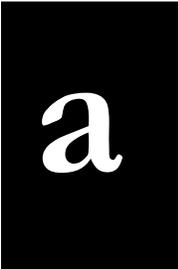




## Chapter 7

# ***COASTAL MANAGEMENT ISSUES and OPPORTUNITIES***



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As is the case in most areas of the Philippines, the natural resources of northwestern Bohol are not being used in a sustainable fashion and are therefore limited in supply. However, considerate management of the coastal ecosystems has the potential to yield substantial returns to the local populace. While the short-term priority of management is to increase the productivity of the coastal resources, the long-term management objectives should be sustainable economic growth as well as maintaining ecosystem functions and more equitable access to these resources.

The environmental thrusts of the provincial government is underscored by its vision for the province, to wit: "Bohol is a prime ecocultural destination and a strong agro-industrial province with an empowered and self-reliant people who are God-fearing, law abiding, proud of their cultural heritage and committed to the growth and protection of the environment." To achieve and sustain this vision, there is a need to continuously transform Bohol's social, political and cultural life through effective collaboration of people from various sectors of the province. One of the goals of the province is to ensure sustainable growth in revenues from major industries that adhere to a sustainable framework for developing, utilizing and managing the environment and natural resources of Bohol.

To operationalize its vision for Bohol, the provincial government endeavors to establish an effective government-private sector collaboration and partnership and an LGU organization with maximum efficiency and effectiveness in the following concerns: 1) Utilizing, developing and managing the resources of the province and the LGU; 2) Managing environmental and

natural resources for sustainable development; 3) Delivering quality services; 4) Catalyzing opportunities and creating values for investment and production; and 5) Providing for minimum basic needs. This chapter reviews the various management issues and opportunities for interventions in the profile area of northwestern Bohol.

### ISSUES AND CAUSES

The northwestern coast of Bohol is a potentially productive natural ecosystem. However, the growing presence of human communities highlights the increasing need for considerate management of this area in order to yield substantial returns to the people.

The main issues revolve around destructive fishing techniques, overfishing, the relatively low productivity of agriculture and the lack of viable local employment. Future economic sub-sectors such as tourism and aquaculture have potential as community-based industries, as long as careful management is practiced so that social and environmental degradation does not occur.

The management issues raised by local resource users, community members, local government officials and nongovernment personnel are summarized as follows:

#### A. Biophysical

Issues	Causes
Coral reef degradation	<ul style="list-style-type: none"> <li>● Unregulated blast fishing, use of cyanide and other destructive methods by fishers who are not aware of the negative effects and driven to such methods by poverty</li> <li>● Harvesting of corals for small-scale industries including construction</li> <li>● Destruction of habitats and spawning grounds</li> </ul>
Declining fish population	<ul style="list-style-type: none"> <li>● Water pollution</li> <li>● Poverty</li> </ul>
Overfishing/Illegal fishing practices	<ul style="list-style-type: none"> <li>● Lack of awareness</li> <li>● Lack of alternative livelihood</li> <li>● Weak or lack of law enforcement</li> </ul>
Degradation of mangrove areas	<ul style="list-style-type: none"> <li>● <i>De facto</i> open access regime</li> <li>● Conversion into fishponds, some of which have been left idle</li> <li>● Agricultural/industrial expansion</li> <li>● Lack of awareness of the economic benefits of mangroves</li> <li>● Unmanaged or unregulated harvesting or collection of mangrove resources</li> </ul>
Degradation of watersheds	<ul style="list-style-type: none"> <li>● Improper agro-forestry techniques</li> <li>● Slash-and burn (<i>kaingin</i>) farming in upland areas</li> </ul>
Sedimentation of coral reefs	<ul style="list-style-type: none"> <li>● Run off from upland areas that have been cleared for farming</li> </ul>
Deterioration of coastal water quality	<ul style="list-style-type: none"> <li>● Lack of wastewater and solid waste disposal systems</li> <li>● Dumping of garbage in coastal areas/mangroves due to lack of sanitary landfills</li> <li>● Lack of toilet facilities</li> <li>● Increased industrial discharge</li> </ul>
Coastal erosion	<ul style="list-style-type: none"> <li>● Rampant quarrying activities</li> <li>● Construction of structures on beaches and offshore</li> </ul>
Mining	<ul style="list-style-type: none"> <li>● Mostly open-pit mining; the once mined area becomes an eyesore and useless for agriculture and other uses. Under the Philippine Mining Act of 1996, over 100,000 ha have been covered by national mining permits within Bohol alone. This is almost 25 percent of Bohol's total land area of 411,746 ha.</li> </ul>

**B. Socioeconomic**

Issues	Causes
Low productivity of arable land	<ul style="list-style-type: none"> <li>● Eroded topsoil</li> <li>● Improper land management techniques</li> <li>● Poor crop selection</li> <li>● Lack of certified seeds and access to high-quality planting materials</li> <li>● Reluctance to try new crops/techniques</li> </ul>
Inadequate fish stock	<ul style="list-style-type: none"> <li>● Overfishing brought about by open access and lack of management restrictions</li> <li>● Too many fishers</li> <li>● Non-observance of fishing seasons</li> <li>● Destruction of spawning grounds</li> <li>● Lack of control over large-scale fishing operators encroaching on municipal waters</li> </ul>
Increasing population density and encroachment upon non-settlement land	<ul style="list-style-type: none"> <li>● Rapid population growth</li> <li>● Lack of viable housing within settlement land</li> <li>● Lack of awareness of the degradation of the environment and its consequences</li> <li>● Lack of zoning and land-use plan</li> </ul>
Lack of alternative forms of income generation	<ul style="list-style-type: none"> <li>● Inadequate resources for studying the potential of alternative livelihood</li> <li>● Inadequate resources for adopting alternative livelihood activities</li> <li>● Traditional reliance for jobs in the declining agricultural sub-sector</li> </ul>
Inadequate supply of potable water	<ul style="list-style-type: none"> <li>● Lack of infrastructure</li> <li>● Lack of priority for potable water system development</li> <li>● Increasing population pressure on limited water resources</li> <li>● Contamination of ground water by coliform and saltwater</li> </ul>

