Be Rich Overnight or Remain Poor for Life on the Sea's Bounty?

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Abstract

This paper presents results of a study in resource utilization and livelihood strategies in Barangays Taboc Norte and Taboc Sur in Oroquieta City, Misamis Occidental conducted under the Philippines-Netherlands Biodiversity Research Programme (BRP) for Development in Mindanao, Focus on Mt. Malindang and its Environs.

Drawing data from a survey of sample fisher households and from qualitative research methods as key informant interviews, focus group discussions, and direct observation, the paper shows certain dynamics in people-environment interactions. It assesses how access to and ownership of certain assets – as mediated by gender and class – enable households to translate them into livelihood strategies. The paper likewise discusses the influence of the asset status of the fisher households and the fishers' awareness of the Philippine Fisheries Code on livelihood security and environmental sustainability and gives recommendations that focus on addressing asset poverty and co-managing coastal resources.

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Introduction

Municipal fishers in their non-motorized or motorized bancas were coming back to shore from a fishing operation. It was a sunny day in December, around seven o'clock in the morning. The fishers set out to the deep a day before, at around 4 o'clock in the afternoon. Some family members of fishers started to gather on the shoreline anxiously waiting to see the catch for the night. Several other male members of the community were there, many of them already in their prime years. As one banca after another approach, about two to three men would run and help pull a banca to the beach. For this they got some three to five pieces of small fish from each fisher they have assisted. Each of the fishermen's catch was meager. This was around 10 kilos for those who fished in their *binagsaan* or non-motorized bancas; they fished in the nearby coasts of Barangay Loboc, Mobod, and in other barangays in Plaridel, Jimenez and Aloran. Those who went fishing using motorized vessels harvested about 20 to 30 kilos, despite fishing from the depths of Oroquieta and Plaridel and even from the farther fishing grounds of Zamboanga, Iligan, and Camiguin. Earlier, a local commercial fishing vessel came in with its haul of about 2000 kilos from the fishing grounds of Samar and Leyte.

What has been described is a typical morning in the coastal communities of Taboc Norte and Taboc Sur, two contiguous barangays in Oroquieta City, during the lean fishing season which generally occur during the time of the Northeast monsoon from November to May. What has also been described is a differentiation in the access to or ownership of a certain type of fishing vessel which led to a differential access to the sea and its natural richness.

Related Literature

The coastal zone and marine resources have recently been receiving attention. Visser (2004) attributes this to three parallel developments that appear to occur at different scales and time perspectives: changes in the biosphere and sea level rise, the increased economic value of marine resources, and the demographic transformation in the coastal zone. The widespread ecological concern has likewise, stepped up research on marine biodiversity starting in the 1980s. Ecologists and biologists are able, through more precise instruments and methods, to measure the occurrence, diversity, and dynamics of marine life. The current concern with sustainability and biodiversity is therefore supported by a better understanding of marine life. Parallel and often contrasting with the concern for sustainability and biodiversity is the economic value of the sea in terms of its resources (Hoeksema 2004; Wilkenson, et. al.

1994). The seas have been exploited for its resources over the last two centuries but confrontations over these resources have become frequent since the 1950s. Moreover, rapid demographic transformations have been taking place such that it has predicted that by 2025 about 75% of the world's population will live in the coastal areas, which will include the majority of the world's cities (Visser 2004).

Due to these developments marine resources are now being contested, between states and transnational businesses, and, within a state, between commercial fishers and small-scale and artisanal fishers. Other stakeholders are oil companies, fish and coral traders, fish consumers, coastal tourists and nature conservationists. Moreover, it has been pointed out that when the land-based search for food is exhausted, the sea will be turned to (Hoeksema 2004, Van Helden 2004). This may explain why the protection of marine biodiversity is several decades behind the conservation of terrestrial biodiversity (Norse, 1993, Agardy 1994).

Grassle and Maciolek (1992), Briggs (1995) and Williamson (1997) are among the authors who have written that the seas and the oceans contain more animal phyla and probably also more species than the land.

In the Philippine fisheries sector, a general decline in local fishery and marine resources has been observed. This has been caused by the open access situation that continues to be the prevailing property regime in Philippine fisheries. Similarly, unsustainable fishing methods are used in extraction. Added to it is the fact that residues and pollution from the uplands aggravate the conditions of coastal ecosystems. Moreover, the Philippine fisheries industry, especially the municipal sub-sector, lacks the needed comprehensive support to make it viable and profitable while being sustainable (Israel, et. al. 1999; Metillo, et. al. 1999; DENR, DA-BFAR, DILG, CRMP, 2001).

Objectives

This paper presents part of the results of a study in resource utilization patterns over time in the aquatic and terrestrial ecosystems of Mt. Malindang and its environs, viewed in terms of livelihood security and environmental sustainability. Specifically, it assesses the historical use of major natural resources in the coastal communities of Taboc Norte and Taboc Sur. It also describes how access to and ownership of certain assets – as mediated by gender, class, organizations and markets – enable households to translate them into livelihood activities. It describes, as well, how the asset status of the fisher households and the fishers' awareness of the Fisheries Code, impact on livelihood security and environmental sustainability.

