introduction

Chapter 1

"A journey of a thousand miles begins with the first step."

The coastal environment is like a magnet, attracting the interests of many people to the shoreline, mangroves, coral reefs, and fisheries that inhabit the nearshore waters. It has been said that "the coasts are the crossroads of human activity with the sea" (Weber, 1993). Indeed, the majority of Boholanos are directly dependent on the coastal resources for food and livelihood. Coastal communities are dependent on their daily catch of fish to meet their families' basic dietary needs. Coastal areas provide protection from storms and typhoons, recreation, main navigation routes for people and commodities, eco-tourism opportunities, and a medley of cultural, economic and ecological benefits. The development of the province and its people depends on maintaining the wealth and health of its coastal resources. Unfortunately, over the years we have trampled this coastal crossroad with our activities and as a result, we are quickly losing the fundamental basis for economic development, a sound environment and natural resource base.

Boholanos, together with their local government units, however, have recognized the urgent need to protect our coastal environment. Together, with committed partners from national government agencies, NGOs, and foreign funding agencies, we are making rapid progress in managing and protecting our coastal resources. This profile describes the current condition of our coastal environment and summarizes our progress in managing these vital resources. As such, it also serves as a benchmark for measuring our future progress.

PHYSICAL SETTING OF BOHOL

Bohol lies in the heart of the Central Visayas, geo-politically known as Region VII, along with the provinces of Cebu, Siquijor and Negros Oriental. Bohol lies on the periphery of the Camotes Sea along with the island provinces of Cebu on the northwest and Leyte and Southern Leyte on the northeastern and southeastern boundaries, respectively. It has 654 kilometers of coastline and 6,245 square kilometers of municipal waters covering the major islands and islets (CRMP, 2002). Encompassing a total land area of 411,726 hectares, it is the tenth largest province in the country (PPDO, 1993).

Bohol is composed of 48 municipalities with 15, 14 and 19 municipalities composing the first, second and third congressional districts, respectively. Thirty of these municipalities, or 62.5 percent, are situated along the coast. The rest are interior towns.

Based on land classification (LC), about 101,271 hectares of the total land area of Bohol is timberland, while 310,455 hectares is alienable and disposable (A & D) land. Communities of the interior towns are mostly engaged in agriculture as their primary source of income.

Dry season in Bohol occurs from January to May while the rest of the year is wet with occasional strong winds bouncing between the two monsoons, the 'amihan' and 'habagat' winds.

> *It is interesting to note that the total municipal waters of the 29 coastal municipalities and one city are two and a half times the size of their aggregate land area — a huge area to manage yet only very few local government units (LGUs) have begun to manage.*

SOCIO-ECONOMIC SETTING

People living in coastal areas depend on fishing as their primary source of income. Fishing provides food especially for the ordinary fisherman's family and a meager income to send his children to school and buy household necessities.

In most rural areas, family planning is not so much appreciated and the Bohol population is currently growing at the rate of 2.85% per annum (NSO, 2000). Most families think that the more children they have, the better hope there is for the family in the future. This may have been true in previous generations but is a dubious concept at the present time.

The population of the coastal municipalities grows faster than that of the interior municipalities (see Figure 1.4). Therefore, more and more people are turning to the sea for livelihood, especially at the present time where there are few other sources of income. During weekends, many of those from upland communities even go down into the coastal areas to glean and fish to supplement their protein needs.

With the meager income of the fisherfolk these days, people get caught in a vicious cycle of poverty. Small catch means no extra income for even the most basic of needs such as shelter and schooling for their children. As it is, the lack of quality resources creates a chain of impact, which means that their quality of life is dictated by the presence and quality of resources that they depend on.

OVERVIEW OF COASTAL AREA AND RESOURCE USE

Most coastal areas in the Philippines can be characterized by a de facto open access regime where coastal resource use is poorly managed and monitored. Without limits or restrictions on coastal resource use, there is little incentive to manage the coastal environment and anything and everything is hunted, extracted, or used for economic gain and sustenance. This regime is not