**C. Institutional**

Issues	Causes
Overlapping/Conflicting coastal resource management responsibilities of government agencies	<ul style="list-style-type: none"> <li>● Poor coordination between and within LGU departments, government agencies, NGOs and POs, and lack of understanding of each other's roles and jurisdiction</li> <li>● National laws or bodies supersede their local counterparts (e.g., the management of mangrove areas within municipal boundaries falls within the jurisdiction of national agencies)</li> </ul>
Inadequate planning and implementation and monitoring capability of LGUs	<ul style="list-style-type: none"> <li>● Lack of trained personnel, financial resources and equipment</li> <li>● Lack of political will</li> <li>● Lack of multi-year and multi-agency CRM plan based on actual issues and site-specific problems</li> </ul>
Lack of community liaison/organizing experience	<ul style="list-style-type: none"> <li>● Lack of awareness of the need for liaison/organizing</li> <li>● Lack of local leadership</li> <li>● Traditional reliance on doleouts and top-down management approaches</li> <li>● Weak organization in community organizations and LGUs</li> <li>● Lack of institutional strengthening capability</li> </ul>

**D. Legal**

Issues	Causes
Poor enforcement of existing regulations	<ul style="list-style-type: none"> <li>● Confusion over national and local laws (e.g., which fishing gears are illegal and which are not; the fine to be imposed varies between local and national levels)</li> <li>● Lack of properly trained personnel</li> <li>● Political interference</li> <li>● Lack of community awareness of relevant regulations</li> <li>● Lack of priority for coastal law enforcement among law enforcement agencies</li> </ul>
Limited definition of coastal zone	<ul style="list-style-type: none"> <li>● Lack of awareness of the interrelationships between coastal and land ecosystems</li> </ul>
Conflicting regulations on CRM	<ul style="list-style-type: none"> <li>● Lack of coordination and collaboration among neighboring LGUs in law enforcement and standardization of CRM legislation</li> </ul>
Ignorance of existing regulations	<ul style="list-style-type: none"> <li>● People's general lack of awareness and education on such regulations</li> </ul>

## OPPORTUNITIES

A well-planned CRM plan can bring about a wealth of benefits such as healthier coastal resources directly leading to healthier communities, cheaper and more abundant food, more equitable access to resources and food security, to name a few. With these paybacks, it is hoped that the top government officials and their employees as well as leaders of coastal communities and their development partners will continue advocating for better coastal management practices. As the efforts of these concerned entities intensify, it is hoped that each municipality in the profile area will become a model for CRM within Bohol.

Looking at the bigger picture, there is a great opportunity for the LGUs to close ranks and gain the benefits of a more coordinated CRM over larger areas. Migratory fishes know of no political boundaries and are contiguous, thus managing them across borders is much more beneficial and cost-effective in the long run. If the LGUs can do this in northwestern Bohol, they will be producing a network of valuable CRM "showcases" which should serve as model for the rest of Bohol. Meanwhile, each municipality in the profile area has its own "CRM highlights". It is hoped that the LGUs will build on these developments to achieve the more elusive CRM showcase that Bohol and the rest of the Visayas badly need.

## ONGOING "SHOWCASES" IN THE PROFILE AREAS

### Loon

The local governance of Loon is led by an alliance of young and energetic administrators and legislators. The CRM efforts initiated in the mid-1990s under the guidance of then Vice Mayor Cesar Tomas M. Lopez have been carried on to the present when the latter became municipal mayor. With Vice Mayor Raul Barbarona at its helm, the FARMC of the municipality is one of the most active in Bohol. In fact, the strength of the FARMC paved the way for Loon's inclusion as a CRMP expansion town. Meanwhile, SB Member Felix Marcojos is initiating local legislation on CRM with the support of the other pro-CRM municipal officials.

Using a participatory approach and through a series of consultations with the coastal communities, the FARMC has solved a variety of issues affecting CRM in Loon. These include illegal intrusion of large-scale fishing operators into municipal waters, rampant construction of *payaw* or FADs and use of corals in the 'stone-washing' of denim for the progressive garment industry of the municipality.

The CRM program has been initiated by the LGU with the help of a local NGO. Presently, several good community-based CRM practices have been set in place. Among these are proper mangrove management, small enterprise development, and marine protected areas. With its large number of coastal and island barangays (31), which is almost one-half of the total number of barangays (67), Loon offers a good opportunity for replicating these

practices. A very strong and committed local leadership will ensure that such practices will continue into the future.

Meanwhile, the Philippine Navy has "adopted" the waters off Loon as a priority area for environmental rehabilitation along with 6 bays in the Philippines. The Navy's "Adopt a Bay" project was launched on 18 May 1999 and is covered by Letter of Instruction 12-99 issued by Vice Admiral Eduardo Ma. Santos, the Philippine Navy Flag Officer in Command.

Loon has great potential for ecotourism. Cabilao Island, for example, is frequented by many local and foreign tourists specifically for its being identified as one of the top 5 dive spots in the Visayas. The LGU plans to involve the divers in marine protection through a system of fund collection to support a local team that patrols the area to discourage any form of destruction and maintain its pristine condition. Nearby is Mualong river that offers a beautiful cruise along well-preserved banks up to its upper nooks until one reaches a beautiful waterfall.

### **Calape**

The tandem of Mayor Julius Caesar Herrera and SB Member Gerardo Cuadrasal Jr., as well as the lawyer mayor's influence through the League of Municipalities of the Philippines (LMP), has brought very favorable developments to Calape as regards CRM. Mayor Herrera is president of the LMP-Bohol Chapter and vice president for operations of the national chapter. Cuadrasal is chairman of the Environment Committee and vice chairman of the Fisheries and Agriculture Committee of the SB alongside Vice Mayor Gaudencio G. Marapao. The rest of the SB members are also pro-CRM.