Analytical Framework

Contemporary studies in interactions between livelihood strategies and environment use an "assets-mediating processes-activities" framework (e.g. Reardon and Vosti, 1995). Chambers and Conway (1992: 7) define livelihood as comprising the capabilities, assets (stores, resources, claims and access) and activities required for a means of living. The important feature of this definition is it directs attention to the links between assets and the options people have to pursue for survival. Assets, also referred to as livelihood building blocks, are the stocks of capital – natural, physical, human, financial and social – that households can use to produce, engage in labor markets, and participate in reciprocal exchange with other households or engage in market exchange (Scoones, 1998; Ellis, 2000).

Natural capital consists of the land, water and biological resources that yield products used by households for their survival. These are also referred to as environmental resources. Natural capital can be enhanced when human activities increase its productivity, or it can be degraded when it is overused or inappropriately utilized. *Physical assets*, meanwhile, consist of capital created by economic processes as buildings, irrigation canals, roads, power and communications lines, water supplies, farming equipment, fishing gears, and the like. They are what in economic terms are called producer goods. *Human capital* is the labor that households own: its education, skills, and health. It is augmented by investments in schooling and training, as well as by skills acquired through experience in one or other occupation. It is likewise rendered more effective by the absence of debilitating illness or health problems.

Financial capital is the stock of money that households can avail of. This largely refers to savings and access to credit. In areas where income is low and financial intermediaries are absent or weak, savings come in substitute forms, such as livestock, which are converted to cash (i.e., sold) to meet urgent needs. *Social capital* pertains to the social claims which individuals and households can harness due to personal and family networks as the kinship system, as well as participation and membership in political, social, religious and other similar organizations and processes. Swift (1998: 8) says that it may be vertical, such as those found in authority relationships, or horizontal, as those prevailing in people's organizations. Social capital then includes vertical claims on government officials or on the community leadership that are expected to be met, especially during difficult times. It similarly includes horizontal claims on co-members in people's organizations, such as farmers' associations, where individuals bond together to pursue common interests.

These five types of assets are substitutable and their translation into livelihood strategies is mediated by several factors. In this paper, however, only the influence of social differentiations in gender and class, as well as environmental policy, specifically the Philippine Fisheries Code of 1998, is highlighted.

The livelihood strategies that result from the assets and mediating factors may be natural resource-based or non-natural resource-based. The former, in the context of the study sites, focuses on fishing although some involvement in farming takes place from time to time. Non-natural resource based activities include transport operations, public and private sector employment, and trading.

The outcome of livelihood strategies has effects on livelihood security and environmental sustainability. Livelihood security relates mainly to attaining a level of income and keeping it stable and reducing risks that affect assets. Environmental sustainability refers to "the resilience and stability of resources, such as land, forests, water, and biodiversity" (Ellis, 2000). It includes the conservation and enhancement of biodiversity, specifically fish stock, when taken in the context of the study sites. The livelihood activities, as mediated by factors earlier described, may result in the household becoming less vulnerable or more vulnerable in terms of their capability to manage risks and adverse trends; likewise, the livelihood activities may lead to environmental conservation and enhancement or cause further degradation.

The framework directs attention to assets as they easily serve as entry points for projects or policy interventions that are aimed at poverty alleviation and human development on the one hand, and environmental sustainability on the other. A prerequisite is the identification of type of asset poverty and the substitution capabilities among assets and activities. This means determining the assets that are weak or lacking, or those that are deteriorating over time due to adverse processes, in both the household and community levels. Emerging or existing asset problems can be listed, for example, depletion of fish stock, in the category of natural capital, and lack of funds to support a fishing operation in the category of financial capital. The list then provides a guide to prioritizing and determining interventions.

Research Process

Prior Informed Consent and Identification of Local Researchers. Before the gathering of data, prior informed consent of the communities to be studied was obtained through consultative community assemblies. The research objectives were made known to officials of barangays which constituted the research sites during courtesy calls and were reiterated in the assemblies. Local researchers from among the barangay residents were identified and given training in fieldwork methods in socio-economic research.

Gathering of Data. Quantitative and qualitative research methods were used in gathering data.

A list of fisher households was obtained from each of the two barangays studied, namely, Taboc Norte and Taboc Sur. Local researchers cross-checked and upgraded the lists with the help of barangay officials and some fisherfolk. A simple random sampling of fisher households from each of the two barangays was done making use of the Sloven formula in determing the sample size. Socio-demographic data were then obtained from the sample fisher households. Some data were likewise taken from government agencies. Data on resource utilization, livelihoods, and environmental policy response were gathered through key informant interviews, focus group discussions and direct observation.

Community Validation

The research results were presented to the people of the communities studied in early March, 2005. The barangay council, representatives of people's organizations, key informants, and local researchers validated the major research findings presented, made some clarifications that were needed, and provided additional information. Some ways to move forward to pursue livelihood security and environmental sustainability vis-a-vis findings were likewise discussed. The additional insights and information, and certain recommendations, have been incorporated in this paper.

The Study Sites and Their Human Population

Taboc Norte in Oroquieta is located in the estuary of the Layawan facing east and into the Iligan Bay. It is found across the Poblacion and the public market. Adjacent to it is Taboc Sur. The two barangays are about 17 – 19 masl and have slopes ranging from 0 – 3%. These two contiguous barangays were originally part of only one barangay, which was Taboc. The barangay derived its

name from the vernacular *tabuk* which means "to cross", to describe the need to cross the Layawan River to access the barangay from the city center of Oroquieta. In 1972, Brgy Taboc was split into two barangays to enable a larger number of its populace to benefit from the rationing of government credit.

