The Management Systems of Marine Fisheries and other Coastal Resources in Palawan, Philippines: Concepts, Experiences and Lessons*

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ICLARM

Fisheries Co-Management

PCSDS

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Background/Rationale

The marine waters surrounding the Palawan island-groups are considered the richest fishing grounds in the Philippines. The largest and most intact assemblage of marine habitats, particularly coral reefs and mangroves, are still found in the province. The fisheries of Palawan alone supply about 60% of the fish consumption in the National Capital Region.

However, these resources are under threat from resource mismanagement and other destructive fishing practices. It is ironic that despite Palawan's rich resource base, poverty is widespread among municipal and other small-scale fishers. Furthermore, there is very little scientific documentation about the status of the resource and the various issues associated with resource utilization.

The researchers of the International Center for Living Aquatic Resources Management (ICLARM) under the Fisheries Co-Management Project visited Palawan between December 1993 and May 1994. Based on the discussions with representatives of the government, fishing communities, non-governmental organizations (NGOs) and private groups, one common proposal emerged, that is, to gather all those involved in fisheries and coastal resources management in one provincial forum. Thus, the "Forum on Co-Management of Marine Fisheries and Other Coastal Resources in Palawan, Philippines: Concepts and Experiences" was organized and held on 12-13 September 1994. It sought to clarify the issues related to the co-management and/or community-based resource management (CBRM) of marine fisheries in Palawan, and to explore the appropriate research, planning and management interventions for sustainable utilization of the resources. The specific forum objectives were:

1. to discuss with resource managers and decision-makers the experiences and concepts in co-management and/or community-based management of marine fisheries and other coastal resources in Palawan;
2. to extract some lessons and generalizations from the above experiences using the institutional analysis research framework; and
3. to facilitate the identification of research and information gaps in developing the appropriate fisheries and coastal resources management system in Palawan.

OTTAA	-	OISCA Technical Trainee Alumni Association
PD	-	Presidential Decree
PENRO	-	Provincial Environment and Natural Resources Office
PCG	-	Philippine Coast Guard
PCSD	-	Palawan Council for Sustainable Development
PCSDS	-	Palawan Council for Sustainable Development Staff
PFDA	-	Philippine Fisheries Development Authority
PIADPO	-	Palawan Integrated Area Development Project Office
PMPCI	-	Panindigan Multi-Purpose Cooperative, Inc.
PMPSAI	-	Palawan Marine Products Shippers Association, Inc.
PNAC-IMS	-	Palawan National Agricultural College-Institute of Marine Sciences
PNP	-	Philippine National Police
PO	-	People's Organization
PTA	-	Parents and Teachers Association
RA	-	Republic Act
RAC	-	Rural Agricultural Center
RED	-	Regional Executive Director
RMC	-	Resource Management Center
RRA	-	Rapid Rural Appraisal
SEAFDEC	-	Southeast Asian Fisheries Development Center
SEP	-	Strategic Environmental Plan
SEP-SVP	-	Strategic Environmental Plan-San Vicente Project
SPIADP	-	Second Palawan Integrated Area Development Project
SPU	-	Special Project Unit
SVCSD	-	San Vicente Council for Sustainable Development
SVLO	-	San Vicente Liaison Office
TA	-	Technical Assistance
TAO	-	Technical Assistance Office
TACDA	-	Tagpait Coastal Development Association
TOR	-	Terms of Reference
UBFI	-	Ulugan Bay Foundation, Inc.
USAID	-	United States Agency for International Development
WESCOM	-	Western Command
WWF	-	World Wildlife Fund

