

When fishing is no longer viable: environmental change, unfair market relations, and livelihood in a small fishing community in the philippines

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When Fishing is No Longer Viable: Environmental Change, Unfair Market Relations, and Livelihood in a Small Fishing Community in the Philippines

Paper presented at the ESF-UniBi-ZiF research conference on
'Environmental Change and Migration: From Vulnerabilities to Capabilities',
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Editorial

The conference “Environmental Change and Migration: From Vulnerabilities to Capabilities” was the first of a new conference series on “Environmental Degradation, Conflict and Forced Migration”. It was organised by the European Science Foundation, the Bielefeld University and its Center for Interdisciplinary Research. The Center on Migration, Citizenship and Development (COMCAD), the Universities’ unit responsible for scientific content and quality of the conference, has launched a COMCAD Working Paper Series on “Environmental Degradation and Migration”. The new series intends to give conference participants the opportunity to share their research with an even broader audience.

The symposium focused on how environmental change impacts the nexus between vulnerabilities on the one hand and capabilities on the other hand, and how this relationship affects mobility patterns. Although the conference organizers chose to include all kinds of environmental change and types of migration, climate change figured prominently among the submissions to the conference. Therefore, the conference aimed to bring together the perspectives from climate change, vulnerability, and migration studies, and to draw conclusions about the political implications of the knowledge scientists currently have available. Toward that goal, the conference was structured along three pillars. The first concentrated on climate change and the vulnerability of certain regions and groups. It covered case studies as well as different approaches for making climate change projections and assessing the likelihood of vulnerability. The second pillar focused on empirical research on environmentally induced migration from a vulnerabilities perspective, but acknowledged the occasionally strong elements of capability within it. In this way, the aim was to learn about approaches and options to support existing capabilities. The third pillar was concerned with the opportunities and pitfalls of policy options in dealing with the future challenge of climate induced displacement, and with the analysis of dominant public discourses within the field.

The researchers invited represented a wide range of disciplines, including sociology, social anthropology, migration, conflict, gender and development studies, geography, political science, international law, and climate and environmental science. The conference was also well balanced in terms of geographic origin, gender, and academic status of the participants. The conference programme and full report can be found at www.esf.org/conferences/10328.

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Abstract

The population of a small island in the middle of Danajon Bank in the Philippines, one of the six double barrier coral reefs in the world, is reliant almost solely on the resources of the sea for their livelihood. From the twenty families who originally settled in the island during World War II, the population has now soared to more than 300 families. The dramatic increase in the population is due to the migration of fishers to the island because of compressor fishing, a dangerous and unsustainable fishing practice introduced in the 1980s that ushered in a period of affluence in the island. In recent years, however, the affluence has given way to prolonged periods of suffering. Dwindling catch due to overexploitation of resources, increasing price of basic commodities, and unfair market relations in which the fishers' catch are bought at very low prices have made hunger and indebtedness a common experience. This is compounded in recent months by changes in the environment such as winds that have become stronger, stay longer, and become more frequent, and sea waters that rise more often than before. Life has become very difficult for the fishers and they are left with very little viable options for their livelihood, forcing them to confront their attitude that there is no other livelihood aside from compressing fishing. Many have decided to migrate and work in other parts of the country as helpers or construction workers and, in recent months, many more are planning to leave despite the high financial costs of doing so and the uncertainty that awaits them. These are some of the key findings of an ethnographic study conducted over a period of 2 and ½ months of fieldwork. The study was able to document the complex and dynamic relationships of environmental change, unsustainable fishing practice, and unfair market relations, and how these impel population movement in the context of a small fishing community that is highly vulnerable to changes in the environment and the operation of the market. In the case of these fishers, migration could be seen as a desperate survival strategy of a people who have very little real options.

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1. Introduction

Climate change is already affecting Southeast Asia (ADB 2009). Massive floods, landslides, and drought caused by climatic changes such as rising temperature, decreasing rainfall, rising sea levels, increasing frequency and intensity of extreme weather events are becoming common occurrences in the region (ADB 2009).

These have, in turn, led to massive human suffering and economic losses as it affects agricultural production, coastal marine resources, forestry, and the health of the people through the increasing outbreaks of infectious diseases (ADB 2009). Southeast Asia is particularly vulnerable to the impacts of climate change because of the populations' reliance on natural resources for their livelihood and the country's development, as well as the high poverty incidences (ADB 2009). For instance, the regions' 563 million people are concentrated along coastlines measuring 173,251 kilometers while 43% of the region's employment relies on the agriculture-based livelihoods (ADB 2009). Climatic changes such as rising sea levels as well as droughts have thus affected and will continue to affect a significant proportion of the region's population.

The Philippines is ranked as the most vulnerable to climate change in the Southeast Asian region (Yusuf and Francisco 2009). In the seven country study conducted by the Economic and Environment Program for Southeast Asia (EEPSEA), the Philippines is found to be vulnerable to droughts, cyclones, landslides, and floods brought about by climate change (Yusuf and Francisco 2009). "The Philippines, unlike other countries in Southeast Asia, is not only exposed to tropical cyclones, especially in the northern and eastern parts of the country, but also to many other climate related hazards especially floods (such as in central Luzon and Southern Mindanao), landslides (due to the terrain of the country), and droughts" (Yusuf and Francisco 2009:13). In particular, floods and storms in the country have risen from under 20 in 1960-1969 to nearly 120 in 2000-2008 (ADB 2009). This has had significant adverse effects on the agriculture and fisheries sector of the country.

The Philippines is composed of more than 7,000 islands with coastal communities heavily reliant on marine resources. The country is blessed with 2.2. million kilometers of productive seas and the fisheries sector is ranked 11th on the list of fish and seafood producing countries in 2003 (Food and Agriculture Organization 2003). The sea is central not only to people's livelihood but also to their culture (Jocano 1976 and Mangahas 1994). Thus, the impact of climatic changes such as rising sea levels, depleting marine resources, off-season typhoons, and delays in the monsoon seasons on coastal communities would be profound and far-reaching socially and economically (World Vision 2009).