In terms of good CRM practices, Calape has 4 protected marine areas, 2 of them very well managed. BIDEF, a local NGO, has launched a livelihood program and organized a fisherfolk federation. The BFAR-managed Calape Fishery Complex focuses on the development of culture technologies for fish and other economically important marine organisms. The LGU, in coordination with CRMP, is assessing the culture of seaweed (*Eucheuma* spp.) on Mantatao Island in an attempt to produce a sustainable alternative enterprise that can replace present sources of income. Meanwhile, Pangangan Island is DENR-CENRO's very successful pilot site for its CEP. Boosting the municipality's advantage are 2 campuses of the CVSCAFT. The CVSCAFT is mandated to perform the 3-fold function of training, extension and instruction on agriculture and allied sciences including fishery.

In view of the many agencies working on CRM in Calape and the importance of pursuing common directions and defining a unified goal in line with the thrusts of the LGU, the latter established the first Coastal Resource Management Office (CRMO) in Bohol. Despite being a new unit, the CRMO now has a staff and has acquired a budget and equipment. The CRMO was created due to the realization of the LGU that the coastal area of Calape is almost as large as its land area, yet it never had resources allocated for its

management. This coastal "workhorse" of Mayor Herrera is envisioned to provide information and mechanisms to guide the LGU in planning for the management of its municipal waters.

Mayor Herrera's commitment to CRM has been manifested not only through his full-force advocacy within the provincial and national chapters of the LMP. He has outdone himself by going beyond advocacy, allocating PhP 1 million for the CRM activities of Calape for the year 2000. This sets a very good example of a high commitment to CRM within Bohol.

### **Tubigon**

The municipality seems to have the longest experience in CRM compared to the other profile areas as it started its focus on CRM during the early 1990s. Sustaining the leadership of the past administration are the present mayor, Paulo Lasco; Vice Mayor Renato C. Villaber; SB Member Gerardo F. Chagas, who is vice chairman of the SB Committee on Fishery and Agriculture; MPDC Noel Mendaña, who is the CRM action officer of Tubigon; and MAO Epitacio Mumar, who chairs the FARMC. These persons paved the way for the development of a good CRM program and the entry of NGOs and projects such as Haribon Foundation, Feed the Children, LOGODEF, IMA and CRMP which have been helping the LGU implement their CRM projects.

LOGODEF is presently helping launch a series of mariculture projects. A Technical Working Group (TWG) headed by the mayor is now preparing a 5-year participatory ICM plan for the municipality which already has its own environment code. Once finalized, this plan will be the first for Bohol. CRMP is working in 2 pilot barangays, Batasan and Bilangbilangan, through the Haribon-CRMP-Project Seahorse collaboration. On the other hand, Tubigon's boundary dispute with Clarin as regards "*Lima ka Puló*" (Five Islands) remains unresolved and could trigger a threat to the smooth implementation of the LGU's CRM plan in the future.

### **Clarin**

Clarin is catching up fast in CRM because of the active support of Mayor Trifon Sanchez and Vice Mayor Teresita Aron. A Municipal Fisheries-TWG composed of all organizations involved in CRM serves as the LGU's 'think tank'. This TWG was able to obtain financial support from JICA for some community-based CRM projects implemented in collaboration with the ATI of the DA. One of such projects is a shellfish sanctuary which is probably one of the first of its kind in Bohol. Currently, the CRMP-Haribon partnership is implementing a CBCRM project in the barangays of Lajog and Ubojan. Also, a very strong organization of fish wardens has been working well for the last 2 years. This group was able to derive assistance from the BFAR for implementation of a fish cage project on the above mentioned 5 islands. They are also patrolling regularly to minimize the once rampant illegal fishing in the area.

The CVSCAFT has a satellite campus in Clarin that offers a special course in CRM, another first for Bohol. Formerly the Clarin School of Fisheries, the school will now be involved in fishery research and extension, in addition to education/instruction, as mandated in its charter. This will be a good opportunity for producing CRM graduates and linking with all the other CRM initiatives in Bohol.

There is currently a municipal boundary dispute with Tubigon, although Clarin's coastal area has been declared under the NIPAS Act, thus under the jurisdiction of the DENR through the Protected Areas Management Bureaus (PAMB). This issue has been raised to the courts for resolution. It is hoped that a workable compromise between the 2 LGUs shall be adopted. Furthermore, the municipality has yet to flex its muscles with regard to passing ordinances related to CRM and fisheries. In fact, only 1 coastal related ordinance is in effect in Clarin. Institutionalizing CRM in the LGU through ordinances is thus urgent in view of the impending election for local officials.

### **Inabanga**

The dynamic and progressive leadership of Mayor Josephine Socorro Jumamoy, alongside a very supportive vice mayor and SB, has introduced some interesting changes in the local governance of Inabanga. With a no-nonsense campaign against illegal fishing launched just 6 months after her entry as mayor, the lady executive has literally cleaned Inabanga of illegal fishing operators many of whom have transferred their activities elsewhere. Aably assisting the mayor in strictly implementing fishery laws is SB Member Francisco L. Alesna Jr. who chairs the SB Committee on Fishery and the FARMC. The latter has established a system of remunerating the fish wardens from a certain percentage of the fine imposed on the arrested violators, which has provided an incentive to stamping out illegal fishing.

Inabanga is Bohol's first recipient of a 30-million loan-grant-equity mix from the World Bank/Government of the Philippines (GOP (through the DOF)). The financial assistance shall be used over a 3-year period for the implementation of coastal and upland projects as well as small infrastructure under the CBRMP. With 7 coastal barangays as initial project sites, the CBRMP shall focus on reforesting 147 ha of mangrove and establishing 2 marine sanctuaries. The municipal mayor spearheads the implementation of the CBRMP through the Inabanga Resource Rehabilitation and Development Project with SB Member Hermogenes Cenabre Jr. as project manager. The 33-member Cagawasan Mangrove Association, on the other hand, has been awarded a Community-Based Forest Management Agreement (CBFMA) covering 160 ha of mangroves along 1.4 km of shoreline.

The Haribon Foundation implements activities in the coastal barangays of U-og and Ubojan. It has coordinated with the LGU in response to the latter's need for appropriate CRM projects. On the other hand, the town's boundary dispute with Clarin in relation to some islands needs to be resolved to ensure a smoother CRM implementation over the coming years.