The land area of Taboc Norte is 24.63 hectares, only about a fourth of the area of Taboc Sur, which consists of 96.55 hectares. Forty hectares of Taboc Sur's land area are irrigated ricefields. The barangays can be accessed by all types of land transportation and by small vessels from the sea.

The population of Taboc Norte in 2004 was 3,266 distributed in 447 households while in Taboc Sur the population was 2,694 found in 534 households (Oroquieta City Health Office, Annual Report, 2004). The local researchers have identified 306 households in Taboc Norte which are engaged in fishing; in Taboc Sur the identified fisher households were 228. Taboc Norte has a rapidly developing slum area where uprooted migrants from other parts of the Visayas and Mindanao live. They were either attracted to the earlier abundance of fish or hailed from the upland and interior municipalties of Misamis Occidental who came down to the coast to avoid rebel-military conflicts in the 1980s. Mean age of the total 169 respondents from the fisher households surveyed in Taboc Norte was 41 while that of the 146 respondents in Taboc Sur is 43. Majority of the population of both barangays belonged to the prime working age group of 45 years old and younger. The typical household in Taboc Norte and Sur is composed of four to six members. Few households have seven to nine members, and these are those with extended families. The average household, however, is composed of about five members.

Only 119 or 70.41% of the 169 sample fisher households in Taboc Norte have fishing vessels. Of the 119 households with fishing vessels, 13.44% owned non-motorized bancas, and 86.55% owned motorized bancas. Nine fisher households have members who formed part of the crew of commercial vessels. In Taboc Sur there are only 101 owners of bancas, 18.81% of which have non-motorized bancas and 81.18% have motorized fishing vessels. There are four respondents who were crew members of commercial vessels. Those who did not own fishing vessels nor were part of the crew of commercial vessels would, from time to time, accompany and assist those with fishing vessels, especially during the peak season.

Asset Profile

Natural Capital. During the 1940s, abundance of fish resources was observed within an estimated area of 1 to 3 miles from the shore. Shrimps could be found in abundant quantities at knee high-level from the intertidal zone

(*hunasan*) to the part of the river adjacent to houses. Different kinds of seashells and eucheuma (guso and lukot) were also found in the intertidal zone. Mangroves still abound in the area during that time, but the mangrove forests were increasingly cleared and converted to settlement sites. Fish resources were still abundant both in the Layawan estuary and in the coasts of Taboc until the 1970s. In 2000, a rapid decline in fish stock was observed, and local fishers attributed this to the encroachment of commercial fishers in municipal waters violating the preferential rights of municipal fishers over these waters, as stipulated in the Fisheries Code.

Physical Capital. The barangays have good roads and have access to electricity and potable water. Prior to the provision of piped water to households (Level III water supply) by the Misamis Occidental Water District, residents were washing clothes and wares in the river and in creeks, and sanitary toilets were difficult to maintan. Taboc Norte has a 65-meter seawall, a concrete infrastructure built to prevent erosion and other damage by the strong waves that often hit their coasts. Taboc Norte also has three spur dikes while Taboc Sur has two. The spur dikes are concrete structures built perpendicular to the shorelines of the two barangays; they were constructed in 2004. Prior to their construction sand would be continuously carried to the sea by the receding tide such that some 50 meters of the shore have been said to have gone under water. Due to this, several fishers' houses stand dangerously at only about 10-20 meters away from the coast. The reclamation of land has been slowly taking place since the spur dikes were constructed.

Human Capital. Educational attainment among the respondents is low. Only 27.81% have attended or graduated from high school in Taboc Norte; the figure is 26.03% in Taboc Sur. Those who have had some college or finished it comprise only 12.42% in Taboc Norte, and even lower, or only 6.86%, in Taboc Sur. Male key informants said that when they were still young they would usually go fishing with their fathers, neglecting school in the process. Greater exposure to tri-media, however, has made key informants and respondents in these coastal communities to be informed in the ways of living resulting in their relative daringness in pursuing livelihood options.

No debilitating illnesses that constrain the conduct of livelihood activities have been found among respondents. Rural health units are found in the communities, providing health care mainly to pregnant women, lactating mothers, infants, and children.

Social Capital. Religious affiliation is a good venue for the formation of social capital. Majority of the respondents in Taboc Norte are Roman Catholics; a third are members of the Philippine Independent Church (PIC) or Aglipay. Majority of Taboc Sur residents, on the other hand, are Aglipay; Roman Catholics are a far second. The rest of the respondents are Bible Baptists,

Pentecostals, Believers of Christ, Seventh Day Adventists, Mormons, and Assembly of God and Iglesia ni Kristo affiliates.

People's organizations (POs) in Taboc Norte and Sur are basically organized by government agencies. Foreign-funded NGOs are conspicuously absent, unlike in the more interior communities and in the uplands of the province. However, other institutions such as the *Paglaum* Cooperative and the *Proyekto Abante sa Barangay alang sa Kalambuan* (ABAKA) have initiated the formation of POs for financial assistance or easy access to credit. The residents have also initiated the organizing of some POs to help meet their needs. These include the fishers' associations, which rescue fishers stranded at sea, and the mortuary associations which provide bereavement assistance to members.

