COASTAL RESOURCES MANAGEMENT: THE EXPERIENCE FROM EASTERN SAMAR

by
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Introduction

There is a growing body of literature worldwide addressing strategies to manage local marine resources (Pomeroy, 1994). This appeared as a result of the alarming decline of fish catch pointed out by the Food and Agriculture Organization (FAO) and other numerous independent studies (McGoodwin, 1990). At the close of the millennium, we are seeing the effects of decades of unregulated fishing in so many parts of the world. The Philippines has not been spared and suffers from the combined effects of overfishing and the use of illegal fishing gears and techniques. There is, however, a great deal of effort going on in many parts of the country discussing and actually implementing participatory strategies in coastal resources management.

In Eastern Samar, the Guiuan Development Foundation, Inc. (GDFI) is concentrating its efforts to implement a community-based management strategy for the area's coastal ecosystem. This ecosystem is characterized in a 1990 study undertaken by the Philippine Council for Aquatic and Marine Research and Development (PCAMRD) as exhibiting the following main features:

- low fish density and abundant species indicating depauperation of reef fish populations;
- live coral cover of only 20%; and,
- productive areas limited either to deep waters or to reef areas far away from the main islands (FPE, 1992).

The bleak picture has been brought about by extensive habitat destruction and heavy fishing pressure. The use of dynamite, sodium, and cyanide to increase fish catch, as well as the destruction of mangrove forests for fuel wood use, have largely contributed to this prevailing condition. This has been exacerbated by the wanton use of small-mesh seine fishing, a widely practiced fishing method that catches even juvenile reef fish. Aggravating the situation is the unsuitability of most of the area's soil for commercial agricultural production forcing the population (especially for Guiuan and Salcedo towns) to concentrate on fishing as the primary source of livelihood.

For over a decade now, government response to correct the situation has been limited to the installation of artificial reefs, occasional arrests of illegal fishers, and seizure of fishing boats, aimed at ending the use of dynamite and cyanide. Lately, mangrove reforestation has been pursued at the barangay level (GDFI, 1995). With the entry of the GDFI, a strong tripartite (i.e. non government,

government and local community) initiative began addressing some of the problems confronting the fishers of Eastern Samar. This paper discusses the experiences in and contributions of the GDFI to the practice of coastal resources management, outlining strategies that have been pursued with the aim of rehabilitating the marine resources of Eastern Samar and providing alternative livelihood to local stakeholders. It underscores lessons learned thus far. Discussions are based on secondary data as well as actual interviews with local stakeholders and project management staff and beneficiaries in Guiuan and its outlying islands.

Site Profile

Physical and Demographic Setting

Eastern Samar is one of the three provinces that make up the island of Samar, the easternmost island of the Philippines. It has 16 municipalities and is bounded on the east by the Philippine Sea, which joins the Pacific Ocean; on the north by the province of Northern Samar; on the west by the province of Samar; and on the south by the Leyte Gulf.

Of the 16 municipalities of the province, GDFI operates in seven contiguous coastal towns located at the southernmost tip of Samar Island (Figure 1). Moving from west to southeast, these are the towns of Lawa-an, Balangiga, Giporlos, Quinapundan, Salcedo, Mercedes and Guiuan. About 30% of the total number of barangays in the entire province is located in these seven municipalities, with Guiuan having the largest number at 60. Table 1 (ASI, 1995) outlines the geographic and demographic characteristics of these municipalities.

Eastern Samar, like the rest of Samar Island, lies in the path of devastating typhoons. As a result of its geographic location and proximity to the Pacific Ocean, it receives maximum rainfall throughout most of the year. A rugged mountainous terrain mostly covered with vast patches of dipterocarp forests characterizes the province. Bolinao clay and limestone are the much soil types in the province, ranging in depth from 24 to 50 centimeters (Guiuan, 1994). These have been planted, where feasible, to coconut and occasional mangoes and other fruit trees. All towns, except Maslog and Jipapad, face the coastal waters of either the Philippine Sea or Leyte Gulf.

The town of Guiuan is relatively prosperous when the income and class of each municipality is considered. In terms of land area, however, Balangiga ranks first (192.6 square kilometers), followed by Salcedo (116.6 square kilometers), and then by Lawaan (137.9 square kilometers). On the other hand, Mercedes, which was once part of Guiuan, has an area of 27.3 square kilometers and

is the smallest. The seven towns have a combined area of 761 square kilometers or 18 percent of the total for the province.