### **Buenavista**

The active partnership of Mayor Leandro Tirol and Vice Mayor Apolonio Aparece, and the support provided by Hon. Romeo Torregosa and his colleagues in the SB; MPDC Efen Logroño, chairman of the FARMC; and Lino Divinagracia, the only MAO in the profile area with a degree in fisheries, have made the implementation of CRM easier and smoother.

With most of its natural resources intact, Buenavista has embarked on ecotour promotion. In cooperation with the enterprise development component of the CRMP, an oyster farm cum ecotour destination has been established in the Cambuhat river community in collaboration with the FCB Foundation, Inc., the LGU and the barangay council. Partnerships with interested groups are currently explored in support of this endeavor including that with the Bohol Federation of Travel and Tour Operators.

The SB has a good selection of municipal ordinances which include the declaration of the Daet river as a marine reserve and banning the collection of *donso*, a local sea hare that bears a delicious egg case. *Donso* is believed to possess properties that can prevent cancer albeit the absence of any scientific evidence.

Like Inabanga, Buenavista has also received initial funding for the World Bank/GOP (DOF)-assisted CBRMP in 5 of its 8 coastal barangays. The large tract of mangroves warrants inclusion in the community-based forest management program of the DENR. An aquasilviculture project in the barangay of Hunan, which is supported by the regional office of the DENR, is worth exploring for possible replication. The CRMP through its partnership with Haribon is working in Asinan and Hunan as model barangays for community-based CRM.

### **Getafe**

Getafe's inclusion as a CRMP expansion area in 1997 is attributed to its many coastal areas -- 11 coastal barangays and 8 island barangays. At the helm of this municipality are Mayor Cariso Camacho and Vice Mayor Simeon Torreon who are ably supported by MAO Abundio B. Melencion and SB Member Carmelin Abay, chairman of the Committee on Fisheries and CBRMP project officer.

Getafe is well-known for its Banacon Island, which is considered as having the largest mangrove reforestation in the Philippines. Although a protected area under the NIPAS Act, the island is now in the process of being subject of a CBFMA between a PO (i.e., Banacon Fisherfolk and Mangrove Planters Association with 75 members) and the DENR. The covered area is estimated at 1,775 ha along 11 km of shoreline. Banacon, however, is under dispute as the LGU would like to develop its ecotourism potential and there are moves to declare it as an ecotourism zone through the Philippine Congress.

The municipality has other CRM activities, such as: DENR-CEP on Mahanay Island; seahorse sanctuary of Haribon's Project Seahorse in Barangay Handumon on Jandayan Island; CBFMA in Nasingin; and establishment of several marine sanctuaries. Meanwhile, many fishers from the municipalities that have totally banned illegal fishing (e.g., Inabanga) have encroached on Getafe's municipal waters, thus requiring the active involvement of the fish wardens. Worthy of attention and protection is the only double barrier reef in the Philippines -- the Danajon Bank composed of the Calituban and Caubyan reefs, both of which touch on Getafe's municipal waters.

### **Provincial Opportunities**

Bohol's popularity as a pilot site for CRM/ICM projects is proven by the many developmental projects in progress or proposed for Bohol. The BEMO illustrates the potential for more concerted activities in the future. CRMP has recently drawn up a Memorandum of Agreement (MOA) with the province, the BFAR and DENR will operationalize the BEMO's mandates. Serving as a 1-stop shop for environmental initiatives, the BEMO is expected to form an umbrella for all CRM activities in Bohol and act as synthesizer and standardizer of Bohol's CRM initiatives. It shall also monitor and evaluate these activities and draw lessons from them.

The recently launched CBRMP which derives financial support from the World Bank through the DOF also offers a wide array of opportunities for Bohol's coastal and upland areas. The municipalities of Loon, Calape, Inabanga, Buenavista and Getafe have already made commitments and begun to work with CBRMP's Cebu-based management group. Seven other coastal municipalities are currently at varying stages of application.

The PCG also offers another opportunity for marine protection and fishery law enforcement. It has more than 45 full-time staff working in the province, with headquarters in Tagbilaran and sub-offices in the ports of Catagbacan (Loon), Tubigon, Getafe, Pres. Carlos P. Garcia, Jagna and other towns.

Six Bohol schools, 3 of which focus on fishery education, have been converted into the CVSCAFT system. Being a state institution, the CVSCAFT is qualified to receive appropriations from the national budget for staff development and facilities improvement, and become a member of regional and national research and development consortia. This provides the college an opportunity to present its research and extension plans and outputs to the experts thus improving the capability and credibility of its research and development staff. This process also makes the thrust of the college more responsive to the development interests of the province and the LGUs.

Also active at the provincial level is the PENRO-chaired PCRMTF. Its members come from all agencies that have jurisdiction over coastal-related issues.

The SP recently passed Resolution No. 99-618 creating a Sub-Committee on Marine and Coastal Resources for legislation purposes. There is now a CRM liaison officer based at the Special Projects Unit of the SP. This milestone act of the SP manifests the local governance's support for the environment as mandated in the Bohol Environment Code.

## **RECOMMENDATIONS**

To meet the challenge presented by the coastal management issues in northwestern Bohol, the following strategies promoting good CRM practices are recommended:

### **1. LGU Budget Allocations**

CRM activities must be included in the development plan of the municipality for budget outlay purposes. Based on the current levels of LGU funding, a minimum of PhP 250,000 is being allocated for CRM within northwestern Bohol. Considering that municipal waters are wider compared to land area, this amount is disproportionately small. In LGUs which have no aquaculture technician, it is strongly advised to assign at least 1 person, preferably a Fishery graduate with CRM experience, at the MAO to handle CRM matters.

### **2. Organization of CRM-focused Groups**

The Philippine Fisheries Code of 1998 mandates that the FARMC should be the lead organization for matters concerning the management of and policy decisions for the municipal coastal resources. It should work together with the SB to strengthen policy guidelines on CRM. As provided in the Bohol Environment Code, the BEMO shall organize the FARMC and orient its members on their respective roles. Municipal FARMCs should also be equipped with capability-building skills.