Financial Capital. The generally meager income from fishing activities constrain the generation of savings. Majority of the respondents estimated their gross monthly household incomes to hover around PhP 3,000 for 2004[1]. This estimate is not far from the monthly household baseline cash income of PhP 2,873 estimated by CARE-AWESOME for Misamis Occidental in 2003[2]. As the average household size among respondents is five, computations would yield an annual per capita income of PhP 7,200 [3]. Taking the 2002 annual per capita poverty threshold for the country's rural areas of PhP 11,390 (NSCB, Feb. 2, 2003) as benchmark, majority of the respondents are below the poverty line. It is therefore not surprising to find households raising backyard poultry and hogs to serve as store of wealth and as buffer against bad times.

The presence of credit facilities, both formal and informal, has allowed the respondents to cope with the financial instability of their household. Formal credit is accessed from the *Paglaum* Cooperative found in their respective barangays. The coop was organized during the 2000 – 2002 period with the assistance of a local bank. It mobilizes membership dues and savings for lending at 2% a month. The initial amount of loan is P3,000 which gets higher as one proves his or her credit-worthiness. The coop applies group lending strategies where a loan is granted to a group of four to five members without collateral; the group, however, could not avail of another loan unless repayment has been done by all its members. Peer pressure is thus a mechanism used to ensure repayment.

[1] The figure does not impute values of produce that are consumed.
[2] Interview with Andy Pestaño, head of CARE-Phil. in Misamis Occidental, March 27, 2004.
[3] [(PhP 3,000 x 12)/ 5]

The *Abante Alang sa Kalambuan sa Barangay* (ABAKA), initiated by the Friend Foundation-People's Bank of Caraga in 2003 operates in the same manner as the *Paglaum* Coop. While the presence of cooperatives is acknowledged as a cheap source of funds, there are still those who found it difficult to apply for membership. The monthly savings deposit requirement was reported to be an important inhibiting factor, especially that income from the dwindling fish stock is low. Attendance to pre-membership seminars and similar activities also pose as constraints, especially to those with very low educational attainment.

The most common means of acquiring financial assistance for fishing expenses remain to be borrowing from the wholesaler, typically referred to as *comprador*, *suki*, icer, or financiers. The financiers provide the fisher's needs: gasoline for the motorized boat, kerosene for the lamp, ice, fishing gears, and food. This could amount to a minimum of P500 to a maximum of P1,000, depending on the targeted fishing grounds. The arrangement compels fisher folks to sell only their catch to the financiers who dictate the price of the catch, which, respondents and informants claimed, is way below the market price. Even members of the *Paglaum* coop borrow funds from the financiers, indicating that the need for cash to finance sustained fishing operations could not be amply supplied by the cooperative, especially that fishers admitted that some amount borrowed would be siphoned off by contingency needs of the household. Others, however, prefer the informal credit from financiers even with the high interest rate as it has lesser requirements (e.g., no seminars to attend, no documents to prepare) and is granted on an individual basis. Financiers grant more loans during the peak fishing season (May to October) than during the lean season (November to April).

Early Resource Utilization and Livelihood Strategies

In the coastal communities of Taboc, early patterns of accessing aquatic resources refer to the general use of simple hook and line and traps in fishing and reliance on the *binagsaan* or non-motorized bancas. The fishing methods fit the circumstances that were then obtaining: fish was mainly caught within the shallow areas of the coasts. From the dense mangrove forests and nipa swamps were obtained – mainly through traps – abundant crabs and shrimps. Gleaning in the intertidal zone also yielded bountiful harvests in the 1970s and earlier.

Traditional fishing was called *pamasol*, after the gear used, the *pasol*, a single hook-and-line. Bamboo fish traps as the *balantak*, the *bobo* and simple fishing nets called *pukot* (made of wire and a mesh net) and *bunsod* (net held by bamboo made to form a circle on the water and with an opening for the entry of

fishes) were also part of the traditional gears. The fishing operation was usually for seven hours, with ample catch to sell and share.

In the early days of settlement in the coastal study sites, livelihood revolved around natural assets – mangrove forests, the river, the sea – these being the most abundant and easily accessed. The human capital that was required was the ability to fish, a skill honed through time by experience. Physical capital in the form of fishing gears and fishing vessels were those that were simple and readily accessible. The financial capital needed to finance a fishing operation was thus minimal, requiring no disadvantageous relationships with financiers. Social capital, naturally occurring in the bond of kinship, was freely generated as well in the reciprocity relationships found among members of the fishing community.

Through the years, however, population growth has increased fishing pressure. Mangrove forests and *nipa* swamps gave way to residential and agricultural uses. These conversions permanently destroy important coastal ecosystem functions including nursery grounds for juvenile fish, filtration of sediments and pollutants and protection of coastal land from erosion (DENR, DA, BFAR, DILG, CRMP, 2000) reducing aquatic biodiversity. Loss of mangrove and swamp forests as windbreaks and shelter breaks also expose the coastal barangays studied to strong winds and waves; these natural means of protection are now substituted for by physical capital embodied in the seawall and spur dikes found in the communities.