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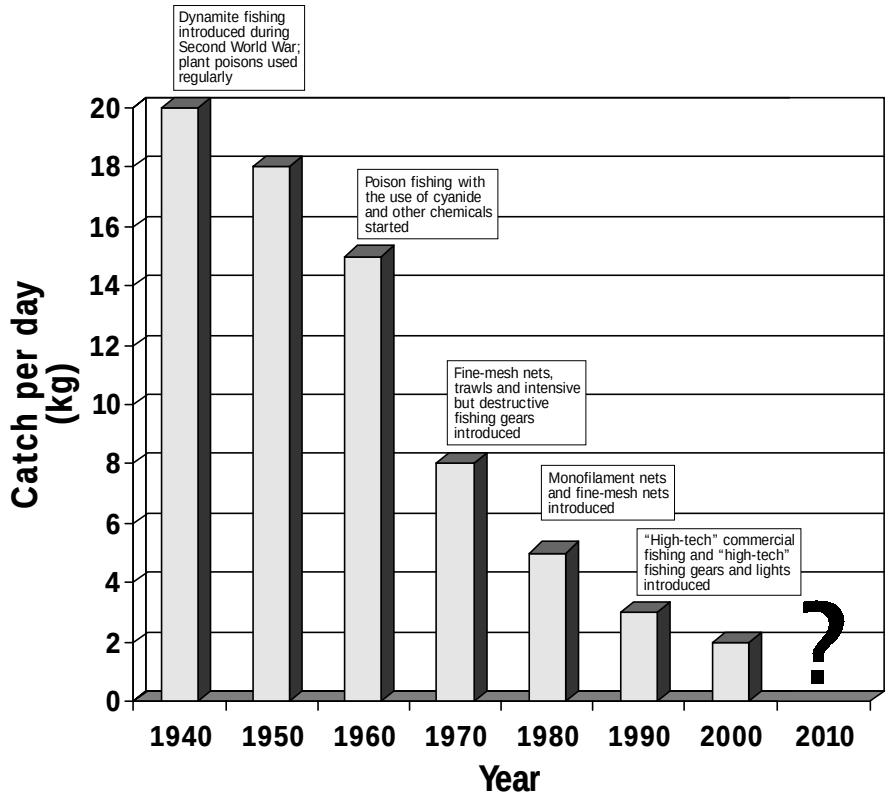
Pamilacan Island, Baclayon.

unique to the Philippines, where overexploitation of coastal resources and destruction of coastal shoreline and habitats are increasingly becoming the norm throughout the world.

Reduced fish catch, more and more mouths to feed, increased price of fishery products, and fewer fishers able to make a living from the sea is a common scenario around the province. The trend in fish catch in one town, Loon, illustrates the magnitude and reasons for the decline in the catch of marginal fishers (Figure 1.1). Bohol's coastal resources are severely degraded with a twenty-fold decrease in catch per unit effort (CPUE).

The majority of the Boholano fisherfolk are becoming more and more marginalized while a few commercial and illegal fishing financiers are still making a good living, albeit at the expense of 95% of the other fishers. A common joke in Talibon sums up all of it. In the older days, the sea was so abundant that families would just go down to the shore, and build a fire to boil water. Once the 'panakot' (vegetables and spices) were added to the pot of boiling water, the fisher would whistle and clap his hands, and the fish would jump into the pot. This may be a joke now but it illustrates just how abundant the fishery resources were in those days, however, nowadays, this is inconceivable.



Graph shows decreasing fish catch of marginal fishers in Loon as measured by catch per unit effort (kilograms caught per day) plotted against time. Proliferation of illegal fishing gears within municipal waters and subsequent decline in fish catch are common for the rest of Bohol. Data taken from the results of the participatory coastal resource assessment (PCRA) conducted town-wide in 1999 and from separate interviews with the fisherfolk to validate the information. Fish catch is standardized as the average catch of small-scale fisherfolk who use hook-and-line fishing gear and non-motorized (oar-driven) 'banca' or fishing boat, and fish for an average of 6-8 hours per day.

Figure 1.1. Declining fish catch of marginal fishers in the Municipality of Loon, Bohol

The open access regime has led to the destruction of critical coastal habitats and degradation of marine fisheries. Full-scale "liquidation" of coastal resources is taking place with little regard for the future. Corals are blown up, poisoned or smashed up to get expensive shells; mangroves cut down to give way to illegal fishpond development; and seagrass beds becoming saturated with pollutants and replaced by reclamation projects. The state ownership of all the natural resources and treasures of the country has led to their non-management or mismanagement.

A comparison of land-based and sea-based resources can provide a clearer picture of the effects of an open access regime. Let us take a look at two types of resources, a rice field and the sea (Box 1.1.) as a means to understand the difference in management regimes that are in place and the need for coastal resource management. For land-based resources, such as a rice field, the farmer would take all measures necessary to protect the resource not only for the current harvest, but to plan and implement measures to ensure future harvests. For sea-based resources, however, similar measures are rarely taken.