Although facilitated mostly by NGOs, the organization of barangay FARMCs should be given attention by the LGUs because they are essential for institutionalizing and sustaining the various community initiatives and projects such as marine sanctuaries and mangrove forests. Barangay-based POs including FARMCs should also be given a strong voice at the municipal level through their federated organizations. NGOs should gradually and effectively phase out from the community to enable the POs to chart their own development by themselves.

In municipalities where there are several groups conducting CRM-related activities and where CRM issues require special attention, organizing Municipal Technical Working Groups (MTWGs) is recommended to coordinate all their efforts. The MTWG may be headed by an LGU representative and its members may come from the FARMC, SB Committees on Fishery and/or Environment, MAO, Municipal Planning and Development Office (MPDO), DENR, BFAR, NGOs, PO federations, and other qualified groups. Quarterly and special meetings are recommended for the group.

The LGUs may decide to split into districts and form their own management group. There is a strong logic behind the LGUs working together to attain a common objective.

### **3. Participatory Coastal Resource Assessment; Monitoring of Fishery Status and Trends**

A municipality or barangay derives valuable information from the results of a PCRA which should be a planning requisite. If supported with relevant maps and other illustrations, and properly consolidated and validated, such information is significant in participatory CRM planning for the municipality or barangay. This information should also be combined with the municipal coastal database and the natural resources database maintained by the BEMO.

After every PCRA, the LGUs, POs or fisherfolk associations should be encouraged to conduct regular (i.e., annual or biannual) assessments of their coralline areas, seagrass beds or mangrove ecosystems. Fish catch and fishing efforts should be monitored by using appropriate methodologies similar to those employed by the Feed the Children in Tubigon. Whenever necessary, there should be involvement of the whole community, GOs (e.g., DENR-CEP, BFAR), NGOs or even educational institutions such as the CVSCAFT. A system of registration of all fisherfolk within the municipality may be adopted to facilitate monitoring of fish catch and other trends. Tubigon is currently adopting a good licensing system for this purpose. A marine protected area monitoring scheme for communities is also being conducted in Lomboy on Pangangan Island in coordination with the University of the Philippines Marine Science Institute. Similar initiatives should be replicated in other areas.

### **4. Strengthening of Legislation and Law Enforcement**

Municipal legislation on CRM should be given favorable attention. Such legislation may cover prohibition against illegal fishing practices and coral or sand quarrying, licensing of current and new municipal fishers, establishment and management of fish sanctuaries, declaration of open and closed seasons for fishing, creation and recognition of CRM advisory bodies/councils, and establishment of municipal trust funds for CRM. The latter should be established for the fines collected from the arrested violators. The collection should be deposited in this trust fund instead of the general fund so that it could be properly monitored and used to maintain the patrolling activities and other CRM-related efforts.

Fishery laws should be strictly enforced and all arrested violators treated equally with regard to imposition of penalty and fine. It seems that swift, painful and public enforcement is the most lasting and effective. Law enforcement should also be done in coordination with the fish wardens now deployed by some LGUs of the profile area.

Each LGU should be equipped with at least 2 motorized patrol boats, gasoline and maintenance funds. The *Bantay Dagat* team must also be provided with communication equipment and modest honoraria and insurance. A composite team of fish wardens, FARMC members, barangay and municipal officials, and the PNP members seems most effective.

Also, a strong linkage with the PNP-MARICOM should be established. All these law enforcers should participate in para-legal training and other capability-building activities. Together with the market personnel, they may also be trained in detecting fish caught through illegal means. Such fish should be rejected or confiscated. Consumers should also be informed of the danger of eating poisoned fish and the impact of illegal fishing.

Guardhouses are necessary while appropriate areas for routine checks have to be identified. It is advised that each LGU should assign not less than 4 PNP members for law enforcement, with 2 assigned during each shift (i.e., day and night). The carrying of firearms by the civilian members of the patrol team should be discouraged. Only the PNP personnel should be allowed to handle firearms.

Inter-municipality agreements that allow a patrol team of an LGU to pursue and arrest violators in waters within another LGU's boundary should also be encouraged. A combined law enforcement program for Cebu and Bohol is recommended. This should be developed by concerned provincial, regional and national partners. Cebu City has a very active *Bantay Dagat* Task Force which can be tapped to support inter-LGU collaboration.

### **5. Establishment of Marine Sanctuaries and Other Protected Areas**

Well-protected marine sanctuaries are practical tools for the rehabilitation of coastal resources. Each LGU should try and declare at least 1 protected area through a community-based participatory process involving all affected stakeholders and members of the community. The latter, however, should prepare a good management plan and draft a resolution requesting the appropriate municipal or provincial legislator to file an ordinance declaring certain areas as protected.

A fish sanctuary is a lifetime commitment, thus a lot of information dissemination and community consultations will be required. A good way of involving persons in the process is taking them to a model site where they can observe good practices and interact with the community. In the profile area, the recommended well-managed sites, all of which are over 3 years old already, include the following: Barangay Cabaongan on Cabilao Island and Barangay Calayugan Sur on Sandingan Island (Loon); the barangays of Lomboy and Magtongtong on Pangangan Island (Calape); and Barangay Handumon on Jandayan Island (Getafe).

### **6. CBFMAs for Mangrove Areas**

Households of coastal communities near mangrove areas should be encouraged to apply for stewardship contracts with the DENR. Good examples are in Nasingin Island, Getafe (with over 300 ha awarded to qualified community members) and in Kagawasan, Inabanga (with 160 ha).

Through the CBFMAs, the stewards will be able to manage and protect as well as practice alternative livelihood options such as production of roofing materials (i.e., *nipa* thatches), culture of mud crabs, collection of wood for fuel and construction purposes, concoction of herbal medicine, harvesting of foliage for cattle feeding, production of *tungog* (natural dye for *tuba* or coconut toddy), and establishment of bird and wildlife sanctuaries for ecotourism. Their 25-year stewardship and traditional management techniques should prove to ensure the sustainable use and protection of the remaining mangrove forests of Bohol.