As fish had grown scarce near the coasts, the need to chase them in deep fishing grounds became necessary. This required motorized fishing boats and more efficient fishing gears. The financial capital in the form of loans secured from the Marcos' administration's *Biyayang Dagat* Program in the 1970s made possible the transition to the use of motorized fishing boats. This allowed the local fishers to venture to the depths of Oroquieta and Plaridel and to the farther fishing grounds of Zamboanga, Iligan, Camiguin, General Santos, Siquijor, Negros, Bohol, Samar and other fishing grounds in the Visayas. Those who still depend on non-motorized bancas are the elderly and they fish near shore, such as in the nearby coasts of Barangay Loboc, Mobod, and in other barangays in Plaridel, Jimenez and Aloran. Commercial fishers started to be seen in the municipal waters in the 1970s. The decade of the 80s and 90s marked the entry of more commercial fishers from Negros, Iligan, Cebu and Dumaguete encroaching into the municipal waters of the coasts of Misamis Occidental.

Current Resource Utilization and Livelihood Strategies

Policy and Institutional Context. Owing to similar cases of fish stock depletion in other areas of the country due to certain inappropriate practices, conversions of mangrove forests and the undue competition posed by commercial fishers to municipal fishers, the Philippine Fisheries Code (RA 8550) was approved on February 10, 1998. It is an encompassing legislation that addresses the urgent concerns of the country's fishery sector and consolidates all laws relevant to the fishery sector that were in existence at that time.

The Fisheries Code aims to develop, manage and conserve the country's fishery and aquatic resources, while also providing for food security of the population. The Code also reiterates the responsibility of the local government units in the management of fishery and aquatic resources, which are already embodied in the Local Government Code (Sec. 17, 447 and 468). At the same time, the Fisheries Code reiterates the preferential rights of municipal fishers over municipal waters (Sec. 7 and 17), as previously articulated in the Constitution (Art. XIII, Sec. 7) and in the Local Government Code (Sec. 149).

Chapter VI of the Fisheries Code considers as unlawful the following: engaging in fishing for livelihood or any commercial purpose in municipal waters without being listed in the registry of municipal fisher folk; catching, taking or gathering or causing to be caught, taken or gathered, fish or any fishery species in Philippine waters with the use of electricity, explosives, noxious or poisonous substance such as sodium cyanide in the Philippine fishery areas, which will kill, stupefy, disable or render unconscious fish or fishery species; selling or in any manner disposing of any fish or fishery species, which have been illegally caught, taken or gathered; engaging in fishing using nets with mesh smaller than that with which may be fixed by the Department of Agriculture; engaging in fishing in municipal waters and in all bays as well as other fishery management areas using active fishing gears as defined in the Code (such as purse seine and beach seine); fishing with gear method that destroy coral reefs, seagrass beds, and other fishery marine life habitat; engaging in fishing with the use of superlights in municipal waters; converting mangroves into fishponds or for any other purposes and taking rare, threatened or endangered species as listed in the CITES and as determined by the Department of Agriculture.

Other important features of the Fisheries Code are people empowerment through the formation of Fisheries and Aquatic Resources Management Councils (FARMCs) at various jurisdictional levels (from the national to the barangay level), and the imposition of stricter penalties for offenses in the fishery sector. The latter indicates that the Code considers crimes in the fishery sector as grave offenses.

The implementation of the Fisheries Code involves several government agencies and entities, including the Department of Agriculture, Philippine Navy, Coast Guard, Philippine National Police-Maritime Command, law enforcement officers of the local government units and other government enforcement agencies, and deputy fish wardens (government officials and employees, punong barangays and officers and members of fisher folk associations who have undergone training on law enforcement).

Enforcement of the Fisheries Code in the study sites is weak. Agencies and offices enforcing the Code also have limited resources as patrol boats; they likewise lack personnel and, as key informants and participants of FGDs claim, they don't have the political will to enforce laws; the enforcement offices' general inaction on violation reports has been pinpointed as an example. On the part of enforcers, they say that there is the requisite to catch violators red-handed before charges could be pressed against them. This requires active coastal law enforcements, which is apparently absent. There is also some finger-pointing on which enforcement office has jurisdiction over certain violations. The BFARMCs, meanwhile, have not been functional, and some members have been identified as colluding also with commercial fishers. With this state of things, the *Bantay Dagat* has been rendered useless. Additionally, the municipal waters have remained undelineated, resulting in the failure of the *Bantay Dagat* to positively determine encroachment by commercial vessels. Commercial fishing vessels, while engaging in fishing only once a day in municipal waters in the 1960s, have been observed to do the same two to three times in the current period, thereby aggravating the observed dwindling of fish stock.

Common Gears Currently Used. Fishing gears that are commonly used now by municipal fishers are the multiple hook and line (which literally means multiple hooks in one line) locally termed either as *lampurnas, bundak, palangre, panubid* or *panglagaw*. *Lampurnas* is a kind of line fishing where the line is set horizontally requiring the use of a float, catching only pelagic fish species. *Bundak,* on the other hand, is a multiple long line set-up vertically making use of 10-20 packs of hooks and between 10-20 rolls of nylon; it catches pelagic and demersal fishes. Hooks vary according to the size of the targeted species. Bigger hooks catch tuna-like species while small fishes are caught using small hooks. A few use gill nets.

It has become common also for the local fishers to use fine mesh nets, despite prohibitions by the Fisheries Code. Commercial fishing vessels would use purse seine, *likom* or ring net, *baling* or beach seine; these are active fishing gears that are prohibited by the Fisheries Code. Advanced gadgets such as the SONAR (Sound Navigation and Ranging), fish finder and superlights were also observed to be used by commercial vessels. The above enumeration of fishing

gears, together with the fishing vessels used comprise the physical capital of fishers in the present times.