In order to change the current open access regime, coastal resources need to be viewed similarly to land-based resources, where "ownership" and responsibility is clearly defined and

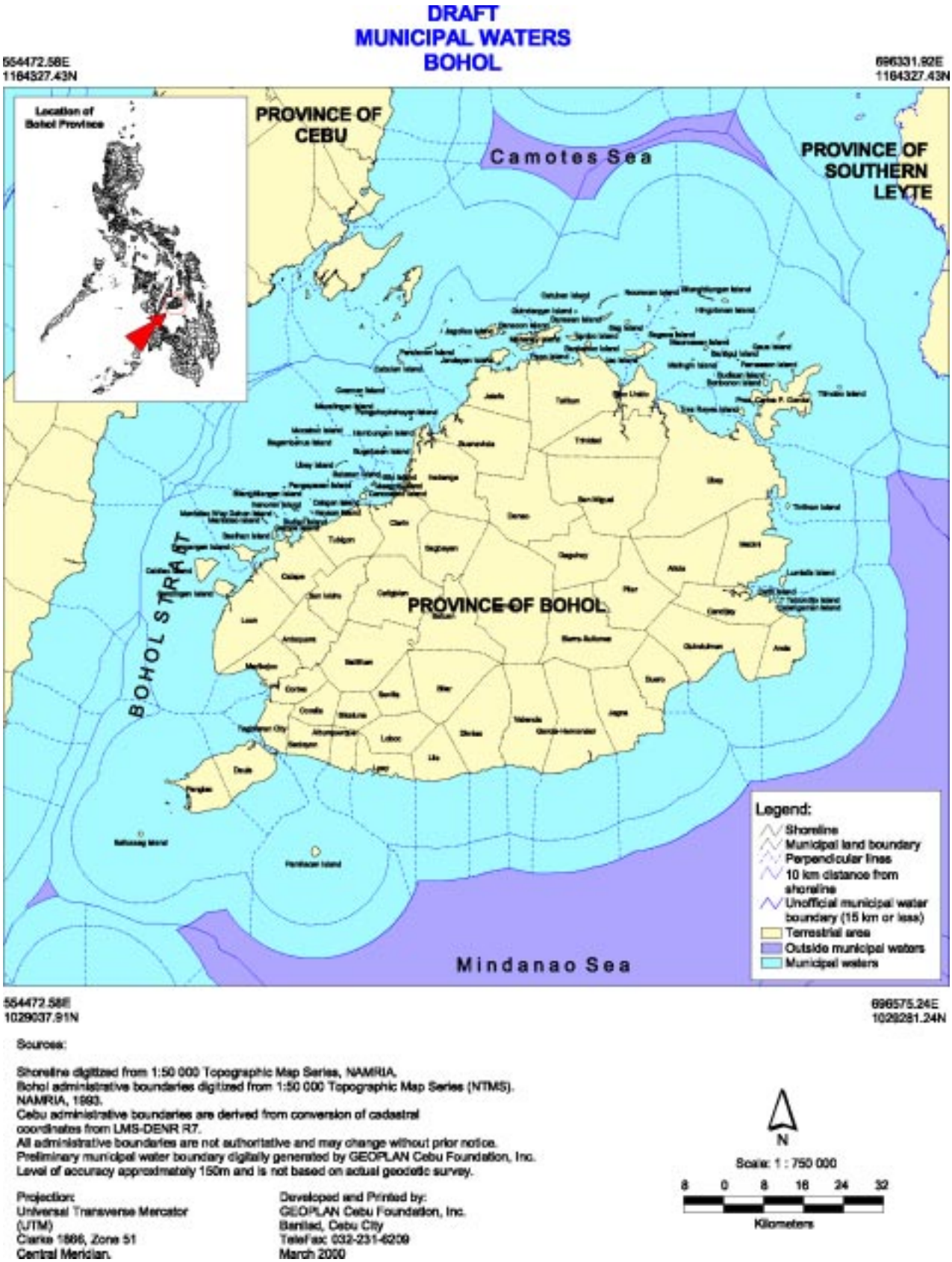


Figure 1.2. Map of draft municipal waters of Bohol

Table 1.1. Draft municipal coastline areas and lengths of Bohol[1]

Municipality	Area of Municipal Waters (Hectare)	Area of Municipal Waters (sq. km.)	Length of Shoreline (km.) *including* offshore islands[2]	Length of Shoreline (km.) *excluding* offshore islands
Alburquerque	3,203.20	32.03	5.88	5.88
Anda	48,722.73	487.23	21.19	21.19
Baclayon	44,924.74	449.25	11.13	6.78
Bien Unido	51,299.00	512.99	43.86	22.81
Buenavista	6,569.29	65.69	32.41	25.37
Calape	12,486.08	124.86	53.65	21.68
Candijay	1,529.73	15.30	32.82	28.68
Clarin	3,178.82	31.79	28.62	17.94
Cortes	122.24	1.22	7.30	5.97
Dauis	9,964.91	99.65	28.26	28.26
Dimiao	8,907.41	89.07	6.00	6.00
Duero	1,357.11	13.57	6.81	6.81
Garcia-Hernandez	19,891.07	198.91	16.44	16.44
Getafe	20,282.52	202.83	84.74	24.60
Guindulman	12,158.05	121.58	16.81	16.81
Inabanga	18,932.10	189.32	66.79	60.26
Jagna	28,855.95	288.56	13.55	13.55
Lila	12,543.90	125.44	8.67	8.67
Loay	10,754.12	107.54	13.58	12.97
Loon	37,707.94	377.08	60.94	34.42
Mabini	15,507.02	155.07	36.97	31.72
Maribojoc	3,692.48	36.92	17.26	16.54
Panglao	74,613.52	746.14	37.64	30.54
Pres. Carlos P. Garcia	57,470.18	574.70	79.62	64.39
Tagbilaran City	2,590.77	25.91	12.45	12.45
Talibon	52,466.33	524.66	98.92	33.53
Trinidad	42.64	0.43	98.92	1.95
Tubigon	38,176.30	381.76	1.95	14.97
Ubay	20,296.22	202.96	59.47	55.87
Valencia	6,259.64	62.60	6.58	6.58
Total	**624,506.01**	**6,245.06**	**1,009.23**	**653.65**