ACRONYMS

AO	-	Administrative Order
ADB	-	Asian Development Bank
BAS	-	Bureau of Agricultural Statistics
BBFI	-	Binunsalian Bay Foundation, Inc.
BFAR	-	Bureau of Fisheries and Aquatic Resources
CAF	-	Census of Agriculture and Fishery
CAFGU	-	Citizen Armed Forces Geographical Unit
CBCRM	-	Community-Based Coastal Resource Management
CBDC	-	Carabao Breeding and Development Center
CBRM	-	Community-Based Resource Management
CENRO	-	Community Environment and Natural Resources Office
CEP	-	Coastal Environment Program
CFBL	-	Current Commercial Fishing Boat License
CO	-	Community Organizing
CRM	-	Community Resource Management
CSC	-	Certificate of Stewardship Contract
DA	-	Department of Agriculture
DANIDA	-	Danish International Development Agency
DENR	-	Department of Environment and Natural Resources
ECAN	-	Environmentally Critical Areas Network
ENMR	-	El Nido Marine Reserve
ENRO	-	Environment and Natural Resources Office
ERDS	-	Ecosystems Research and Development Service
FA	-	Fishermen's Association
FAO	-	Food and Agriculture Organization
FPE	-	Foundation for the Philippine Environment
FSP	-	Fisheries Sector Program
ICLARM	-	International Center for Living Aquatic Resources Management
IEC	-	Information, Education and Communication
IFDP	-	Integrated Fisheries Development Plan
LGC	-	Local Government Code
LGU	-	Local Government Unit
MAFC	-	Municipal Agriculture and Fishery Council
MEY	-	Maximum Economic Yield
MFC	-	Management Fishing Cooperative
MOA	-	Memorandum of Agreement
MPA	-	Marine Protected Area
MSY	-	Maximum Sustainable Yield
NARS	-	National Aquatic Research Systems
NEPC	-	National Environment and Protection Council
NGO	-	Non-Government Organization
NPFDP	-	Northern Palawan Fisheries Development Project
NRMC	-	Natural Resources Management Center
OISCA	-	Organization for Industrial, Spiritual and Cultural Advancement

PREFACE

It is not often that people who are technically equipped gather in a forum such as this to discuss environmental problems besetting the province. Time has come for Palawan to be the focus of attention at the national and international levels.

Over the years, unwise utilization of our resources has brought us to this critical point and we have to decide now on what to do with what is left of our diverse and fragile ecosystem. A well balanced utilization-conservation, one that is geared towards sustainable development, might be attained if sincere efforts are pooled and devoted to this common cause.

This forum, therefore, is a right venue for ventilating information and issues in the local level thus assimilating the ideas that will be shared. These ideas can be an input not only to planning but also to providing direction on how best we can take care of our resources, thereby making an impact on the lives of the people. Taking into account that about 60 percent of the total fish consumption in Metro Manila is taken from Palawan seas, it is ironic that most of our fishermen are poor.

At present, we are engaged largely in the protection of the environment because it is where the real call for action is. Bantay Palawan is one agency that we established to support the protection of our coastal and marine environment. Considering the vast area of Palawan, not the entire provincial and local machineries could, at this point, be in a position to guard against further degradation. Palawan waters have become the poaching ground of local as well as foreign nationals bringing lucrative business out of our marine resources. Based on our apprehensions, it is sad to note that people from other places such as Quezon, Batangas and Cebu are coming here to destroy our fishing grounds. They are using cyanide and blast fishing. With their fishing methods, even big coral reefs can be destroyed in less than one day.

We need the assistance of everybody, especially those who know and understand how to properly manage the ecosystem. Let us encourage full participation of the local communities so that they recognize it is their wealth. They should be more vigilant in the aspect of protection. Besides, they are in a better position to assist us in containing the problems on illegal fishing.

Finally, it is hoped that the forum will enable us to arrive at a conclusion which will determine the best direction in addressing marine ecosystem concerns through the application of a co-management scheme.

SALVADOR P. SOCRATES
Governor, Province of Palawan
and Chairman, PCSD

PREFACE

The need to clarify issues on fisheries management and explore appropriate research, planning and management interventions for sustainable resource use essentially prompted the idea of bringing together various sectors in Palawan, largely to share concepts, experiences and lessons on community-based resource management (CBRM) and co-management. While a lot has been said on successful cases of CBRM in Palawan, very little scientific documentation actually existed on the status of the resource and the various issues associated with resource management.