By account of respondents in Taboc fishing during the peak season would yield a harvest of some 5 to 20 kilos for fishers in non-motorized vessels; those in motorized vessels would catch about 20 – 50 kilos. The catch, however, is a combination of fish species: for, it is common to see two fishers in one vessel. The owner of the vessel gets two-thirds of the catch, but has to give a token quantity of the catch to those who help pull the *banca* to the shore. Additionally, he shoulders the repayment to the fish financier.

On the other hand, informants who were part of the crew of commercial vessels reported that the haul would range from 2,000 – 4,000 kilos. During the lean season, interviews pointed to harvests below 10 kilos for non-motorized vessels, 11-30 kilos for motorized vessels, and 800 – 2000 kilos for commercial vessels. Common fish species caught are *katambak, danggit, kitong, timbungan, talakitok, burot, tuloy, pirit, anduhaw, lapu-lapu, and maya-maya.*

Gleaning is still being done, but harvests are few. Gleaning is usually done once a week and only one can of "Caltex" (empty plastic container of a liter of gasoline) is the common volume of harvest, a pitiable yield when compared to the earlier harvests of about an empty five-gallon kerosene can. Gleaned resources include small fishes, shells, and seaweeds. Gleaning is done during low tide. The harvest is generally for household consumption, but there are regular gleaners in Taboc Sur who sell their harvests to barangay consumers or to small-scale compradors within the barangay.

Fish Markets. During the peak fishing season when fish catch is abundant the compradors or financiers transport the catch in so-called fish cars to neighboring municipalities like Calamba, or to other cities, like Ozamiz, Pagadian, Dipolog, Iligan, Cagayan de Oro, Bukidon and Davao. When the catch is minimal The fish is sold directly by spouses of fishers to consumers in the barangay. This is during the lean season, the period where compradors are not sought to finance fishing operations. Ninety percent of the catch during the season is for sale; the remaining proportion is consumed by the fisher's household.

Illegal Fishing Practices

Respondents and key informants in the coastal study sites displayed familiarity with the Fisheries Code. There is general awareness on several prohibitions. Sources of information on the Fisheries Code are the Philippine Coast Guard, Bureau of Fisheries and Aquatic Resources, the MARINA, and also municipal and barangay officials. Activities and practices which are prohibited by

the Fisheries Code, however, are still common in the study sites. Although blast fishing has reportedly stopped because of the arrest, imprisonment and imposition of fines on violators, fishing using fine mesh nets as the *baling* or beach seine, double net or tri-ply nets has been reported. These nets are dragged to scrape the seabed, destroying corals, sponges and seagrasses and other fish habitat, and catch even juvenile fishes and other marine life in the process. This deters the spawning and production of more and bigger fish. *Tagulkol,* or beating on the *payao* - a fish aggregating device - to scare the fish into the net, is also being done.

The Fisheries Code grants preferential rights to municipal fishers and their cooperatives or organizations. This provision, viewed by fishers as providing them equity to the access of aquatic resources, is often invoked by fishers in the coastal study sites, implying its acceptability. The registration of municipal fishers, as specified also in the Code, serves as the basis for prioritization within municipal waters, but compliance is very poor. There is in fact no record of a registered municipal fisher from Taboc; the municipal fishers apparently do not see the importance of the provision of the Code which states that all those who fish for livelihood/commercial purposes should be registered and as such bear permits/licensees to fish. Aside from the registration serving as guide to prioritization in municipal waters, it also allows monitoring of the number of fishers in order for the fisheries authorities to determine if fishing activity within the area is still sustainable. Unfortunately, these objectives have not been communicated well. Moreover, the fee required in registration is seen by the municipal fishers as an additional expense item that cuts into their low income The municipality, therefore, has no definite data on fishing pressure resulting from an increasing number of fishers.

Commercial vessels frequent the Oroquieta municipal waters. Using the ring net, locally called *likom,* commercial vessels could haul 50 to 100 *banyera* (one *banyera* = 40 kilos) of fish per operation. While the frequent encroachment of commercial fishers has been brought to the attention of law implementers, this has not been acted upon. Worse, commercial fishers render the artisanal fishers vulnerable to collusion as the former are known to give to the latter a bounty (locally known as *taktak).* This amounts to some 25 percent of the commercial fishers' loot in municipal waters, plus a bonus ranging from one to six *banyera* of fish, a windfall by the municipal fisher's standard as this could range from 500 to 1000 kilos during the peak season, in contrast to his usual catch of 10 to 50 kilos. Collusion takes the form of the municipal fishers attracting commercial fishing in municipal waters. Here, the municipal fishers who are out at sea signal to commercial fishers the abundance of fish around their motorized fishing boats. This is done by making a torch out of a piece of cloth wrapped around a bamboo pole and waving it on air for the commercial fishers to see. Another type of

collusion between commercial and local fishers takes the form of commercial fishers financing the setting up of a *payao* in municipal waters. The local fishers who serve as caretakers of the *payao* inform commercial fishers whenever the *payao* has aggregated substantial fish so that the big haul could be done; the local fishers also get a share of the total haul. The overall consequence of these illegal activities is declining fish stock, loss of marine biodiversity and degradation of coastal areas.