[1] Derived using Geographic Information System generated maps (draft).
[2] Including the perimeter of all offshore islands within the LGU coastal waters.

Reference : Coastal Resource Management Project - Geographic Information System, 2001

resource use is managed and sustainable. The Local Government Code of 1991, Philippine Fisheries Code of 1998, and other national laws established required regulatory regimes and management measures for coastal resource use. These laws mandate LGUs, together with coastal communities, to manage coastal resource use for sustainable development. The strict implementation of this national legal framework for coastal resource management will enable the recovery and rehabilitation of coastal resources to benefit all Boholanos.

Box 1.1. Comparative issues between two resources used for socio-economic benefits

Questions	Rice field	Sea
Are the boundaries of the area marked and clearly defined?	Yes	No
Do you plow, apply fertilizer and plant in the area?	Yes	Rarely (except for mangroves)
Do you vigilantly protect your resource?	Yes	Sometimes but normally not
Would you contemplate harvesting young/juveniles from the area?	No	Yes
Would you allow other people from other provinces, towns and villages to come and harvest your resource without asking permission and/or paying a certain fee?	No	Yes
Would you use chemicals, dynamite and other detrimental chemicals to harvest your resource?	No	Yes
Would you harvest all the resource without leaving juveniles/ seeds for next year?	No	Yes
Would you throw your rubbish and other wastes into your resource?	No	Yes
Would you allow industries and sewage to be poured directly into your resource with little monitoring?	No	Yes
Would you allow permanent structures to be built on your resource without your consent or legal permit?	No	Yes
Is it an open access resource?	No	Yes

A traditional subsistence fisherman repairing his small fishing net - Pamilacan Island, Baclayon

As population continually increases, the capacity of the coasts to regenerate and renew declines. Out of the total 1,109 *barangays* in Bohol, 304 are coastal *barangays* and 63 are island *barangays* (NRDB, 2001). Thus, it is fair to say that approximately 33% of Bohol's population is directly dependent on fishing and fisheries-related activities as major sources of income. Upland communities also consider Bohol's coastal resources as their number one source of cheap animal protein.

What is apparent in Bohol is that there are many people who depend on the coastal resources. Also, many are underemployed and leave fishing to look for other livelihood, which at present is hard to find. There are enough fish for the small fisherfolk of Bohol but it is not being equitably distributed. Certain malpractices are being carried out, creating a negative impact on

the coastal resources and their ability to regenerate and rejuvenate. These include illegal fishing, destruction of the coastal habitats, and catching of juvenile fishes [e.g. 'pirit-pirit', 'kuyug' (also called 'lap-ot' or 'tagum-tagum'), etc]. Catching these young fishes inhibit their further growth and their capacity to eventually breed, thereby affecting the income of the fishers in the long run.

Illegal fishing financiers, commercial fishers and other groups are taking the lion's share of the fishery resource and the income derived from it. For a true and holistic sustainable development in the province, there needs to be a bias towards increasing the fish catch of small fishers (numbering some 80,000), reducing investment in the fishery, and stopping the very wasteful overfishing and destructive illegal fishing activities and habitat destruction, the latter affecting the rejuvenating abilities of the resources. In all development theories, there is a direct correlation between the quality of both the natural resources and the life of the people in the coastal areas. In other words, poor quality of resources results in the poor quality of life of those dependent on them and vice versa.

HISTORICAL RESOURCE MANAGEMENT REGIMES

The management of coastal resources in Bohol has been practiced for centuries following cultural and religious traditions. According to the Spanish chronicles on Bohol, very few people lived initially in the coastal areas. A hunter/gatherer type of living took place. Every couple of months, Boholanos would come down from the mountains and fish intensively for several days, and then dry and salt their fish before carrying their harvest back into the upland areas. As time went on and as the threat of attacks from the various bandits from other parts of Mindanao decreased, the people moved down to the coastal areas.