This paper looks at the experience of a small fishing community with population movement, environmental change, and political economy. This case study is based on a 2 and ½ month ethnographic study of a small fishing community that is reliant almost solely on the sea for their livelihood. The research was conducted in 2008 with periodic follow-up visits in 2009 and 2010.

This study looks at changes in migration patterns in the fishing community from the time it was widely inhabited during the Second World War to the recent phenomenon of out-migration of fishers because of changes in the environment, unsustainable fishing practice, and unfair market relations. The paper concludes with an analysis of how the dynamic relationship between the environment, fishing practice and political economy impel population movement in the context of a small fishing community that is highly vulnerable to changes in the environment and the operation of the market.

2. The particular vulnerabilities of the island of Purô

The island of Purô¹ is the smallest and one of the farthest from the mainland Municipality Z in northern Bohol in Central Visayas, Philippines. The municipality is inhabited by more than 54,000 people (NSO 2000 in FISH Project 2007) scattered in 25 *barangays* or villages (the country's smallest administrative division). Eight of these barangays are islands that lie in the middle of the Danajon Bank's coastline (FISH Project 2007). The Bank is the site of the country's only known double barrier reef - the Philippine Double Barrier Reef (PDBR) - which is "a unique geologic structure that developed through 6,000 years of coral growth. Larger and better-defined than other known double barrier reefs in the world, the PDBR is spread almost 80 nautical miles (148 km.). The outer reef lies 11 km offshore and is composed of several units up to 23 km long each" (FISH Project 2007). The total reef area is 46,380 hectares while the total area of the Bank is 214,628 hectares (equivalent to 5 million basketball courts) that encompasses parts of Bohol, Leyte, and Cebu (FISH Project 2007). The Bank's outer reef is a major fishing ground of Purô fishermen.

¹ Due to the sensitivity of the livelihood of the fishers, the real name of the island, municipality and individuals are withheld in this paper.

The Bank is one of the largest and well-defined double barrier reefs in the world (Pichon 1977 in Langjahr 2006) and has been identified as the global epicenter of finfish biodiversity (Carpenter and Springer 2005 in Langjahr 2006). Its ecosystem is characterized by rich coral reefs, sea grass, and mangroves (White 2001 in Langjahr 2006). The outer reefs of the Bank is beautiful with white sand, clear waters and remaining corals that is why the Municipal government of Z as well as barangay officials of Purô plan to turn the area into a prime eco-tourism spot. However, the Bank's rich marine biodiversity has in recent years suffered resource degradation due to over fishing and destructive fishing methods (Langjahr 2006; FISH Project 2007).



Figure 1. Location of Bohol in Central Visayas (www.worldwitch.com)

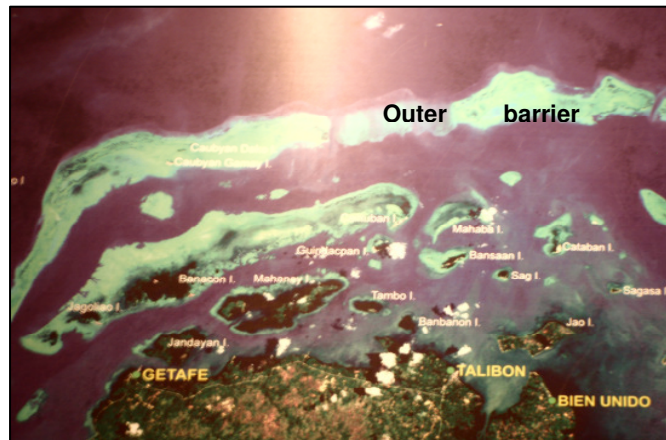


Figure 2. Satellite image of the Danajon Bank (Fish Project 2007)

Primarily because of the rich marine resources surrounding the islands, forty percent (40%) of Z's population is directly and indirectly supported by fishing (FISH Project 2007). It is noticeable that the different islands of Z and a nearby municipality each have its own economic niche in fishing. One island is predominantly engaged in dynamite fishing (which is illegal in the municipalities); another in net fishing for squid; two islands in hook and line fishing and in planting and processing seaweeds; and Purô and another island in compressor fishing.

Purô is a 1.7 hectare island 11 kilometers from the port of Z and can only be reached after an hour of travel by boat. It lies within an area which is the site of several Marine Protected Areas (MPAs), the project site of the Fisheries Improved for Sustainable Harvest (FISH) Project funded by the United States Agency for International Development (USAID). The FISH project aims to increase the fish stocks in its project sites by 10% in 2010 through educational campaigns, monitoring of MPAs, and funding of sanctuaries (Langjahr 2006).



Figure 3. Shoreline of Purô that is crowded with houses

In a study conducted by Langjahr (2006) on the factors affecting the success of marine sanctuary management in the Bank, the Purô sanctuary ranked the lowest in the MPA management rating and enforcement infrastructure index. This is indicative not only of the environmental awareness of the residents of the island, but of the condition of the marine life in their sanctuary and the extent of fishing in the area. This wasn't the case, however, a mere thirty years ago.

Patterns of migration and the environment prior to the 1980s

Elders said that the island used to be beautiful and bigger with pristine white sandy shores and abundant marine life prior to the 1980s. It was so big that a sandbar that now lies several meters off the shore of Purô used to be connected to the island. The water didn't enter the island as it does now whenever the tides are high. There were many trees such as coconut trees, and various fruit trees in the island. The waters surrounding Purô, even the reef flats, were teeming with fish and different shell fish such as crabs, sea cucumber, sea grass and big rocks. It was so abundant that an elder commented that in those days "we didn't have any problems with food."

