm still exist today. The project was an initiative from the Barangay itself.

According to employees from PNNI, *Holothuria Scabra* is scattered along the coast in Palawan, however, quantities are really low, with a peak season from January to May.

The procedure for working with livelihood projects is to find out if the community has a people's organization already and inform the Barangay captain on the projects the foundation wants to work with. The first meeting with the people's organization should be about their needs, what improvements they need and what kind of project or livelihood activity can help them with this. Community organizing is done by the fishermen themselves. So interviewing and observation should help identify the right livelihood project for the community.

Once a project has been chosen, different types of training are needed of which financial management and project management is really important. But first one has to start with strategy planning. Problems that are often encountered include scheduling of activities (target dates) and external factors, such as weather conditions.

Organizations that have experience in livelihood projects:

ELAC: near Baker's hill, 500 meters to Baker's hill from the highway to the south.

PCART: Palawan Centre for Agriculture, located on Rizal Avenue. The contact person is Oyan (09205500091).

IDEAS: Institute for Development of Ecological and Educational Alternatives. The organization assists people's organizations and they are located in Quezon. The contact person is Roger (09297957231).

PASYAR: ecotourism organization, providing communities with alternative forms of livelihood for tourism.

Haribon: an organization that deals with coastal communities.

Conservation International: have projects with coastal communities.

PCSDS (Palawan Council for Sustainable Development Staff): located in Sta Monica, between the PSU and the city.

NATRIPAL: have a successful honey project

Malampaya Foundation: before PSU

Philippine Shell Foundation: next to Malampaya foundation

Appendix 11: Interview with Palawan Conservation Corps, Edon Magpayo

Background of Palawan Conservation Corps (PCC)

The PCC is a non-governmental organization that dedicates itself to youth, aged 18-24, who cannot go to school anymore for one reason or another. Out-of-school youths take part in PCC's 10-month residential program. The youths receive various training programs, keeping in mind the PCC's values and morals as environmental consciousness, community service & leadership as Corpsmember work as volunteers at the Puerto Princesa Subterranean River National Park. Part of their program is the provision of alternative livelihoods for the Out-of-school youth. The PCC has experience in three alternative livelihood programs in the past: production of arts and handicrafts; Biosan filter; and Ferrosementag.

Alternative livelihood projects:

The three projects named above are meant to provide the out-of-school youth alternative forms of income. The arts and handicraft mainly involves the production and design of bracelets, necklaces etc. They sell them via different people, who in turn receive an additional income for selling the products made by the out-of-school youth.

The Biosan filter is an idea they got from the PNNI (Palawan NGO Network Inc.), and to which they only are allowed to use and sell this idea on Palawan. The filter is used to clean water so that the community that is using those filters out micro-organisms and receives a better health in return. The project technology is made by the out-of-school youth and sells it to those communities that need it and are interested.

The last project called Ferrosementag provides communities with a big water container to catch the rainwater and use it for, among other things, household activities. Here, the selection process of communities mostly goes via checking which community needs most water and where groundwater surfaces are already low. This will help the out-of-school youth reaching those communities that are most interested in big water containers.

According to Edong, approaching the Barangay captain and involving him in the additional livelihood project is the first step that needs to be taken, once decided where the project is going to take place. Once the Barangay officials are informed, a list with peoples' organizations within the Barangay helps to identify those organizations that can be approached for the additional livelihood project. This process is known as the Standard Operating Process (SOP) in Palawan. When the right peoples organizations are selected, collaboration with the organization and careful and intense contact with the organizers and chairman will help in a successful implementation. Another idea might be to involve youth representatives in the project, as they are the future of the Barangay, or in this case the fishing community.

Concluding:

Showing the effort SSE are making to help the coastal community and convince them of the idea and the idea behind the project will help in a successful implementation as well. A relation called *bayannihan*, which means working together and helping each other is popular and well-known in the Philippines. Collaboration, involvement, conversations will help towards a relation of *bayannihan* between the community and the South Sea Exclusive Foundation.

Appendix 12: Interview with NATRIPAL

Background information:

Natripal is a federation for the indigenous people of Palawan, with its main objective to better and improve the livelihoods of the indigenous people. For improvements of livelihoods the foundation is promoting and selling different kinds of indigenous products to provide communities with an additional or alternative form of livelihood income. Some of these forest products include wild honey, rattan, making of handicrafts, cocospread with different ingredients, honey wine and different kinds of root crops.

The organization builds on the knowledge and skills of the tribal groups in Palawan. This is what has been done with the idea of making handicrafts. Natripal is an organization many tribal people in Palawan have already heard of it and already institutionalized. Therefore, most communities approach Natripal for help for assisting their livelihoods. Natripal assists the community by giving them trainings and workshops in relation to the respective livelihood project. Most of these trainings include community organizing, leadership training, business and marketing, and training related to the livelihood project.

Results interview:

Before they had around 70 communities active with Natripal, of which 55 local organizations are left. According to the women I spoke to, financial management and money transparency is one of the most difficult things, and the most common threat in livelihood projects. Some communities handle the money really well, while in others management of money is one of the most difficult things. To overcome this difficulty, Natripal monitors the different projects, sometime up to 3 years, sometimes longer or shorter. However, projects in remote areas make it difficult to monitor them, as transportation can take up to a whole day, which makes it difficult to go there often.

The honey project is one of the most successful projects Natripal started. In 1994 the honey project started, with now an income up 436 000 pesos per year. Communities come to them and ask if they can participate. In turn Natripal gives them training and asks for a high honey quality.

Other NGO's that are busy with alternative livelihood projects are IDEAS and PCART.