At this time, village heads ruled over the coastal resources and practiced religious and cultural practices which protected the resources. Within each village, there were areas that were off limits to fishing and only during certain cultural and religious festivals were people allowed to harvest therein. These prohibited areas included offshore islands and places considered sacred to the inhabitants. The early folks revered and feared the greater being who provided them the very resource that gave them life. They believed that whenever they exploit their environment or harm the bigger species of fish, they would experience ill fate or simply catch nothing.

From a management point of view, this worked very well and ensured that areas with high biological diversity were maintained to replenish and regenerate the other fish and marine stocks in the area. With the conquest of the country by the Spaniards, the traditional rights over the resources were shifted as the Spanish Government became the owner of all natural resources of the country. This was re-enforced later by the Americans whose administration of the Philippines put all natural resources as the property of the state, thereby, in effect, starting the "open access" regime and taking away the rights of the local resource users to decide on how to manage their resources.

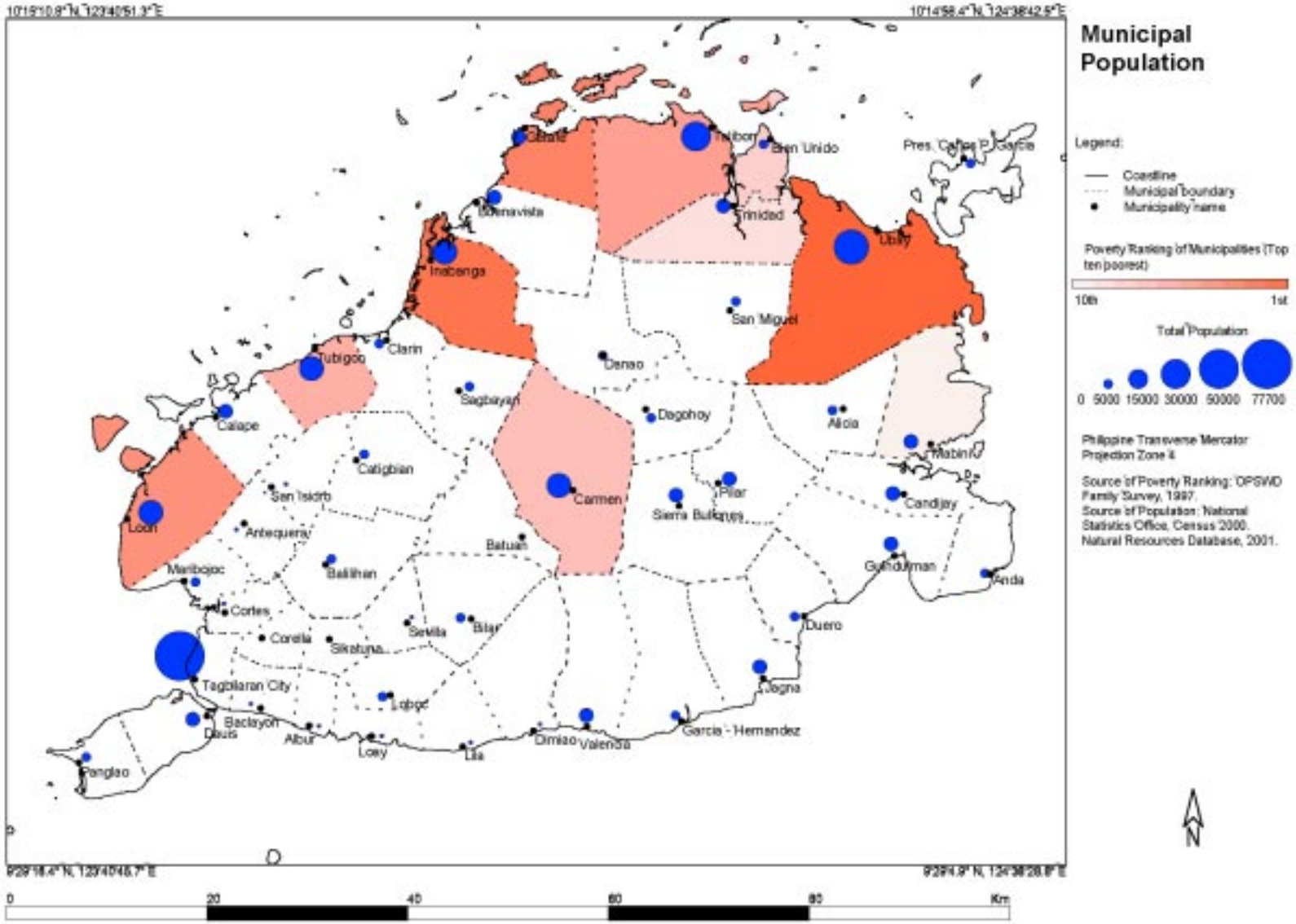


Figure 1.3. Map of municipal population of Bohol as of 2000

Some of these traditional rights areas remain until today but rarely are they properly protected. Few are left but those around the Danajon Bank in the northern part of Bohol still have traditional "protected areas" locally called 'sonas', which have no legal basis but are protected by the community. The 'sonas', like those in Bilangbilangan, Bien Unido, are off limits to fishing for most part of the year but fish may be harvested before the local fiesta. Nowadays, however, the area is bidded out one week before the annual village fiesta. The highest bidder is allowed to blast the area with dynamite and harvest all (some are sold fresh while some are naturally dried under the sun to produce the 'bulad', to be later sold at prices depending on the species of fish). Consequently, the corals in the area and other base habitats are now equally destroyed. This, perhaps, answers the query of the bidders why their subsequent catches up to the present are nothing like in the past.

There has also been a change in the point of view of the younger generations of fisherfolk compared to the ancestors of the coastal communities of Bohol. The older fishers see the fisheries resource as a source of livelihood and sustenance for the family and should be protected and enhanced to ensure sustenance for all. Younger generations, however, now see the resources as an inexhaustible commodity with a price tag — the more that they can take, the higher the gains. The concept is that if they don't take them someone else will. Understandably, some fishes and shellfishes command a higher price. For example, a live grouper would sometimes fetch up to 800 pesos per kilo. This has led to the paradigm shift in resource utilization in fishing communities from being traditional and sustenance, while caring for the resource, to seeing the resource merely as a cash commodity.

Ordinary fishermen get only a small share of the fishery resource in their area.

Another factor that compounds resource degradation is that coastal communities understandably focus only on living and surviving for the present, a short-term strategy of sustenance. As long as there is food on the table everyday, it doesn't matter to them how and in what way this was provided for. There is little focus on the long-term continuum of life, which is essential if the resources are to be maintained.

These changes in the perceptions of people have added up through the years to result in the resources being decimated across the province and removed at a rate faster than they can reproduce.

RECENT FISHERIES DEVELOPMENT EXPERIENCES