Prior to World War II, the island was sparsely populated with barely twenty families living in it. When the war broke out, many residents from the nearby Cebu island evacuated to Purô and eventually settled there. The evacuees (*bakwit*) chose the island either because they had

relatives there or because their parents were seasonal migrants² in the island before, hence familiar with its location. Many of them stayed and married in the island while some went back to Cebu and other areas after the war. These *bakwits* started to build their families and intermarried with the first families in the island increasing the island's population to 70 families during the 1970s.

The population of the island boomed when the generation of youngsters during the 1970s period grew up and started having their large families with more than five children each. Thus the current population of 1,839 individuals in 324 households (as of April 2008) is comprised of original settlers of three major families, evacuees during the Japanese invasion and subsequent seasonal migrants to the island who initially went there to fish and stay temporarily but ended up getting married to island residents.

There are roughly 53 men who identify themselves as former seasonal migrants who married women in the island and formed their families. Some of their migration date back to the 1960s and some of them already had kin ties to the island prior to going there to fish. Thus, one route of migration that many individuals followed was through kin relations even though their reasons for migrating varied (e.g. to flee the war, to fish, or to set up a business).

Compressor fishing

The most populated part of the island is called Sitio Bola-Bola. This *sitio* (smallest administrative unit of the village) is named after a highly priced sea cucumber (*Neocucumis proteus*, locally called Bola-bola which is sold at Php2500.00 or approximately USD50.00 per kilo when dried) that compressor fishers in the island covet. Compressor fishing is the main livelihood in the community. The centrality of compressor fishing in the lives of the residents of Purô is evident not only in the number of people directly involved in this activity (including fish buyers and sellers) which comprise 43% of the working population (and 79% of those directly involved in fishing) but also in terms of how compressor use generated new experiences, knowledge, skills, and transactional, social and power relations within the island. It enabled the fisher to experience the depths of the sea that engendered new meanings and constructions of the deep sea and the body, of dealing with danger and its other face, fear, within a life characterized by scarcity, difficulty, and power and economic inequities within and outside the small island (Castillo 2009).

² Seasonal migrants are fishermen who temporarily migrate to other islands in order to fish.

Chart 1. Livelihoods in Purô

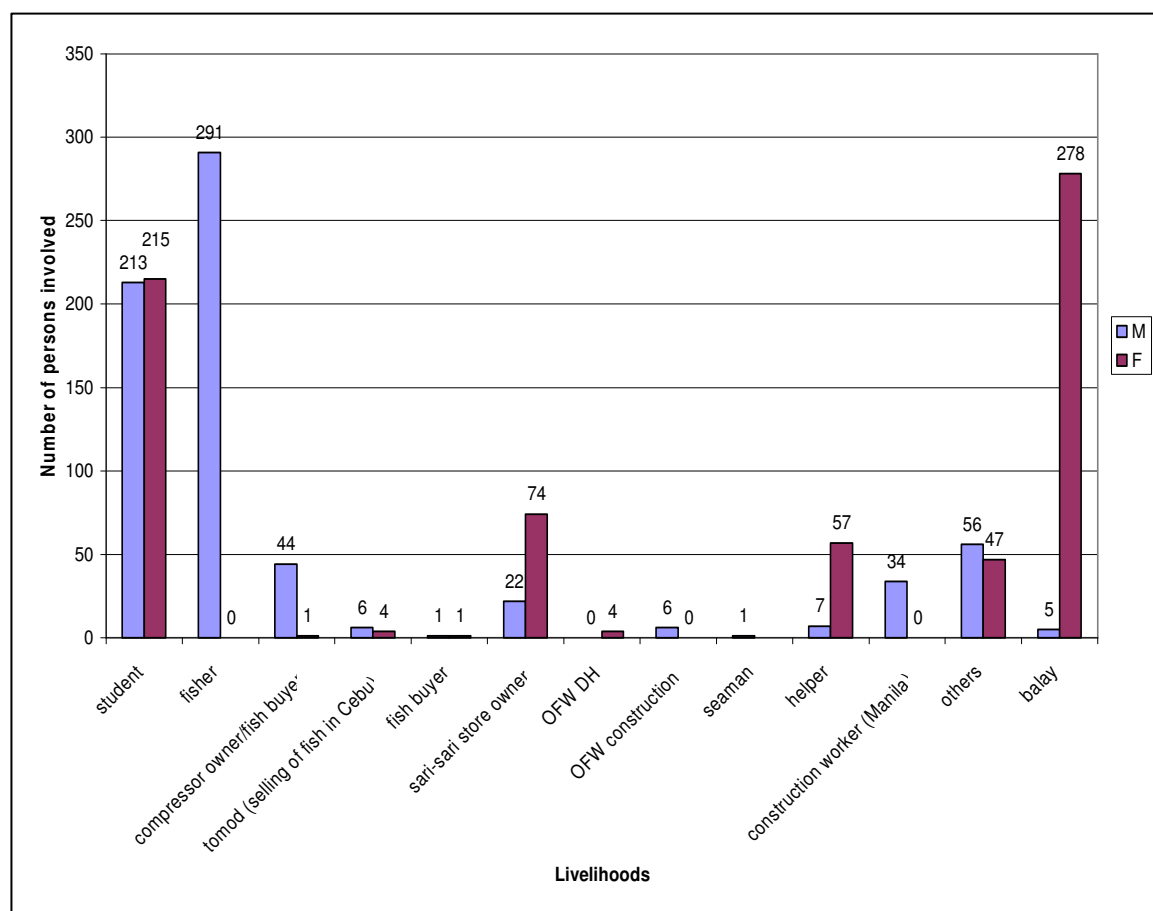


Chart 1. Majority of the people in Purô who are working are directly involved in fishing (as fisher or compressor boat owner who are also fish buyers) or indirectly (as sellers and buyers of seafood). Women are often not involved in fishing activities and many of them either own a sari-sari store or stay at home (*balay*).