The combined population of 94,187 is 28% of the total Eastern Samar population. About 70% of the total population of these towns is found in the rural barangays. The town of Salcedo and Mercedes, for example, has over 80% of its population in the rural areas. Males appear predominant with the sex ratio for all seven towns at 107.02 (number of males per 100 females).

The fishing population of the seven towns account for 27% of the total for Eastern Samar. Salcedo has the highest number (39%) of households involved in fishing. The non-fishing population is mostly involved in coconut farming and copra-making.

To reach the GDFI towns, one travels either by bus through Tacloban via Borongan route or by the overnight motor launch in Tacloban, which docks at the port of Guiuan. The town, incidentally, boasts of an airport built during the American liberation, well preserved but rarely used at the moment except by occasional planes chartered by traders and tourists from Manila.

Table 1
Geographic and Demographic Characteristics by Municipality

Municipality (a)	Land Area (sq. km.) (b)	Income Class (c)
Guiuan	109.3 (14)	5th
Mercedes	27.3 (4)	6th
Salcedo	166.6 (15)	6th
Quinapundan	67.7 (9)	6th
Giporlos	109.3 (14)	6th
Balangiga	192.6 (25)	6th
Lawa-an	137.9 (18)	6th
Sub-total	760.7 (18)	
Total	4,340	
E. Samar	(100)	

N.B.: Figures in parenthesis represent percentage of sub-total

Sources: NCSO, Provincial Profile of Eastern Samar 1990
NCSO, 1990 Census of Population and Housing

Table 2
Geographic and Demographic Characteristics by Municipality

Municipal-lity	Total Fishing Population	Total Popula-	(d)/(e) percent (sq/km) (e)/(b)	Popu-lation	Urban	Rural	Male	Female
(a)	(d)	(e)	(f)	(g)	(h)	(i)	(l)	(m)
Guiuan	7,888 (41)	30,689 (35)	26	309	13,360 (40)	20,128 (60)	17,257 (51)	16,501 (49)
Mercedes	570 (3)	4,848 (6)	12	165	918 (20)	3,586 (80)	2,311 (51)	2,193 (49)
Salcedo	6,495 (34)	16,597 (16)	39	142	3,032 (18)	13,557 (82)	8,596 (52)	7,993 (48)
Quinapun-dan	1,254 (7)	11,355 (13)	11	162	2,134 (19)	8,849 (81)	5,678 (52)	5,305 (48)
Giporlos	971 (5)	10,128 (12)	10	101	5,599 (51)	5,402 (49)	5,690 (52)	5,311 (48)
Balangiga	989 (5)	9,559 (11)	10	50	4,776 (50)	4,784 (50)	5,031 (53)	4,529 (47)
Lawa-an	931 (5)	7,275 (8)	13	57	3,403 (44)	4,389 (56)	4,128 (53)	3,664 (47)
Sub-total	19,098 (27)	90,451 (27)	21	124	33,492 (36)	60,695 (64)	48,691 (52)	45,496 (48)
Total E. Samar	71,560 (100)	320,637 (100)	22		128,259 (39)	200,434 (61)	168,706 (51)	159,987 (49)

N.B.: Figures in parenthesis represent percentage of sub-total

Soures: NCSO, Provincial Profile of Eastern Samar 1990
NCSO, 1990 Census of Population and Housing

The GDFI and its CBCRM Program

The Guiuan Development Foundation, Inc. (GDFI) is a non-government organization that aims to contribute to the upliftment of the socio-economic condition of the fishers in the province of Eastern Samar. Established in 1988, it also commits itself to the rehabilitation of portions of the province's marine environment as well as the development of the area's fishing industry. All these are geared towards the realization of its vision: developing politically, socially and economically empowered fishing communities committed to the development and protection of the fragile environment.

Armed with the above mission, GDFI has been concretizing its objectives with support from government agencies like the Philippine Council for Aquatic and Marine Research and Development (PCAMRD) and the Department of Environment and Natural Resources' (DENR) Coastal Environment Program, as well as non-government institutions like the Foundation for the Philippine Environment (FPE) and the Philippine Business for Social Progress (PBSP).