The fisheries models and laws advocated by the National Government have gone full circle in the last thirty years. In 1975, with the passage of Presidential Decree 704, the main focus of fisheries development in the country was on production of more fish, fishpond expansion, and increasing export volume for foreign currency earnings. This was termed as the "Blue Revolution" of the Philippines. It also encouraged the development of an efficient fleet of fishing boats and introduction of new fishing technologies to catch more and more fish.

During this time, thousands of hectares of mangroves were allocated for fishpond development and new efficient but destructive fishery technologies were introduced. Loans were given out for fishpond development, most of which were never used for fishpond development but for other activities. Soft loans under the *Biyayang Dagat* and the *Kilusang Kabuhayan at Kaunlaran* (KKK) programs rarely got paid back as the small fishers were encouraged to buy bigger boats and nets to harvest the "infinite" fishery resources in their areas. Meanwhile, the Bureau of Fisheries and Aquatic Resources (BFAR) introduced trawling and the use of seine nets with scaring devices in Ubay and Clarin. In the south of Bohol, they introduced and handed out for free some deep-set gill nets and trained fishers on how to use them, resulting to increasingly greater fish catch with little thought for the sustainability of such interventions.

In mid-1984, another fishery development program was launched in Bohol through the Central Visayas Regional Project - I (CVRP-I) with funding from the World Bank. During the first five years of implementation, the project concentrated on selected towns in northwest Bohol (Talibon, Bien Unido and Ubay). Later, the project was turned over to the Provincial Government to institutionalize the activities and replicate the approaches that were proven successful and applicable to the situation of Bohol. At this time, many other coastal towns were involved and availed of the assistance from the Provincial Government.

CVRP-I focused on the community-based or "bottom-up" approach, that is, to have a realistic and holistic view of resource management, the direct users should be involved in the management of the coastal habitat. One of CVRP's components was the establishment of artificial reefs as the main strategy in reviving or rehabilitating the lost or degraded natural reefs. However, sometime after the artificial reefs were installed, only the dynamite fishers were able to harvest to the disadvantage of the small fishers. Consequently, most of the people's organizations were discouraged by the situation. Moreover, the LGUs were also not able to sustain the benefits of the project because they did not incorporate any budget for CRM and were not so well involved in the project. Although the CVRP's operations lasted until 1992, there are some towns that still continue to embrace the CVRP concept of sustainable community-based resource management.

The enactment the Philippine Fisheries Code of 1998 represents the recognition of the national government that a paradigm shift was needed from production-oriented fisheries development to coastal resource management and conservation. Slowly, people are beginning to change with the ever more obvious realization that the sea is not infinite and that its resources

have to be managed, regulated and controlled. Small fisherfolk are now given preferential access to the municipal waters, particularly those with boats of less than three gross tons and passive fishing gears. Establishment of marine sanctuaries has been encouraged and the gears introduced previously are now declared active and their use outlawed. The legal basis for a sustainable and equitable fisheries allocation is now in place. Today, the management impetus for LGUs is to implement the mandates of the Fisheries Code of 1998 and integrate the suggestions of the local fisherfolk on how best to manage the fishery resource and their habitats.