The use of compressed air in fishing is prevalent throughout the country and in other parts of the world among poor communities reliant on the resources of the sea. As with its first introduction into the country, the use of compressor in fishing is still mainly fueled by international demands for Philippine marine resources. It is primarily used in diving for marine resources found deep underwater such as live fish (e.g. red grouper and aquarium or ornamental fish), sea cucumber, seahorse, rare shell species, and other species of fish for consumption.

Compressor fishing entails the use of a compressor as an artificial breathing apparatus attached to a long hose with one end bitten by the fisherman. The compressor machine sucks and compresses air from the outside which then becomes the air breathed by the diver underwater. The technology for compressed air ranges from the crude road vehicle air conditioner or paint compressors to the safer but more expensive (and hence rarely seen in fishing communities) self-contained breathing apparatus (SCUBA). This technology enables the

fisherman to stay underwater for as long as three hours at depths of up to 45 meters compared to the more traditional free diving.

Compressor use in fishing is often associated with environmentally destructive methods like cyanide poisoning (e.g. in capturing live fish) and dynamite or blast fishing (McManus et.al. 1992; Comia 1985; Hingco and Rivera 1991). However, compressor is also used with less destructive fishing methods such as the use of spear gun, trap, and gathering marine resources like sea cucumber by using only the hands.

Compressor fishing is categorized as a hazardous fishing activity by the International Labor Organization (ILO) because it exposes the fisher to risks such as hypothermia underwater, exposure to extreme heat at the surface of the water, drowning, barotrauma (physical damage to body tissues), nitrogen narcosis (increased nitrogen levels in the blood leading to altered perception), and decompression sickness (DCS). DCS is commonly known as bends, a condition in which nitrogen in the blood forms gas bubbles during rapid ascent. Long term exposure to pressure can also lead to dysbaric osteonecrosis (DON) or death of a portion of the bone. These conditions result either to deaths, injuries, or paralysis. Aside from these hazards, injuries and deaths in compressor fishing have also been attributed to machine malfunction, human error, adverse sea conditions, and diving when tired or intoxicated (Castillo and Ragragio 2003; Palis 2001).

Yet, despite these risks to one's health and its illegal status in municipalities surrounding the island because of its effects on fishers' health and on the sustainability of resources, the majority of the island's males are engaged in compressor fishing. There is no question that fishermen are lured to engage in compressor fishing because of the higher income it provides compared to other fishing methods in the island. This higher income comes from the inherent capacity of the technology of compressor to extend man's abilities underwater combined with the skills of the divers in using this technology and their bodies as they engage with the deep sea. Through compressor, they are able to catch anything and everything that they see underwater which can be sold.³ One diver compared compressor with hook and line fishing by saying that it is only okay to engage in hook and line if the fish is hungry but what if the fish is already full? On the other hand, in compressor fishing they can catch the fish whether it is hungry or not. Divers are literally seeing money underwater as the catch is automatically

³ Compressor fishers can be seen as literally "mining" the sea because although marine resources are renewable, the rate of extraction in compressor fishing is faster than the regeneration of these resources hence leading to their depletion (Diamond 2005:378).

translated into its worth. Its introduction in the 1980s ushered in a period of affluence in the island that peaked in 2000 with the “discovery” of how to catch the bola-bola sea cucumber. Because of this, many fishers from other islands also migrated to Purô making the island one of the most densely populated in the Danajon Bank.

During the time of the bola-bola, many in the island became rich. Money was easy and consumerist spending became common. As divers believed that they will get plenty of bola-bola each day, many of them took out loans from compressor owners to fund their vices such as drinking and gambling. People say that there was so much money that some people would bathe in beer. Money was also spent for building cement houses and buying boats. But after 2003, the resources became scarce and life increasingly became difficult. The sea had become over fished and fishermen would come home each day with fewer and fewer catch.

Majority of the livelihoods in the island today revolve around the sea and fishing is practiced year round without alternative livelihoods in between seasons. Aside from compressor fishing other fishing practices are net, hook and line, and free diving.