The Early CBCRM Experience

During its first three years, GDFI embarked on a resource management program that revolved around livelihood activities carried out with funding from the PBSP. Seaweed culture using the *Euchema* species was introduced together with offshore fishing using *payaos* (fish aggregating devices). A number of fishers' cooperatives were also established for credit lending. Women's groups even established a commodity store project funded by the National Confederation of Cooperatives (NATCCO).

Most of these projects failed miserably, however, with some cooperatives unable to pay back their loans. The cooperative model became a much-abused idea among the fishers who joined organizations established by GDFI with the hope that loans would be provided. When these were not forthcoming, the membership drastically decreased. In interviews in Manicani, for instance, fisher leaders lamented that many of their members left their organizations because the loans they were expecting did not materialize. In one group in Jamor-awon, for example, only four out of 25 members were still active at the time of the interview.

In terms of environmental conservation and rehabilitation, however, GDFI was successful. With the help of PCAMRD, a marine reserve was established in Bagongbanua Island. The reserve proved successful enough to warrant replication in other municipalities.

The Guiuan Marine Resource Development and Management Project

Armed with lessons learned during the early years, the GDFI refined its operations and, in 1992, established a new CBCRM program called the Guiuan Marine Resource Development and Management Project. Funded by the FPE during its first three years (1992-95), the project has taken on a life of its own and continued the implementation of a management program incorporating three CBCRM strategies. These are the:

- Establishment and enhancement of community organizations, resource management councils and federations;
- Delineation and development of marine reserve and replenishment areas; and
- Conduct of research and development activities geared toward both coastal resource conservation/rehabilitation and community progress through income-generating activities.

Community Organizing

From 1993 to 1994, community organizing efforts resulted in strengthening 25 community groups. Of these, 21 are located in Guiuan and two each in Mercedes and Salcedo. In 1995, 13 groups coming from the municipalities of Quinapundan, Giporlos, Balangiga, and Lawaan were organized. This year, the GDFI intends to add 12 more groups to the project. These groups have gone beyond the cooperative framework and have been tasked with inculcating ecological awareness among fellow fishers while advocating for and establishing marine reserve areas. Prior to community organizing activities, a survey was undertaken to assess the communities' understanding of the marine ecosystem. Socio-economic baseline surveys were also conducted to investigate the conditions prevailing in the communities prior to intervention.

A key intervention strategy applied by GDFI among these groups is the holding of Ecological Awareness Seminars which are aimed at generating interest and commitment to protect, conserve and regenerate the marine resource base. The DFI staff for these seminars has developed a training module. Each seminar culminates in the formulation of resolutions or action plans by the participating organizations/groups. All groups consist of fisherfolk families numbering between 20

and 50 or more. Aside from the said seminar, all have undergone training on Leadership, Group-Building, and Organizational Management. A Community Organizing Volunteer (COV) training seminar was also conducted among participants selected from the group members. Some barangays in the seven towns now have at least one active COV.

In April 1993, the Southern Samar Federation for the Protection and Rehabilitation of Natural Resources (SSFPRNR) was established by 14 of the original 25 groups under the GDFI. The number has since increased and included all active organized groups. The activities of the federation revolve around four areas:

- *Bantay-Dagat* operations and advocacy work;
- *Payao* and other livelihood projects; and
- Coastal resources regeneration

Paralegal training has been conducted among *Bantay-Dagat* members who are also deputized as coastal zone wardens. These wardens, some of whom are women, are tasked with patrolling the coastal waters and apprehending fishers who resort to illegal fishing methods. In Guiuan, a patrol boat provided by the FPE has been used in *Bantay-Dagat* activities, with fuel supplied by the municipal government. Meanwhile, advocacy work by the Federation has resulted in its membership in the Municipal Development Councils of the seven towns. It is also currently busy lobbying for the declaration of *hulbot-hulbot* (trawl fishing) and aquarium reef fishing illegal in the waters off Guiuan, Mercedes and Salcedo.

The making of *payaos* has been pursued as an alternative livelihood activity. The risks involved, however, have prevented most members from following suit. In Guiuan, for example, one group funded by PhilGerFund got two motorized boats and materials for the construction of two *payaos*, but their efforts were in vain when one of the boats and a *payao* were destroyed by typhoon. The other *payao* was later stolen. As a result, GDFI has begun reseeding clams with some of the groups to test their commercial viability as an alternative source of livelihood.