THE NEED FOR COASTAL RESOURCE MANAGEMENT

Coastal resource management (CRM) is the identification of holistic and appropriate human interventions (a combination of social, technical and scientific strategies) through participative efforts to manage the use of coastal resources in a sustainable manner. CRM aims primarily to involve and consider the welfare of the affected communities along with other stakeholders in every stage of the undertaking, for a sustained coastal and marine environment and improved quality of life. CRM tries to focus its activities on the short-term needs of the communities vis-à-vis the long-term issues and resolve such needs and issues.

Coastal resource use issues in Bohol that can be addressed by CRM include:

- Continued treatment of the coastal resources as an open access resource, with only limited management and "ownership" being applied
- Continued over-fishing and destruction of the coastal resources
- Inequitable distribution of fishery benefits, with very limited individuals (financiers, illegal fishers and commercial fishers) getting the major share of the resource at the loss of the small-scale fishers (95% of the total number of fishers)
- Lack of information, education and communication (IEC) on and enforcement of coastal laws by multi-sector coastal law enforcement groups
- Lack of coordination, collaboration and common direction among the NGAs, NGOs, LGUs and coastal communities
- Many jurisdictional issues and gray areas still have to be resolved by and among NGAs, LGUs (provincial, municipal), NGOs and communities, with some not taking responsibility of their jurisdictional mandates amid lack of coordinated planning between these agencies
- Poor land and coastal resource uses as well as a lack of framework for decision making for LGUs to better manage the resources
- Pollution, runoff and siltation from upland areas due to poor and inappropriate human practices