Chart 2. Fishing livelihoods in the island

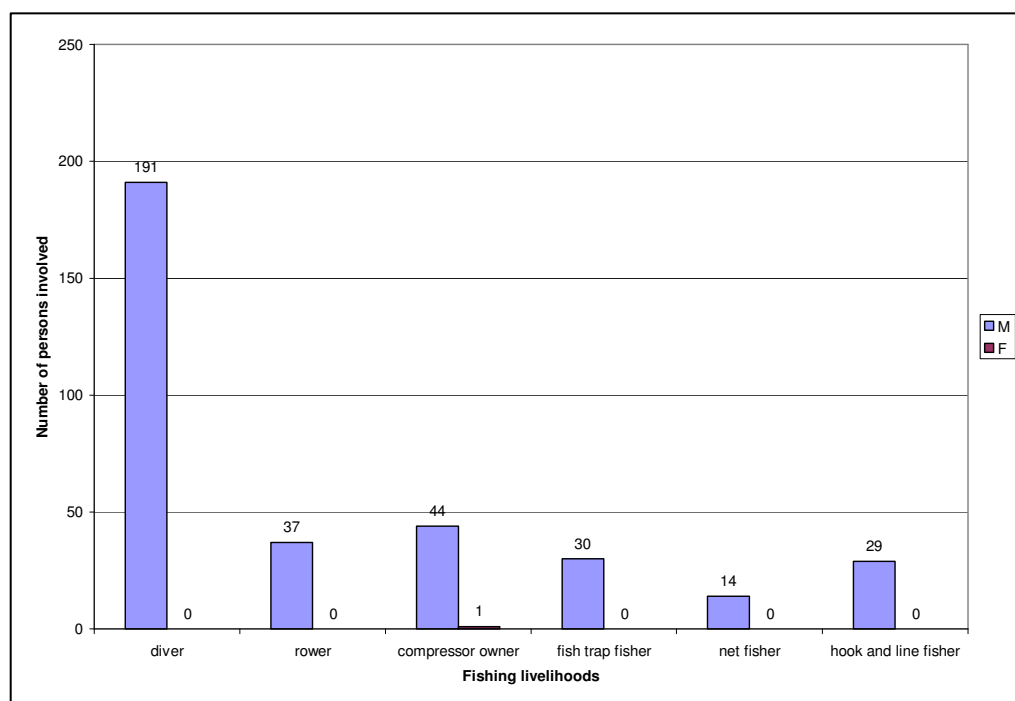


Chart 2. 79% of fishers in the island are directly involved in compressor fishing as divers (13 of whom use compressor to retrieve fish traps), rowers and owner of compressor boat. Others are involved in more traditional fishing practices such as fish trap, net, and hook and line fishing.

The hard life

One can question whether the island has the carrying capacity to be inhabited by such a large population. The island not only lacks a source of fresh water but also farm land. Because of this, almost everything is sourced from other islands, from the mainland or from Cebu. A household's daily expenses include wood used for cooking which costs 5 pesos per bundle sourced from a nearby island or mainland Bohol, fresh water at 15 pesos per gasoline container (equivalent to 5 gallons) bought from the barangay's rain water harvester, from a nearby island or the mainland because Purô doesn't have fresh water, rice from the mainland, and payment to the laborer for carrying the water which is 5 pesos per container. Electricity which is turned on from 6 in the evening until 10 at night costs P10.00/10-watts bulb per day.

It is so expensive to live in the island that some say it is like living in the city. A small family of four, for instance, needs six containers of water each day which translates to 90 pesos per day on water alone. Aside from these expenses, parents who want to send their children to high school have to shoulder board and lodging expenses in the mainland because the island only has an elementary school. For financial reasons, very few are able to go to college.

These daily expenses make the island's residents vulnerable to fluctuations in prices of basic commodities particularly the two that are most vital in their lives: rice and gasoline. When I arrived in the island in April 2008, a kilo of rice costs Php35 while gasoline was Php50 per liter. A week after that the gasoline cost was Php52 per liter. Three months after, a kilo of rice costs Php 42 (in other stores it costs Php44 or Php45), corn grits cost Php44 per kilo while gasoline is Php60 per liter (in other stores it costs Php62 per liter).⁴ The higher costs compared to prevailing market prices is due to the fact that the island lies an hour away from the mainland and additional costs in transporting them are incurred. These price increases have eaten up the income of fishermen causing many to be trapped in debts. Many lament that while the prices of basic commodities are increasing rapidly the price of fish that they sell has remained the same or has even gone down.

⁴ At Php60/liter, a hook and line fisher would need to shell out Php240 (1 gallon of gasoline) in order to go fishing. Add to this is the cost of ice which is Php28 for a ¼ size of ice. To recoup his expenses he needs to catch at least 5 kilos of the cheapest types of fish sold in the island which are priced at Php55/kilo. Furthermore, at Php42/kilo, a family composed of two adults and three small children needs at least 3 kilos of rice daily which translates to Php126 per day on rice alone.

The residents also suffer during periods of strong winds and typhoons precisely because most of the basic commodities are sourced either from Cebu or mainland Bohol. When super typhoon Frank hit the Visayas in June 2008 and caused massive destruction and deaths in different provinces, the island was virtually shut off from the rest of the world. Nobody could go out to fish or buy commodities from the mainland. Hence rice became scarce which led sellers to refuse credit to fishermen because they wouldn't be able to go fishing and repay their debts. Lending to one means lending to all, and sellers would not be able to buy rice once the weather has cleared up because of lack of capital. This led some rice sellers to instruct their helpers not to lend rice. One mother recounted that she wanted to borrow a kilo of rice from the owner of the pump boat which her husband takes to sea but was only given ¼ kilo. Her whole family with five members had to resort to eating five pieces of bread for dinner, no breakfast, and share ¼ kilo of rice for lunch. She was so hungry, she said, that she became dizzy. Meanwhile others were only able to eat once a day during the typhoon.

A long period of strong winds that lasted for almost a month also occurred from December 2008 to January 2009. The winds were so strong that it brought waves as high as houses crashing into the shore further carving out the already small shoreline of the island. People say that this is the first time that winds lasted this long and this strong without any let-up. As with typhoon Frank, nobody could go fishing and lenders started to refuse lending goods and money. People lined up in stores not to buy but to borrow rice which store owners limited to only 1 kilo per family per day. People had to eat porridge in order to stretch 1 kilo of rice for the whole family.

Hunger has become a common experience for many in the island in the past two years even without a typhoon. Fishermen cannot go out to sea if the winds are too strong and many are unwilling to fish when it is full moon (because the fish would be awake and therefore difficult to catch for compressor divers who dive at night). Compounding the difficulty is the scarcity of marine resources in their fishing grounds. This means that there is no money for the daily expenditures of the households who rely only on fishing for their income: no money to buy wood, water, rice for the family and gasoline for the next day's fishing trip. This is worsened by the weekly payment to the micro-finance company that lends money to many households in the island. Weekly dues can be as low as P150.00 per week or as high as a thousand particularly for those who borrowed money to buy a boat.

The affluence at the height of catching bola-bola in the early 2000s has all but disappeared. Now, divers, rowers, traditional fishers, and even compressor boat owners would say that they are *pobre* (poor) and *kalooy* (pitiful). Everybody, except probably for those who have an overseas or migrant worker in their family, is trying to survive on a day-to-day basis taking

anything from the sea that is worth something in the market. Life in the island is "*pait gyud*" (very difficult) residents say with the poor becoming poorer ("*pobre nasamot kapobre*") especially during periods of strong winds. And whereas before, fishermen became attracted to compressor fishing because of the abundance of the catch, now they are pushed to engage in it because of the scarcity of resources and rising prices of basic commodities. This means that whereas before compressor diving was a choice method for fishing, now it is a last recourse.