Resource regeneration activities of the federation revolve around the reseeding monitoring and protection of giant clams (*Tridacna sp.*), which were produced at the hatchery station of the GDFI and the Department of Agriculture (discussed later in this paper). As earlier mentioned, these clams constitute part of the income-generating activities that are being tried by GDFI.

Marine Reserves and the Coastal Zone Management Councils

In November 1991, GDFI began establishing a marine resource replenishment area or reserve around the island of Bagongbanua, off the coast of Guiuan, with funding from the PBSP/USAID. Bagongbanua is an uninhabited island composed of only about 100 square meters of land at high tide. The reserve, however, covers about 50 hectares. The site was chosen, despite a coral reef cover of only 20%, due to its manageability and the presence of mangroves, sea grasses and corals. It is also home to numerous species of marine birds.

To enhance the poor resource base of the reserve, GDFI seeded giant clams, wing oysters, sea cucumbers, abalone, tronchus, and other gastropods, together with mangrove propagules in certain parts of the islands and the 50-hectare reserve zone surrounding it. Two caretakers employed by the GDFI manage the reserve. By 1997, it is expected to be turned over to the DENR through its Protected Area Management Board (PAMB).

A subsequent resource appraisal undertaken by the PCAMRD in 1993 indicated that coral cover has increased by 25% since the declaration of the marine reserve. Certain marine vertebrate and invertebrate species have also increased in number. The success has been attributed largely to the fishing ban in the area. Communities nearby have been reportedly active in protecting the reserve.

This experience has led further to the declaration of certain coastal areas as marine reserves by the municipal councils of Lawaan and Balangiga, with another four soon to be developed in Giporlos, Quinapundan, Salcedo and Mercedes. Apart from municipal marine reserves, there are four established barangay reserves in Lawaan and Balangiga. The identification of reserve areas has been done largely by community residents themselves, pointing to a widespread acceptance of the concept.

To facilitate the monitoring of marine reserves, both planned and existing, a Coastal Zone Management Council (CZMC) has been formed in each of the seven towns. Multisectoral in membership, these councils are tasked with formulating, reviewing and lobbying for certain fishery ordinances in their respective municipalities. The fishery ordinance in Guiuan, passed by the municipal council with the assistance of the CZMC, has served as a model for the other towns to follow. The CZMCs were created after an Area Planning Workshop was conducted by the GDFI. All councils have already formulated concrete plans for the management of the coastal environment.

Research and Development

Research activities cover the assessment of marine resources in the project sites, both before and after project implementation. Teams of marine biologists undertake these assessments. A total of three more resource assessment studies have been undertaken since the first one done by the PCAMRD in 1990. This year, the USC Marine Biology Section team with a GDFI representative undertook a series of tests around Guiuan and Homonhon Island. The data collected primarily correspond to topography and the physico-chemical/biological aspects of the coastal waters.

Studies of similar nature have also been undertaken in other potential marine reserves. It is imperative that resource assessments and rapid resource appraisal be undertaken prior to the declaration of reserves in order to quantify and determine the diversity of resources. These activities will prove useful in gathering information for ecological management decisions, as well as in determining changes toward the phasing out of a project. A sample of the data gathered in one of these studies is presented in Table 2, which outlines the live coral cover and reef condition of the southern Samar coastal waters. This was undertaken by the PCAMRD in 1993.

Table 3
Live Coral Cover, Reef Condition in the Survey Sites

Site	Live Coral Cover (%)	Reef Condition
Bagongbanua	25.8	Poor
Balangiga (Maglolobo)	50	Fair
Cablagan	49.6	Fair
Lawa-an A	44.4	Fair
Lawa-an B	57.9	Good
Manicani	27.6	Fair

Source: ASI 1995

The PCAMRD has long been recommending that the only way to reduce fishing pressure in the area is to introduce sea-ranching activities since land-based resources are hard to come by. As part of GDFI's development strategy, a marine hatchery and research station began operation in

August 1993. Located at the Department of Agriculture Fishery Complex in Guiuan, the hatchery/research station has successfully spawned three giant clam species *(squamosa, crucea and deraza).* As a joint undertaking between the GDFI and DA, the research station is designed to develop and test new breeding technologies that can be transferred to fisher groups if found viable for commercial production. The hatchery is expected to supply fishers with juvenile marine organisms for seafarming and restocking of over-exploited reefs.