### **7. Fishpond Conversion**

Following the mandated process, fishponds that are illegally constructed and/or left idle should be recovered and turned over to the community for appropriate management. A provincial TWG headed by the BFAR has been established to initiate this process, which should be started as soon as possible. Current BFAR data show that there are about 1,257 ha of permitted fishponds in Bohol, yet there are more than 2,100 ha of illegally constructed ones in the province.

### **8. Enterprise Development Activities**

Alternative or supplemental activities should be explored in view of the decreased fish catch and the need to reduce dependence on the degraded coastal resources. Some potential products or activities worth considering are seaweed (*Eucheuma*) farming for Jandayan (Getafe), Batasan (Tubigon) and Mantatao (Calape); mariculture products such as oyster for Cambuhat (Buenavista) and Inabanga; mud crab fattening for Inabanga and Buenavista; small-scale production of fish in cages; and ecotour development for Cabilao Island and Mualong river (Loon) and Cambuhat. For all these possibilities, funding has to be made available. The OPA, BFAR, DENR and other government agencies can be tapped for this purpose along with local or international development-oriented NGOs.

### **9. Seminars, Workshops, Training Activities and Other IEC Strategies**

ICM/CRM workshops, training activities and other IEC strategies should be conducted or implemented for the various stakeholders through appropriate venues. These should focus on community leadership, fishery laws, participatory planning and zoning, roles and responsibilities of FARMC, PAMB jurisdiction, alternative livelihood, fish sanctuary management, resource management and other best-of-the-moment practices. Each activity should be preceded by a training needs assessment and should complement the various ongoing activities in the barangay or municipality.

### **10. Monitoring of Organizations and Projects Assisting the CRM Activities of LGUs**

LGUs should be encouraged to participate in the planning process of GOs and NGOs especially if these groups operate within their jurisdiction. It is also important that the LGUs should receive reports/outputs from these agencies and keep records of their assistance. In Tubigon, there at least 5 NGOs working with coastal communities and

advocating ICM/CRM approaches. With the assistance of the BEMO and through effective monitoring and coordination, the role of each NGO has been properly defined in relation to those of the others. When properly coordinated, all agencies can work together under the CRM umbrella of the LGU.

The doleout system should be discouraged. NGOs should coordinate fully with the municipal LGUs and can even request counterpart funding from the latter. A good example of an effective collaboration is presented by the Tubigon LGU which gave a PhP 200,000 counterpart to LOGODEF and PhP 100,000 to Feed the Children for their CRM activities within the town.

### **11. Delineation of Municipal Water Boundaries**

LGUs must collaborate with the DA-BFAR and NAMRIA in defining their municipal waters. The Tubigon-Clarín and other disputes should be resolved by the appropriate government agencies as soon as possible. Buenavista and Inabanga also need to delineate their boundaries as there are inconsistencies in their respective municipal maps vis-à-vis their water boundaries.

### **12. Integrated Coastal Management (ICM) Planning**

It is strongly recommended that each LGU should conduct a participatory development of a multi-year ICM plan for at least 5 years such as those being developed by Calape and Tubigon. The following are some of the activities recommended for inclusion in an ICM plan as well as their objectives and strategies (Yambao 1999).

ICM planning is a process of comprehensively studying resources, economic activities and societal needs, including problems and opportunities in the designated planning area or zone and proposing future actions (Clark 1995). It is a process of organizing ideas and resources to make things happen. Two questions are important to be answered in planning: (1) What do you want to happen? and (2) How do you want it to happen?

An ICM plan for any area (barangay, municipality or city, multi-municipal wide) requires basic contents to make a good plan. The essential parts of a good plan follow (White 1999):

- 1. Description of the area** provides background information. This can include geography, demography, important coastal resources and their condition, socioeconomic status of the people, institutions and laws and other relevant information for management.
- 2. Maps** of different scales are needed. Include a map of the entire area and detailed maps of the coastal area with resource locations and use patterns, existing management interventions and other data.
- 3. Management issues** must be clearly stated along with their contributing causes and factors. Trends in decline of resources can be used to illustrate issues of concerns.

4. **Goals and objectives** should derive from the main issues. The goal is broad while each objective must be achievable and measurable within the 3-to-5-year life of the plan.
5. **Strategies and actions** are the heart of the plan. One strategy and several actions with assigned responsibilities should address each major issue. A strategy is a well-conceived means to solve a problem. The actions implement the strategy. Actions can be budgeted.
6. **Institutional and legal framework** is needed to support plan implementation. This section explains what institution is responsible and why as supported by law.
7. **Timeline** for implementation helps organize all responsible parties to implement the plan.
8. **Monitoring and evaluation** must be included as a set of activities to provide feedback on plan implementation and impact on environment.

The following are some of the basic programs and strategies on coastal management. A number of strategies have been proven technically feasible and are being implemented in some LGUs. However, aside from looking at the technical feasibility of each program and strategy, social acceptability is also important. Note that the success of program implementation lies on both technical feasibility and social acceptability.

Strategies are not exclusive to one program. There are strategies that can be used in 2 or more programs, such as the establishment of sanctuary -- a strategy in fisheries management and in habitat management. There are also cross-cutting strategies, such as IEC and community organizing, that are applicable in all programs. The strategies can be operationalized through specific activities and actions.