Diversification of Livelihoods

Owing to the dwindling income from fishing vis-à-vis increased fishing cost per operation, especially that prices of kerosene and diesel have gone up, fisher households have resorted to diversifying their income sources. In Taboc Sur, working as farm workers in rice fields during the lean fishing season is common. In both fishing communities, there are those who simultaneously engaged in other livelihood activities such as livestock raising, banca-making and repair, repair of fishing nets, vegetable and fruit vending, carpentry, driving, operating *sari-sari* stores, and taking odd jobs in the private sector. While not a source of livelihood, *per se*, holding positions in the barangay level is also seen as a source of additional income in the form of honoraria. The low level of human capital has provided the municipal fishers with little or practically no access to the better paying formal sector.

Efforts toward Co-governance of Resources

In the coastal communities, BFARMCs have been established for residents to appreciate the importance of their fishing resources and to co-manage them, in the process veer away from illegal and unsustainable fishing practices. The BFARMCs, however, have yet to be strengthened; while some respondents or key informants belong to this co-management scheme and acknowledge the conservationist provisions of the Philippine Fisheries Code, they find the prohibitions impinging on their livelihoods. Many find it difficult to adhere to the provisions of the Code and sacrifice meeting current economic needs in favor of food security in the long run and biodiversity conservation.

Social Differentiations

Gender Differentiation. Task assignments differ for men and women in fishing, in trading produce, in leading the community, and in managing the household. The difference in roles serves as take off points to certain

intervention mechanisms, particularly those that pertain to livelihood security and environmental sustainability.

Gender role in accessing natural resources is dictated more by physical capability than by any other consideration. Men, therefore, are mainly responsible for fishing but a few join their husbands deep into the sea, especially in cases where there is no adult male in the household. Women serve as overseers of fishing nets and gears, but men do the repairs. Women and children usually do gleaning during low tide, and men sometimes join in, but more to socialize than to take home additional food.

Women increasingly negotiate prices of fish catch with financiers. They are active in raising the funds for fishing operations through loans or cash advances from financiers and as often take the greater responsibility in ensuring repayment. When fish catch is minimal, women engage in fish vending to consumers in the barangay. Where other forms of livelihood complement or don't conflict with daily obligations in the home or in fishing, women engage in them. It is thus common to see women operating *sari-sari* stores, selling basic goods for the household, or for a fishing operation. They also process fish and vend food with their residences as their shops.

Men dominate as barangay officials and mostly make up the ranks of those with short engagements with NGOs and development agencies. If women are there, they usually occupy positions which manage records and funds, though a few are elected as members of the Barangay Council. Women, however, have their own Women's Clubs, and are more into organizations that nurture health and care for young children. Teachers in the study sites are mostly women.

The above discussions suggest that in the study sites, capability building and information, education and communication (IEC) campaigns in appropriate fishing techniques should focus more on men. As men are in the forefront of community affairs, their leadership skills should be honed, and tapped, for promoting development which includes the management and conservation of natural resources. The sites studied also show that women play certain roles that are not only reproductive. They also partner with their men in livelihood endeavors. As women are active in vending and in sourcing financial capital, interventions having them as the main objects must be those that strengthen their bookkeeping, marketing and processing skills.

Class Differentiation. In the fishing communities studied, differentiation in access to the depths – and the fish – is pronounced. Non-motorized boats fish near shore, while motorized boats and commercial vessels fish far and wide. Fishing gears vary, with the commercial vessels using the more efficient – and more extractive – ones. The few who could afford more powerful tools of resource extraction, in this case fishing gears and vessels, therefore have more access to the natural bounty of the coasts. Meanwhile, those with limited access to these

tools, – and other assets – seek opportunities to harvest more fish, sometimes resorting to illegal means, such as what happens when the municipal fishers collude with commercial fishers who are equipped with more extractive means. This suggests the need for improving efforts at law enforcement even as it suggests securing the livelihood of those who have fewer assets.

Conclusions

Research results clearly indicate people-environment interactions. The early fishing strategies were not meant mainly for commercial sale, causing minor disturbance to biodiversity and the coastal environment. Mangrove forests and *nipa* swamps that used to serve as sanctuaries for fishery species and nurseries for their young were removed to give way to residences, and in the case of Taboc Sur, to residences and rice fields. Depletion in fish stock now confronts the communities due to the destruction of the fish nurseries, the pressure imposed by a growing population, the use of prohibited fishing gears and adherence to illegal and unsustainable practices, and the encroachment by and collusion with commercial fishers.

The municipal fishers' awareness of illegal fishing activities and gears that are prohibited by the Fisheries Code do not translate into efforts at livelihood security and environmental sustainability. While the fishers acknowledged the positive effects on their livelihoods and on the environment in the long run of complying with the prohibitions of the Code, the admission that these prohibitions impinge on their current livelihoods indicate that environmental policies can be rendered useless when short term livelihood considerations are given higher value. The weak enforcement of the Fisheries Code compounds the problem. Enforceability of the policies is largely dependent on the availability of personnel and logistics, on the effective coordination of all agencies and organizations involved in the implementation, on a firm understanding of the long-term negative consequence of illegal activities, and on a demonstrated local government commitment and political will, conditions found wanting in the context of the communities studied. More importantly, policy enforcement means an understanding of the people's more immediate concern for current livelihood and putting in place mechanisms that secure this livelihood.