But this is also changing. Up until January 2009, many fishers in the island often say "*way laing panginabuhi*" (there is no other livelihood aside from compressor fishing). They must rely on the sea despite the uncertainties and scarcity. However, now they are forced to confront this attitude as the year 2010 entered and dramatic changes in the environment and in the market occurred.

3. The changing environment

"In my whole life, this is the first time that I've experienced this kind of difficulty," declared the 50-year old father of my host family in early October 2010. He recalled that there were four occasions from the period of June to September 2010 during which his family was able to eat only once a day simply because they could not get any fish from the sea. His family experienced this despite being one of the relatively well-off members of the community. Many residents of Purô say that life became very difficult in the island starting March 2010, while others say it started after the island fiesta at the end of May this year. But all are in agreement that this is the most difficult time they've experienced in recent memory.

They trace the difficulty and suffering to two major factors that simultaneously occurred: the non-arrival of the southwest monsoon winds (*habagat*) and its concurrent effect on the marine resources, and the drastic drop in the price of fish in the market.

Fishing whether via compressor, hook and line, trap, net or freediving involves a complex knowledge about the environment particularly how the winds, currents, moon phase, and sea depth are related to the presence and ease of catch of different marine resources. This complex body of knowledge is shared by the fisher folk through their collective and practical engagement with the sea and its resources.

Fisher folks' daily lives are governed by both monsoon seasons and localized winds and the strength of these winds that affect daily decisions on whether or not one can go fishing. In the island of Purô, knowledge about the wind is shared by many adult residents, women and men alike, especially because they all experience it. The wind defines virtually all aspects

and rhythm of their lives, occupying many thoughts and conversations particularly when the wind is strong.

Habagat arrives during the months of July to the first half of September. It is characterized by warmer winds and warm seas compared to *amihan* (northeast monsoon which arrives in September and lasts until February). The sea is big during the day, a phenomenon referred to as *dagat sa habagat* (sea during habagat). Thunderstorms are commonplace during habagat but do not usually carry rains with them.

Fishermen prefer habagat over amihan because the sea is warmer and the fishes come up. So even though the winds are strong during this season, fishermen are still able to catch many fishes. This is so because according to the fishers, when the winds are strong the fishes are happy, as though they are playing.

For hook and line fishers, the important catch during this season are trevally, eel, barracuda, blue marlin, squid, and swordfish. For compressor divers, the abundant catch includes red grouper, grouper, octopus, wrasse, eel, Sixbar grouper, goatfish, parrotfish, and surgeonfish. However, because compressor divers can go down deeper and longer, they can catch whatever marine species they see underwater including sea cucumber, seahorse, and once in a while, the rare shells such as *valentia* (*C. valentia*; English name: Prince cowrie), *rigodon*, and *budyong* (*Cassis cornuta*; English name: Helmet shell).

But, this year, habagat winds did not arrive, the first time it happened as far as the residents of the island can recall.⁵ Instead, what came were the *timog* and *dumagsa* winds, localized winds that significantly impact the islanders' daily fishing practice.

The wind *timog* is prevalent during the second half of April until June but can also sometimes occur during *amihan* and *habagat*. The sea is murky if this wind is strong because it sweeps to the sea the mud coming from rivers in the mainland. *Dumagsa* wind, on the other hand, arrives during the second half of February until May. Like *timog*, the sea is also murky during *dumagsa* making it difficult for compressor fishers to see fish underwater and for the fish to

⁵ Aside from the changing wind patterns, the sea level has also been rising higher. In July this year, water rose to waist level in a nearby island. It lasted for two hours and forced people to climb on their roofs or go to their boats. This was the first time this happened in recent memory.

sea the bait of hook and line fishers. Fish has thus become difficult to catch because of the unusual frequency of timog and dumagsa during the months of June to October this year.

And now it is already the season of amihan. It is characterized by cold winds and sea, and constant rains. Divers are not particularly fond of amihan because waters are very cold during this season. When waters are cold, they are able to stay underwater for as long as thirty minutes only and even then their bodies shiver. For this reason, compressor fishers do not go to their main fishing ground as much during amihan and prefer to dive near the island instead to catch seahorse and sea cucumber.

Marine resources have already become scarce prior to this year. Fishers noticed that the resources began to be significantly depleted after 2003, or about the same time that compressor use boomed in the island. However, the changes in the seasonal patterns this year have made the impact of the depleted resources more profound and far-reaching for the fishers.

The non-arrival of the habagat winds affected the abundance of marine resources that the fishers catch. Compressor fishers now go back to the island with a kilo or less than a kilo of catch for each fisher which never happened in past years. Even traditional fishermen such as hook and line and net fishers come home with fewer and fewer catch. It has become common for a fisher to come home after a day's hard work with catch worth only Php 200.00 which is just enough to cover the gasoline expenses he incurred in going out to sea. This combination of circumstances has pushed them further into deeper indebtedness to boat owners for whom they work and to lending firms.

4. The political economic context: Unfair market relations

The changes in the seasonal patterns that affect the abundance of marine resources as well as the depleted state of the marine resources prior to this year because of the unsustainability of compressor fishing (together with other illegal fishing activities in other islands such as dynamite fishing) coincided with a sharp drop in the buying price of the catch of the fishers.