The commercial impact of the hatchery has not been fully realized yet but GDFI has already sold clams produced there. The funds generated from the sale have been used to expand the hatchery's facilities. In addition, a collaborative effort with the U.P. Marine Science Institute has resulted in the transfer of some clam species to the GDFI hatchery from U.P. Meanwhile, a blister pearl production project in Bagongbanua using wing oyster has already begun production for testing and technology verification.

Conclusion: Lessons, Recommendations and Prospects for Sustainability

The early years of GDFI resulted in meaningful but painful learning experiences in pursuing participatory management strategies. The long history of dole outs, a practice not at all unrelated to Philippine political life, has developed an undesirable attitude among many. For instance, fishers who planned to join GDFI organizations in their community backed out when they learned that GDFI was not there to offer them loans. Nevertheless, fishers who stayed on and continued to work on a voluntary basis with GDFI have provided an army of committed people. Today, the people's organizations (POs) established by GDFI are sustained by the spirit of volunteerism.

One strength pointed out by the Asian Social Institute (ASI) in its process documentation report for GDFI is worth noting. Some PO members are also officers in the local government units. They are looked upon as authority figures in their local communities and exert tremendous influence on their fellow community members. This allows for greater capacity to mobilize resources for the environment. One of these is the marine reserve concept, which has been established in many parts of the seven towns thus resulting in a widespread acceptance of the idea.

There is, however, a perceived problem with regard to income-generating activities to reduce fishing pressure. It appears that much still needs to be done to respond to the needs of the local communities deprived of fishing grounds which have been turned into marine reserves. A GDFI strategy being developed is clothe people's organizations with legal personality to enable them to avail of loans for livelihood projects. This has to be studied thoroughly, taking into consideration

the data on unsuccessful experiences of loan-based income-generating projects. GDFI will have to innovate and learn from the experiences of others in this regard. GDFI is nevertheless aware that the success of its CBCRM programme hinges on the economic well being of fisher communities.

Another issue that has to be addressed is the growing impatience and frustration exhibited by PO members regarding the futility of patrolling the coastal waters unarmed. It appears that sodium cyanide users and blast fishers have become adept at identifying *Bantay-Dagat* boats. Fishers revealed in interviews that they face the reality and difficulty of arresting dynamite fishers who practice their trade in broad daylight dynamite fishers--who incidentally practice their trade even in threaten defenseless fishers with bodily harms to blow them up). [1] Worse, the network of buyers and sellers of fish caught by dynamite continues to operate even beyond Tacloban City.

These issues, though they appear to put sustainability of the project in doubt are, nonetheless balanced by certain plus factors. First is the commitment of the GDFI to the development of Eastern Samar. A devoted cadre of development workers who have designed a sound project even if limited in funds and has demonstrated limited success runs GDFI. As part of its plans to sustain its CBCRM program, GDFI has come up with four schemes. These are:

- The training of local stakeholders to monitor and evaluate their marine reserves in preparation for their takeover once scientists and technical personnel pull out from the project;
- The holding of coastal resources management seminar-workshops among the various sectors of each municipality to plan and implement programs beyond marine reserve protection and introduce participants to management options/models of resource management;
- The expansion of marine hatchery operations toward the breeding of other commercial species like abalone;
- The development of a multidisciplinary and multi-agency marine resources development and management program (composed of the DENR, DA, UP-MSI, UP Tacloban) to formulate a comprehensive development and management plan for the marine resources of the seven towns; and,
- The establishment of a financial mobilization fund aimed at reproducing institutional materials for distribution to potential funding agencies and individual donors.

All these are designed to prepare local communities for the eventual transfer of responsibility to them in the management of their coastal resources. GDFI intends to disappear

from the picture but only at the time when local communities have been fully capacitated and empowered to assert their stake over local resources---something that has gradually entered the picture with the help of GDFI.

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[1] It is believed that aquarium reef fish caught with the use sodium cyanide has stopped in Guiuan because the market for it has moved elsewhere in Samar.