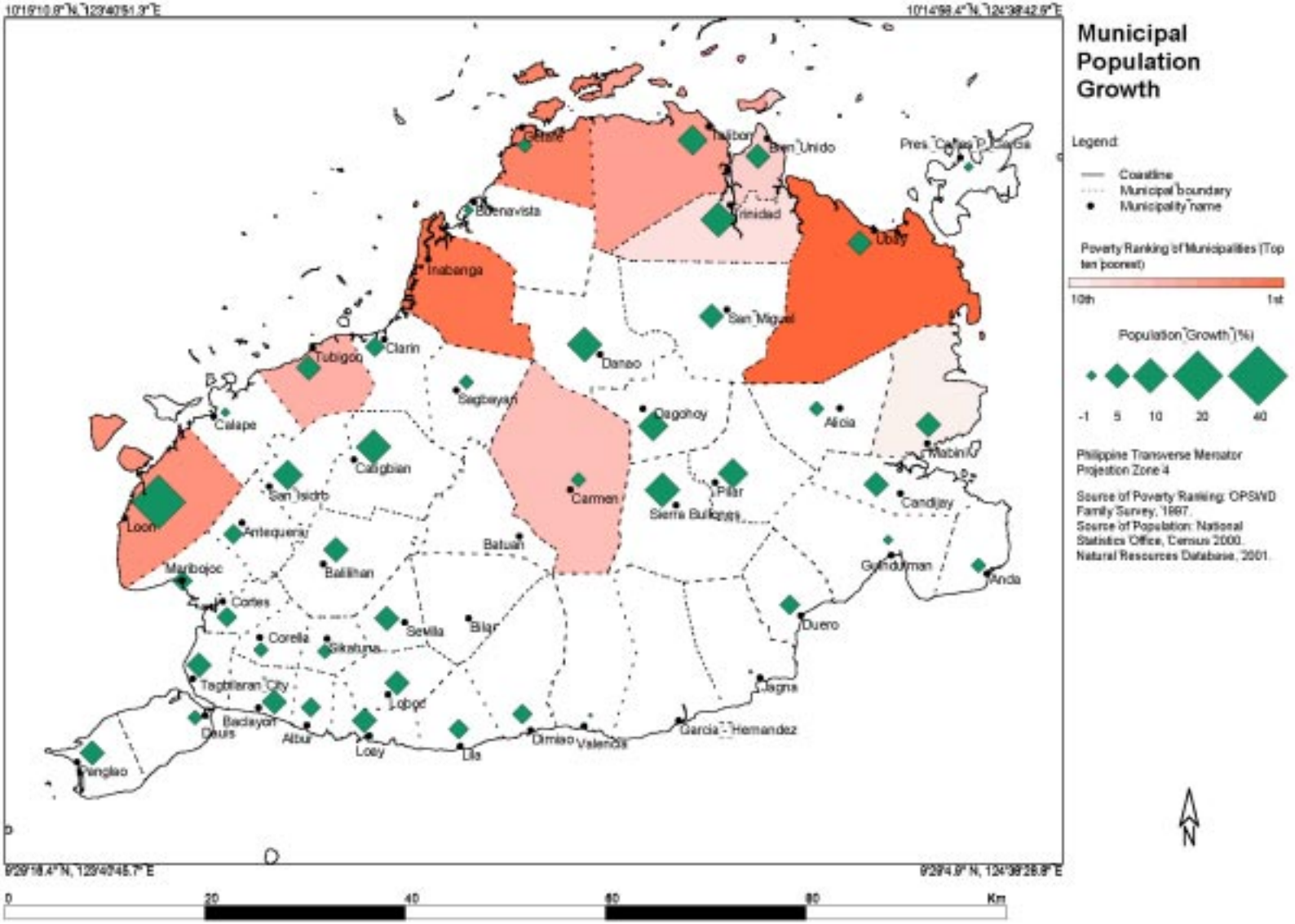


Figure 1.4. Map of municipal population growth of Bohol as of 2000

Traditional fishermen with hook and line and two "petromax" lights to attract fish - Clarin

- Lack of general awareness on coastal resource benefits and values, coastal resource management, coastal issues and laws among coastal communities, decision makers, judiciary, politicians and the general public

CRM is about looking at the resource as a whole, setting laws and direction based on best scientific knowledge with a small bit of educated guesswork, taking the wealth of coastal laws and having the LGU, in coordination with the communities, to actually implement these equitably for the good of the majority. If CRM is successfully implemented by strictly enforcing the law, it will benefit 95% of the coastal communities, on the whole the smaller fisherfolk. Certainly, a few will be affected — the 5% who are at present practicing unsustainable and illegal activities. The integration of all concerned sectors of the society for the "co-management" of the resources is a key concept of CRM.

CRM in Bohol has so far provided many lessons learned on how to rehabilitate and improve the quality of the coastal and marine ecosystems. Its institutionalization in the province and the positive changes it has provided continue to challenge all stakeholders to sustain it and inspires other provinces to do the same. There is, however, a need to amplify and replicate these experiences across the whole province, for which there is still a long way to go. CRM is essentially a never-ending cycle of planning, implementation, monitoring and evaluation of CRM related activities and continuing implementation based on the learnings from the previous project cycle.

Within Bohol, as laid down in the Local Government Code of 1991, it is the municipality which is the key "owner" or "manager" of all coastal resources and municipal waters which extend 15 km from the shoreline. CRM should therefore be considered as an essential and basic service of the municipality. By managing the development of the large coverage of coastal waters, the LGU can also steer its town towards prosperity through food security to improve and sustain the quality of life of coastal communities, and through other revenue-generating activities.

The LGUs must be in the forefront of the CRM planning process and should urge their partner agencies from the national government agencies (NGAs), non-government organizations (NGOs) and people's organizations (POs) to work together towards one direction. The communities and resource users must also be involved if true CRM governance is to be realized. If all these stakeholders are gathered together, CRM will be successful and the LGUs will reap the benefits of development.

CRM is not like planning for any physical structure, which, after a period of time, one sees the immediate and visual result. It is a gradual and consistent process that takes time before any tangible and intangible benefits are experienced by coastal communities. Thus, it is important for the LGUs and their development partners to really research into the socio-economic and bio-physical changes brought about by their projects. If successful, however, the CRM project can have a huge impact on the whole municipality (this is discussed further in Chapter 7).

No resource is inexhaustible. The increasing population trend in the province is indicative of both the fair amount of resources in Bohol and the possible decline in its critical habitats. The resources are not being distributed equally and equitably and are controlled by a few individuals who, on the whole, use illegal methods to catch the fish. Bohol's coastal resources are still largely in an open access situation and only when they are collectively considered as owned and managed by the stakeholders, with the LGU in the forefront of CRM, will they be secured.

CRM is a strategy to help the people come to terms with the burgeoning coastal issues and let them get involved themselves. It is also not only about managing the resources, but managing the people as well and how they utilize such resources.

The lead agency for CRM has to be the municipal LGU, and CRM should be considered as a basic form of governance and a basic service of the LGU. It should no longer be a "luxury" or optional activity.

At present, a large number of local and foreign funding agencies, NGAs and NGOs are working on various CRM activities in the province. There are many CRM related activities going on in the province. It is therefore important that these are wisely and strategically spread around Bohol. There should also be counterparting as these activities need to be institutionalized in the communities, villages or *barangays*, municipalities and the province to ensure their sustainability beyond the funding life span.

The framework is set and there are many models of good CRM practices in the province. It is time now to replicate them, amplify their impacts, and really institute a true pro-people development by ensuring the safeguards of CRM among the coastal communities of Bohol.