Even prior to this year, the fishers already lack power in determining the price of their catch. Power relations within the island and between the island/periphery and the market are highly asymmetrical. The unequal power relations between the compressor diver and rower (*tauhan*) and the boat owner (*amo*) can be clearly seen in the island as primarily manifested in the tauhan's lack of power in determining the price of the catch as well as in correcting the weights of the catch announced and tallied by their amo. The amo, in turn, is also subject to the same constraints once he sells the catch to second level middlemen outside of the is-

land. Second level middlemen, meanwhile, determine their price according to prevailing market prices which in turn are affected by national events such as the sinking of the ship *Princess of the Stars*⁶ as well as global events like the economic crisis that brought down the price of sea cucumber and seahorse and the steep rise in the price of gasoline, a necessary capital in fish trading.

At the macro level it would seem that small fishermen as producers have very little agency particularly when it comes to the pricing of the catch. Producers lack control over the market, capital, as well as information about the price of their produce that contributes to the dependency of fishermen on middlemen which is susceptible to exploitation (see also Russell 1987).⁷ This exploitation is clearly seen in the practices of some middlemen in the island of jacking up prices of goods, lowering the price of catch, and shaving off grams from the actual weight such as those buyers who have "heavy weighting scales and low prices." However, in the everyday practice of people in the island, divers, rowers and even owners/buyers all possess varying degrees of power and experience varying degrees of powerlessness depending on the situation and sphere of life (Castillo 2009).

This year, however, both the *amo* and *tauhan* suffer from the unusually low buying price of their catch in Cebu which is their main market. If the price of catch is Php60.00/kilo in the island, it will be bought in Cebu (a city three hours away by boat) for Php40.00. This low price which baffles the fishers in Puro has contributed to the difficulty of their lives in recent months, and with the changing wind patterns and depleted resources, have made many of them question the viability of their fishing livelihood.⁸

⁶ A fish scare occurred after the ship sank at the height of Typhoon Frank in June 2008 because of widespread rumors that dead human bodies are eaten by fish. The ship's cargo also contained endosulfan which is highly poisonous to fish and humans.

⁷ In her study of Madaymen farmers in Benguet, northern Philippines, Russell (1987) argues that even though the presence of middlemen may reduce the risks in market transactions (in the sense that to a certain degree they shoulder fluctuations in prices), in a context of politico-economic inequities small farmers have limited agency in making choices on to whom they will sell their produce. "Given that many agrarian contracts are based on inequalities in people's control of productive means, it is the degree of inequality and the extent to which the dominant party can influence the other that often determine choices" (p. 157). "The personal power of middlemen in Madaymen is enhanced not only by farmers' dependency on loans for production and reproduction, but also by the advantaged position of middlemen in the webs of extractive relationships that control marketing outlets" (p. 157-158).

⁸ The difficulty of life has impacted the transactional relations between the *tauhan* and the *amo*. Subversion of the power of the *amo* by the *tauhan* is becoming more frequent as the latter struggles to survive. Subversion is manifested in the *tauhan* secretly selling his catch to a different buyer or by not selling some of his catch to his *amo* (to whom he is obliged to sell his catch because he is indebted to him/her) in order to feed his family.

5. The fishers as temporary sojourners

Migrating because of livelihood, however, is not a contemporary phenomenon. Fishers in the island have practiced seasonal migrations, temporary sojourns to other fishing grounds that take them away from the island for a period of up to three months. But these sojourns had always been based on the sea. It is only now that they have to migrate on such a large scale in such a short period of time in search for work that is not based on the sea, and therefore, work that has not become part of their habitus, particularly for the fishermen. Prior to 2010, whenever the fishers were offered work outside of the island the men would reject it because their fishing livelihood offered more economic returns. But now with the combined effects of depleted marine resources, changing wind patterns, and unfair market relations, many residents are actively seeking work that is no longer based on the sea.

From the period of March 2009 to October 2010, 75 residents of the island migrated to other parts of the country such as Cebu and Manila (cities that are already overflowing with migrant workers) to work mostly as construction workers or househelp. 32 individuals left Puro to work as househelp, 30 of whom are females, while 34 males left the island to become construction workers in Manila. Majority of these males left during the period of June to October 2010. Aside from these figures, 40 men are waiting to leave for General Santos, a city in Mindanao to also work as construction workers, while 20 women are looking for work as househelp. A total of 63 families have also left the island in recent years.

6. Capabilities: The importance of social network

The network of kin and friends has been important in the people's strategy of surviving the recent economic and environmental crisis. Not only has it provided wives and husbands left behind with the social capital needed to take care of their families, but it is also through this network that those who chose to migrate found their jobs. And once in Manila, they were in the company of other migrant workers who if not from the island, come from the same region of the Philippines and speak the same language. These had somehow eased the difficulty of adjusting to the new work environment which otherwise many of them find difficult to deal with.

The importance of network as a resource for the fishers is also not new. During World War II, evacuees from other parts of the Visayas settled in the island because they had kin there. Presence of kin network in the island is also the reason for the arrival of seasonal migrants in Puro.

Another way through which the residents cope with the environmental and economic crisis is through borrowing money from microfinance firms. I say cope because borrowing had negative effects on the residents, particularly in their inability to invest the money and make it grow, thereby making it difficult for them to pay the weekly dues.

7. When fishing is no longer viable: Migration as a desperate survival strategy

The father of my host family, a compressor boat owner, said that he will just sell all his boats and look for a livelihood that is not based on the sea. This attitude has become prevalent in the island as many residents started to look for work elsewhere. This is in stark contrast to their attitude in previous years when they cannot imagine having another livelihood aside from that based on the sea, and especially aside from compressor fishing.

The residents leave despite the high cost of doing so. For example, one of the fishermen I know had to take out a Php 3,000.00 loan in order to go to Manila. While he is away, his wife has to take out a loan too in order to survive whenever her husband couldn't send money. This is because most wives in the island do not have a livelihood. Furthermore, the wife is burdened with taking care of their four young children, even though this burden is somehow alleviated by the social support provided by their kin in the island.