**Table 7.1. ICM planning.**

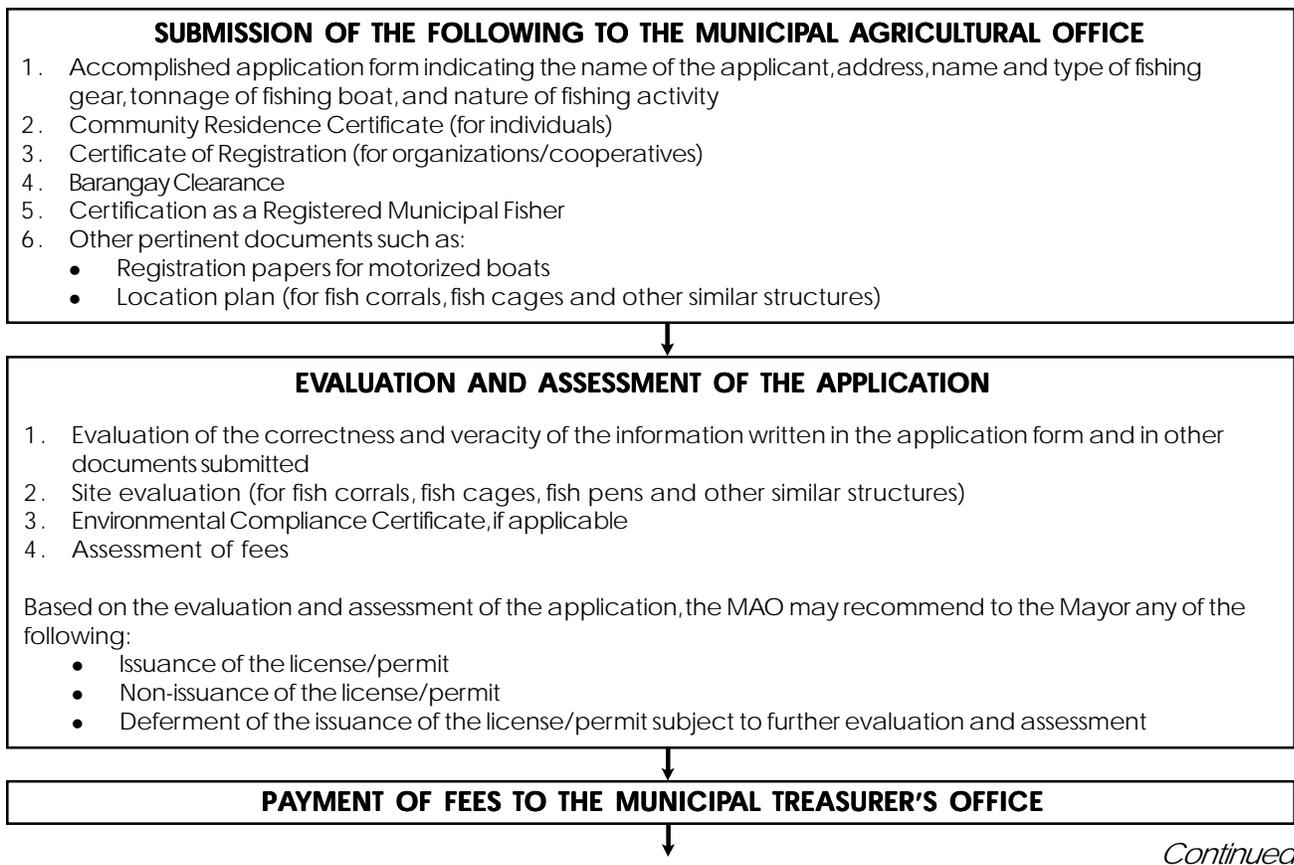
Activities/Objectives	Strategies
<p><b>1. FISHERIES MANAGEMENT</b></p> <ul style="list-style-type: none"> <li>● To increase productivity of fishery resources to support food security</li> <li>● To regulate access to the municipal waters and reserve the resources therein for the benefit of the municipal fishers</li> <li>● To regulate the exploitation of fishery resources and limit fishing effort to sustainable levels</li> <li>● To ensure the rational and sustainable development and management of fishery resources</li> <li>● To develop monitoring, control and surveillance mechanisms and strengthen law enforcement units</li> <li>● To ensure equity in fisheries exploitation</li> </ul>	<ul style="list-style-type: none"> <li>● Establishment and management of marine protected areas or fish/marine sanctuaries</li> <li>● Designation of closed season in harvesting commercially and ecologically-important fish and invertebrates during their spawning season and/or their juvenile stage</li> <li>● Designation of closed areas for identified migration routes of commercially and ecologically-important fish</li> <li>● Licensing and permitting of fishers, fishing gears and fishing boats</li> <li>● Sustainable management of coastal aquaculture</li> <li>● Regulation of the deployment, use of and access to artificial reefs</li> <li>● Regulation of the construction and operation of fish corrals, other fishing gears and fishing activities that occupy space in the coastal waters</li> <li>● Restriction of commercial fishing vessels in the municipal waters</li> <li>● Enforcement of environmental and fishery laws</li> <li>● Setting up of fisheries monitoring mechanism</li> <li>● Conduct of massive IEC campaign</li> <li>● Community organizing and formation of fishers' organization for protection and conservation</li> </ul>