Access to natural resources, the fish and the coasts, is differentiated by gender, and class. Gender role in accessing natural resources is dictated mainly by physical capability. Men therefore go fishing in the depths, while women lead in the lighter task of gleaning. Class differentiation in access to the depths – and

the fish – is pronounced. Those with the more advanced fishing vessels and gears could go to farther and richer fishing grounds and get more fish.

Modernization has taken place in the fisheries sector. From the simple hook-and-line and the non-motorized bancas, the fishing landscape is now characterized by more efficient gears and by motorized fishing vessels, journeying far into the seas, reaching far provincial waters of Mindanao and even the Visayas. Commercial vessels have also become a common site. But the mere presence of three types of fishing vessels and the co-existence of simple and modern gears indicate lopsided development in the fisheries sector. The municipal fishers' disadvantageous relationships with financiers, the reference made by key informants and respondents to the competition posed by commercial fishers and their vulnerability to colluding with them to get windfall gains for a night's fishing operation indicate that modernization of the fishing industry, as highlighted in the study sites, has not alleviated the plight of the small fishers. Livelihood security for the fishers therein has remained an elusive goal and environmental sustainability a far-fetched aspiration.

Recommendations

Given the findings, the following options are seen as ways forwarding the interest of the communities studied:

Provide measures to enhance natural assets. The demarcation of municipal waters and the active patrolling thereof together with the proper identification of municipal fishers will be necessary to ensure that preferential rights to municipal waters will be truly enjoyed by those who rightfully deserve it.

Provide measures to improve human capital. The fisher folk must be taught appropriate fishing techniques and the sustainable use of fishery resources. Institutional capacity building is also urgent. Officials in the grassroots level require training in governance and in means by which natural resources, such as marine life, within their jurisdiction can be managed. Other enforcers of the Fisheries Code also have to build more capability into their undertakings. This includes, but is not limited to, their fully comprehending the law which they are enforcing. Barangay officials and officers of people's organization should likewise be equipped with a working knowledge of the policies, since they are the most common sources of information for the community.

Scholarship grants for higher education may also be given to the deserving offsprings of municipal fishers, for them to access higher education. This will go a long way in improving not only the personal lives of those who have

been helped, but also in improving community life as the beneficiaries can later play significant roles in entrepreneurship, developmental projects and governance.

Provide measures to enhance access to financial capital. The provision of cheap credit is an assistance of great utility. The communities studied have been vulnerable to credit at onerous terms. The feasibility of providing additional credit such as those accessed through the *Paglaum*, a cooperative among fishers, which charges only 2% interest a month, may be presented to existing banks in the province. The *Paglaum* and ABAKA can also expand their credit resource base by actively campaigning for additional membership from among the Taboc residents.

Develop alternative or supplemental livelihood. Environmental groups have increasingly acknowledged that strategies at environmental sustainability require more than just "raising awareness" and necessitate the development of income generating options. The need to develop alternative or supplemental livelihood strategies that fit conditions in the community is therefore urgent. These are those that simultaneously consider resource endowments and constraints, and allow value-adding. Aside from enabling to address certain environmental concerns, the provision of supplemental or alternative livelihood also addresses the issue of poverty alleviation.

The feasibility of establishing a cooperative to operate a micro-scale gasoline station for the fuel needs of fishers can be looked into. Where such is not feasible, purchase order arrangements may be made with a nearby gasoline station thru the *Paglaum* or ABAKA cooperatives that already exist in the communities. A micro ice plant to keep fish frozen till sold, especially during the peak season, may also be built through a government-assisted cooperative. The cooperative can also be given government assistance in the form of financing fish cars at low interest rates to allow fishers to sell their produce directly in the usual markets where financiers bring the fish. Credit repayment can then be recycled towards financing new investments in fishing gears or equipment that the cooperative members need.

Fish processing by women, especially during the peak season where fish harvest is high, may also be introduced to add value and to stabilize fish prices which fall during the peak season. This will require close coordination with other government agencies, such as the Department of Trade and Industry, and also non-government organizations which have the capability to assist in the development of alternative livelihood strategies.

The Philippine Australian Livelihood Sustainability (PALS) Project, probably the largest source of development assistance now in the province of Misamis Occidental, is already into promoting and supporting alternative livelihood projects in the different barangays. The assistance is associated with

efforts to conserve biodiversity and the environment. Some beneficiaries, however, do not perceive it as such. There is a need to clearly show this link to show that while people's welfare are a primary concern, this can sustainably be achieved only through the protection and conservation of natural resources.

Provide measures to build social capital. Several people's organizations exist in the sites studied. Intended to advance the interest of members, many of these organizations have become non-functional, suggesting a weakening in social capital. These organizations can be strengthened by directing their energies to certain concerns that affect their daily life, which include learning skills to be able to negotiate better terms in the trading of their produce or catch, and in procuring inputs to fishing operations.

Strengthen efforts at co-management of coastal resources. The co-management of coastal resources with local communities is seen by government agencies and NGOs, as well as international organizations like the World Bank as a politically correct management solution to counter resource depletion, and to increase local people's participation in resource management. This also strengthens people and institutional organizations. This will likewise address, in addition to the intentions of the Fisheries Code, issues in open access or encroachment to the coasts through establishing a marine tenure system that prioritizes small local fishers in municipal waters.

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