The Forum on Co-Management of Marine Fisheries and Other Coastal Resources in Palawan, Philippines captures various CBRM experiences across the province, inclusive of the initiatives of government and non-government sectors. It underscores the delineation of management responsibility among the participating organizations and the translation of concepts into actual activities to operationally define the organizational and institutional arrangements for co-management systems. It also provides insights into the implications for future interventions, primarily in the areas of direct public investment/involvement, incentives/regulations, and collaborative institutional arrangements.

Among others, the experiences highlight the need to re-think fishery laws and regulations and update the fines/penalties imposed on violators, intensify advocacy and information campaigns, upgrade surveillance equipment and facilities, forge stronger institutional linkages in fisheries management and law enforcement, and strengthen local government units, non-government organizations and people's organizations to help bring about more commitment and support for CBRM projects. A strong political will, hand in hand with clear-cut policies on access to marine resources, emerges as an essential factor in boosting efforts on resource management and conservation in Palawan.

Moreover, the forum points out the importance of anchoring CBRM interventions on scientific findings and of carefully analyzing what can be sustained over time. Scientific research for baseline assessment is deemed necessary in assessing whether or not headway is being achieved over time. Finally, the forum admonishes program implementors not to regard the community as an experimental unit; rather, the community must be viewed as an important partner and stakeholder in the management of fisheries and other coastal resources.

ROBERT S. POMEROY
Senior Scientist
ICLARM

The forum was organized by the ICLARM with funding from the Danish International Development Agency (DANIDA) in collaboration with the Palawan Council for Sustainable Development Staff (PCSDS). The forum is part of the local level research in the Philippines under the Fisheries Co-Management Project of ICLARM and the resource planning and research activities of the PCSDS.

Summary of Papers and Commentaries

A total of 19 papers were included in this volume. They were classified into five groups of papers: (1) overview, (2) integration, (3) experience, (4) concept, and (5) perspective.

"Overview and Status of Fisheries and Coastal Resources Management in Palawan, Philippines" (A. C. Sandalo) provides a bird's eye view of Palawan's community resource management (CRM), in general, and fisheries management, in particular. It likewise gives a statistical summary of the status of the resources and historical background of the various coastal resource use issues.

The integration paper, "The Application of the Institutional Analysis Research Framework in the Evaluation of Fisheries and Coastal Resources Management Systems in Palawan, Philippines" (M. Pido, R. Pomeroy, M. Carlos, A. Garces, R. Agbayani, A. Sandalo, V. Catain, A. Benavente, R. Bacosa and J. Matulac), provides the highlights of the forum. The paper is based on the 18 papers (overview, 12 experience, 2 concepts and 3 commentaries) submitted and/or presented, the summary notes of session coordinators, minutes of the forum and rapporteurs' notes.

The integration paper in Part 2 used the project's institutional analysis research framework to come up with a structured approach to the evaluation of fisheries and coastal resources management systems in Palawan. The relevant factors or attributes of fisheries and coastal resources management systems in Palawan are: (1) biological/physical, (2) technical, (3) market (4) attributes of fisher stakeholders, (5) institutional arrangements, and (6) exogenous factors.

There are 12 experience papers under Part 3 based on their geographical coverage. These papers present the actual experiences in fisheries and CRM of the local government, NGOs, private entities, and other groups. Relevant insights and recommendations were also provided by the authors.