Activities/Objectives	Strategies
<p><b>2. HABITAT MANAGEMENT</b></p> <ul style="list-style-type: none"> <li>● To protect, conserve and rehabilitate existing habitats</li> <li>● To improve productivity and biodiversity of coral reefs, seagrass beds, mangroves and estuaries</li> <li>● To enhance community participation in the management of the habitats</li> </ul>	<ul style="list-style-type: none"> <li>● Establishment of marine protected areas for coral reefs, seagrass beds and mangroves</li> <li>● Management of mangroves under the CBFM framework</li> <li>● Protection of seagrass beds by regulating fishing activities destructive to the habitat</li> <li>● Enforcement of environmental and fishery laws</li> <li>● Conduct of massive IEC campaign</li> <li>● Community organizing and formation of fishers' organization for protection and conservation</li> </ul>
<p><b>3. COASTAL ZONING</b></p> <ul style="list-style-type: none"> <li>● To delineate zones for specific uses or activities in the municipal waters</li> <li>● To eliminate use conflict in the utilization of the municipal waters</li> <li>● To regulate activities in the different zones</li> </ul>	<ul style="list-style-type: none"> <li>● Boundary delineation of municipal waters</li> <li>● Designation of zones for specific uses (i.e. strict protection, rehabilitation, aquaculture, tourism, trade and navigation, etc.)</li> <li>● Regulation of fishing activities and use of fishing gear in every zone</li> <li>● Conduct of massive IEC campaign</li> <li>● Community organizing and formation of fishers' organization for protection and conservation</li> </ul>
<p><b>4. SHORELINE MANAGEMENT</b></p> <ul style="list-style-type: none"> <li>● To protect the shoreline from further degradation due to destructive activities</li> <li>● To maintain access of the people to foreshore area</li> <li>● To regulate activities in the foreshore area that would affect the condition of the shore</li> <li>● To minimize erosion and loss of beach to natural and human-induced forces</li> </ul>	<ul style="list-style-type: none"> <li>● Regulation of sand and coral mining</li> <li>● Protection and conservation of mangroves</li> <li>● Setting up and maintenance of coastal setbacks for all development activities</li> <li>● Conduct of massive IEC campaign</li> <li>● Community organizing and formation of fishers' organization for protection and conservation</li> </ul>
<p><b>5. COASTAL TOURISM MANAGEMENT</b></p> <ul style="list-style-type: none"> <li>● To provide economic incentives for the municipality and the coastal communities by optimizing the tourism potential of certain areas</li> <li>● To develop local capability in ecotourism projects that contribute to better coastal management and community development</li> <li>● To develop incentives for resource conservation</li> </ul>	<ul style="list-style-type: none"> <li>● Watershed management</li> <li>● Regulation of the number of tourism facilities and activities</li> <li>● Maintenance of waste disposal facilities</li> <li>● Ecotourism product development</li> <li>● Visitors education and management</li> <li>● User fees and appropriate business development</li> <li>● Conduct of massive IEC campaign</li> <li>● Community organizing and formation of fishers' organization for protection and conservation</li> </ul>
<p><b>6. ENTERPRISE AND LIVELIHOOD MANAGEMENT</b></p> <ul style="list-style-type: none"> <li>● To develop alternative and supplement employment for fishers to lessen their fishing effort and pressure on the sea</li> <li>● To diversify income sources of the fishers to lessen dependence on fishing</li> <li>● To develop environment-friendly enterprise and livelihood projects</li> </ul>	<ul style="list-style-type: none"> <li>● Identification and implementation of environment-friendly and economically-feasible projects</li> <li>● Identification of beneficiaries</li> </ul>
<p><b>7. WASTE MANAGEMENT</b></p> <ul style="list-style-type: none"> <li>● To minimize the potential adverse impact of wastes on human and environmental health.</li> </ul>	<ul style="list-style-type: none"> <li>● Water quality monitoring</li> <li>● Domestic waste segregation</li> <li>● Sewage waste treatment, especially for tourism and industrial facilities</li> <li>● Monitoring, control and surveillance</li> <li>● Conduct of massive IEC campaign</li> </ul>

Activities/Objectives	Strategies
<p><b>8. LEGAL ARRANGEMENTS AND INSTITUTIONAL DEVELOPMENT</b></p> <ul style="list-style-type: none"> <li>• To improve mechanisms and arrangements for local governance on coastal management</li> <li>• To enhance community participation in coastal management planning, legislation, implementation, monitoring and evaluation</li> <li>• To strengthen environmental and fishery law enforcement</li> <li>• To improve the delivery of coastal management-related services</li> <li>• To strengthen network and linkage with other LGUs, national government, international and local organizations, and community and people's organizations</li> </ul>	<ul style="list-style-type: none"> <li>• Legislation for comprehensive CRM ordinances</li> <li>• Formation and strengthening of POs</li> <li>• Strengthening of FARMC, <i>Bantay Dagat</i> and fish wardens</li> <li>• Monitoring, control and surveillance</li> <li>• Training and staff development on CRM</li> <li>• Conduct of IEC</li> <li>• Funding</li> </ul>

**13. Licensing of Municipal Fishers**

The Fisheries Code of 1998 authorizes the licensing of all fishermen and their gear. The scheme to accomplish this licensing follows:



*Continued*

### ISSUANCE OF FISHERY LICENSE/PERMIT BY THE MUNICIPAL MAYOR

The Fishery License/Permit should contain the following minimum information:

- Fishing gears that will be used by the licensee
- Tonnage and code of the fishing boat
- Types of fishing activities
- Duties and responsibilities of the licensee
- Grounds for the cancellation of the license/permit



### MONITORING, CONTROL AND SURVEILLANCE

#### 14. Other Possible Activities

- Develop and implement municipality-wide zoning plans;
- Make operational PAMBs and their regular monthly meetings;
- Rehabilitate uplands through Sloping Agricultural Land Technology (SALT) and stewardship agreements for watersheds, erosion and siltation control, management of wastes from households and beach/coastal resorts, and other activities that have effects on the coastal environment;
- Establish municipal coastal resource management offices and databases;
- Organize cross-visits to sites that showcase good CRM implementation, ecotourism, livelihood enterprises, well-protected marine areas and other features; and
- Participate in the national search for Best CRM through the League of Municipalities of the Philippines.

#### COORDINATION

It is important to stress that within Bohol there are already more than enough human and financial resources to implement good CRM practices. One thing that is glaringly obvious, however, is the lack of coordination among the various GOs, NGOs, NGAs and other entities that has led to the replication of activities. Generally, everyone is constantly going through the CRM process "reinventing the wheel" time and time again. Recently, however, coordination among concerned entities has improved. The different sectors and agencies are beginning to see that coordination is a "win-win" situation for all concerned.

The Local Government Code and the Fisheries Code have given the LGUs much control over their coastal resources. Thus, the key to a successful implementation of CRM in the profile area is the municipal LGU. The latter needs to have a clear and defined multi-year CRM vision and plan. Once it has this, it can pull in all concerned NGOs, POs, GOs and GAs to define their roles, harmonize their programs and realign them towards the LGU's CRM plan, share resources and coordinate properly under the LGU umbrella.

**SUMMARY**

The baseline information contained in this coastal environmental profile provides the foundation for ICM planning. The planning process is designed to integrate all the user groups and government agencies so that comprehensive management can be carried out successfully with full participation and willingness by the coastal communities of northwestern Bohol. The plans are meant to be flexible and open to change with management needs and as new user groups join the process. With the planning process in place, it should be possible for local coastal communities to sustainably manage their resources and improve their quality of life.