The residents who migrate to Manila to work are also faced with uncertainties of job security, of not being treated well, and of discrimination because they speak a different language. The men who work as construction workers, while treated well by the company, have a hard time adjusting to the work of carrying heavy loads of metal and construction equipment because this is not the livelihood that their bodies have gotten used to. They say that if there was no need to migrate, they would not have left the island.

Money changes hands very quickly in the island, a testament that everybody is trying to survive on a daily basis. This particular economy is best encapsulated in the popularity of *repak* and *takos* (or retail in small quantities) that residents buy in stores in the island. These goods that come in smaller quantities repacked in the island provide families with commodities at prices that they can afford at the moment. Thus houses are rarely stocked with food, proof that the residents are living on the margins of survival, do not have the capacity to save and are therefore vulnerable to fluctuations of prices in the market as well as constraints from the weather and changes in the environment.

Life is becoming harder and harder for this community of fishers as the years go by. The sea and the small island on which they live can no longer support the needs of the population. The changes in the environment, both natural and anthropogenic, as well as the unfair market relations have pushed the people to the furthest margins of survival. It is difficult to ascertain which of these factors impelled the people to finally confront their doxic notion that there is no other livelihood aside from compressor fishing and face a life of uncertainty as migrant workers. But for these people who have very little viable options to begin with, migration is a desperate survival strategy. Migration is not only an indication of their particular vulnerability to environmental change and pressures from the market, but is also evidence of a very low level of agentic capacity to move forward.

Postscript: 30 of the men who left for Manila returned to the island in early November 2010, barely three weeks of working in the construction site. This is because work has finished and the promised new projects did not materialize. The wage of Php 1500 per week that each of them earned as construction workers, was not even sufficient to pay for their fare to Manila and the loans that they had to take out for the survival of their families while they were away. Yet despite this, they will leave again once work is available and they have enough money for the fare because, as one fisherman said, they have “no choice.”

References

- Asian Development Bank. 2009. The Economics of Climate Change in Southeast Asia: A Regional Review. Electronic document available at, <http://www.adb.org/Documents/Books/Economics-Climate-Change-SEA/PDF/Economics-Climate-Change.pdf>. Accessed November 2, 2010.
- Castillo, Rosa Cordillera. (2009). *Wa'y Laing Panginabuhi (There is No Other Livelihood): Negotiating Danger and Survival in the Life World of a Community of Compressor Fishers*. Masters thesis. Quezon City: University of the Philippines Department of Anthropology.
- Castillo, Rosa Cordillera and Ragragio, Andrea. (2001). *Parabuso: Isang Silip sa Mapanganib na Trabaho ng Kompresor Diving sa Behia*. Undergraduate paper, University of the Philippines Diliman Department of Anthropology Field School. Unpublished.
- Comia, Cesar. (1985). *Ang Ugnayan ng Wika at Katutubong Kaalaman sa Pangingisda*. Undergraduate paper, University of the Philippines Diliman Department of Anthropology Field School. Unpublished.
- Diamond, Jared. (2005). *Collapse: How Societies Choose to Fail or Succeed*. pp. 378-416. New York: Penguin Books.
- Firth, Raymond. (1966). *Malay Fishermen: Their Peasant Economy*. Connecticut: Archon Books.
- FISH Project. (2007). *Save Danajon Bank - Lihok na, mga Talibongnon: Guide to the Talibon Fisheries and Coastal Resource Management Interpretive Center Exhibit*. Cebu City: Fisheries Improved for Sustainable Harvest (FISH) Project of the United States Agency for International Development and the Department of Agriculture-Bureau of Fisheries and Aquatic Resources.
- Food and Agriculture Organization of the United Nations. (2003). *Fisheries and Aquaculture Country Profiles: Philippines*. Electronic document available at http://www.fao.org/fishery/countrysector/FI-CP_PH/en. Accessed November 2, 2010.
- Hingco, Therese Gladys and Rivera, Rebecca. (1991). *Aquarium Fish Industry in the Philippines: Toward Development or Destruction?* In *Towards an Integrated Management of Tropical Coastal Resources*. Chou Loke Ming, Chua Thia-Eng et al., eds. Singapore: National University of Singapore, National Science and Technology Board, Singapore and ICLARM.

Jocano, Felipe Landa and Veloro, Carmelita. (1976). San Antonio: A Case Study of Adaptation and Folk Life in a Fishing Community. Quezon City: UP NSDB Integrated Research Program.

Langjahr, Karlyn K. (2006). Perceived Factors for Successful Marine Sanctuary Management in the Danajon Bank Ecosystem, Philippines. Masteral thesis. Washington: University of Washington School of Marine Affairs.

Mangahas, Maria. (2004). Compradors and Fishers: Poverty, Community, and Market in the Periphery (Samal Island, Davao Gulf). *Pilipinas: A Journal of Philippine Studies* 43:1-31.

_____. (1994). Mataw, Amung Nu Rayun, Anitu Man, the 'Fish of Summer' and the Spirits: An Ethnography of Mataw Fishing in Batanes. Masters thesis. Quezon City: University of the Philippines College of Social Sciences and Philosophy.

McManus, John W., Nanola, Cleto Jr., Reyes, Rodolfo Jr., and Keesner, Kathleen N. (1992). Resource Ecology of Bolinao Coral Reef System. Manila: ICLARM.

Russell, Susan. (1987). Middlemen and Moneylending: Relations of Exchange in a Highland Philippine Economy. *Journal of Anthropological Research* 43(2):139-161.

World Vision. 2009. Climate Change Case Studies: Integrated Coastal Resource Management in the Philippines. Electronic document available at http://wvasiapacific.org/downloads/case-studies/Philippines_Integrated_Coastal_Resource_Management.pdf. Accessed November 2, 2010.

Yusuf, Arief Anshory and Herminia Francisco. (2009). Climate Change Vulnerability Mapping for Southeast Asia. Singapore: Economy and Environment Program for Southeast Asia.