Four papers deal with Puerto Princesa City. "The Experience of Ulugan Bay Foundation, Inc. in Community-Based Coastal Resources Management" (D. Sibal) and "The Coastal Environment

Program: The Case of Palawan" (D.F. Sualog) tackle the Coastal Environmental Program (CEP) of the Department of Environment and Natural Resources (DENR) in Ulugan Bay. The former is from the perspective of the Ulugan Bay Foundation, Inc. (UBFI), an NGO, which is undertaking community organizing (CO). The latter presents the experience of the local DENR office in implementing the other components of the CEP. Among the activities undertaken by the DENR are information, education and communication (IEC) campaigns and monitoring and evaluation. These two papers provide some comparisons and contrasts of CBM from the viewpoints of an NGO and a national government agency.

"Baywatch: The Coastal Areas Protection Project" (B.C. Marcelo) is mainly an initiative of the city government. It focuses on the protection of the marine resources, particularly patrolling activities related to the enforcement of and compliance with fisheries laws. The paper provides a detailed account of the apprehensions and arrests made.

The paper, "Enhancement of Marine Habitat through Artificial Reefs to Promote Cage Culture in Puerto Princesa Bay, Palawan" (T.L. Salva, R. Sariego, L.B. Alcantara and C.R. Dumadaug), is the only paper which highlights the biology of fisheries management. It argues that cage culture can be promoted as an economically viable livelihood option. The marine habitat, though, must be enhanced by deploying artificial reefs.

There are also four experience papers in Palawan's northern mainland. The paper, "Marine Reserve Management: The El Nido Experience" (N. Baling), presents the park's experience starting in 1991 when the area was declared as a marine protected area (MPA) under the Debt-for-Nature Swap program. Through this, the regulatory prescriptions, particularly law enforcement for an MPA, have become acceptable to the local communities. The IEC campaigns and DENR's commitment have likewise played a pivotal role towards increasing acceptance by the community of marine resource conservation through the MPA approach.

The efforts in San Vicente, presented in the paper "Community-Based Resource Management: The San Vicente Experience" (A.C. Alvarez and T.D. Arias), were initiated with the creation of the Strategic Environmental Plan-San Vicente Project (SEP-SVP) in April 1993. The SEP-SVP is a local government showcase in CBRM covering the terrestrial area, tribal ancestral lands and the marine areas. The activities have centered on social preparation and community organizing of the local resource users in close coordination with the village officials.

The completed first Asian Development Bank-funded project to improve the lives of small-scale fishers is presented in the paper, "Northern Palawan Fisheries Development Project" (J.M.

Abarquez). The project provided the Philippine Fisheries Development Authority (PFDA) direct hands-on experience in harvesting, collection and marketing of fish and other marine products on a commercial scale. It involved 2,500 beneficiaries spread out over the northern mainland and island municipalities.

"The Experience of the Panindigan Multi-Purpose Cooperative, Inc." (N. Betaño) has some 2,000 fisher-members who were organized by the Office of the Provincial Agriculturist in 1991. Since then, it has engaged, with moderate success, in a variety of small-scale livelihood projects such as *sari-sari* store, fish fermentation, swine production and bio-intensive gardening. It also plans to engage in lobster cage culture and seek assistance on the skills training of its members.

"Community-Based Mangrove Reforestation Project, Barangay Tagpait, Aborlan, Palawan" (K. Takahara and E. Dator) is the only paper on southern Palawan. It presents the results of mangrove rehabilitation efforts in Aborlan through a technical assistance (TA) grant from the ADB. The TA consisted of a feasibility study of a mangrove reforestation project and testing of a pilot implementation system in coastal communities. The key accomplishments during the implementation phase were the formation of an association for the enforcement of tenurial arrangements and technical training on actual mangrove reforestation.

Three papers focus on province-wide concerns. "Bantay Palawan" (M. Lopez) is a multi-sectoral Task Force launched in January 1993 to combat illegal fishing and logging activities. It has made several apprehensions of various illegal fishing activities. It has had limited success, however, due to constrained mobility in pursuing the more sophisticated vessels of violators.

The paper on "The Role of the Philippine Coast Guard in the Protection of the Marine Waters of Palawan" (R. Garcia) tackles current problems associated with the enforcement of fisheries and other maritime laws. Several recommendations are given to mitigate the problem associated with the protection of the marine environment.

The paper, "Operations and Experiences of the Palawan Marine Products Shippers Association, Inc." (S. Camacho), provides a viewpoint of the shippers as private entrepreneurs. It discusses the harvesting and marketing procedures of various marine products. It also recommends the establishment of concrete fish landing facilities in Puerto Princesa which will also function as a distribution center.

There are two concept papers under Part 4. The paper, "Proposed Project for the Establishment of a Marine Reserve in Turtle and Binunsalian Bays, Puerto Princesa City" (E.T. Sta. Cruz), focuses on two bays which comprise a very important resource base for the local fishers on

the eastern coast of Puerto Princesa City. On-going illegal and/or destructive fishing activities threaten the integrity of these marine waters. The Binunsalian Bay Foundation, Inc. (BBFI) has proposed a comprehensive and community-based project to mitigate the problems and manage the resource sustainably.

The second paper, "Establishment of a Management Fishing Cooperative in Palawan" (R. Reyes), rationalizes the creation of a management fishing cooperative (MFC) as an umbrella organization for all fishing organizations within the province. The main aim of the MFC is to support the operations of smaller fishing cooperatives by providing direction, management and administrative inputs as well as technical assistance. The MFC also hopes to promote not only livelihood among its members but also the protection of the marine environment.

The highlights of the perspective papers and/or commentary lectures (Part 5) of selected participants are given in the succeeding paragraphs.

The first paper on "Law Enforcement in Fisheries and Other Coastal Resources in Palawan" (N. Serrano) clarifies that most of the maritime problems encountered by the command are similar to those of the Philippine Coast Guard (PCG). However, most of the illegal fishers apprehended come from outside Palawan, particularly from the province of Quezon. Since it is impossible for the command alone to patrol the surrounding marine waters, a multi-agency task force must be created for credible monitoring.

The next paper is on the "Initiative of Donor/Funding Institutions in Fisheries and Coastal Resources Management" (D. Ganapin, Jr.). It was stressed that the Foundation for the Philippine Environment (FPE) is one of the active NGOs in Palawan which has funded several environment-related projects. Its experience suggests that the co-management process must be sped up and that the local communities must be active participants, not merely experimental units. Also, the outputs of scientific research must be effectively linked with the policy-making process because many environmental projects have weak scientific basis.

The last paper is on "Coastal Environmental Program (CEP)" (V. Palaganas). The CEP parallels the concerns of the Fisheries Sector Program (FSP) but its focus is much broader because it considers the entire coastal zone. The CEP is the umbrella program of the DENR on CRM in 12 priority bays, one of which is the Ulugan Bay in Palawan. The CEP emphasizes a holistic management of marine and terrestial resources by using community organizing as the basic means of intervention and involving the community and immediate resource stakeholders as principal partners.

Part 1
Overview Paper

The Management Systems of Marine Fisheries and other Coastal Resources
Palawan, Philippines:
Concepts, Experiences and Lessons

Overview and Status of Fisheries and Coastal Resources Management in Palawan, Philippines

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Geographical Setting

Palawan is located 600 km southwest of Manila and is flanked by the South China Sea on the west and the Sulu Sea on the east. The largest province of the country, Palawan has a land area of about 1.5 million hectares and a coastline of 1,959 km. Of the 7,100 islands comprising the Philippine archipelago, 1,768 or five percent are found in Palawan. Mainland Palawan, the largest of these islands and islets, covers 1.2 million hectares. It is long and narrow extending 425 km from northeast to southwest and varies in width from over 40 km at its widest point to 8.5 km at its narrowest. Among the small islands which surround the main islands, the more significant ones are Busuanga, Coron and Abordo of the Calamianes group and the islands of Cuyo, Agutaya, Dumaran, Balabac, Bugsok and Cagayancillo.

The Palawan island group is endowed with rich natural resources including lowlands and lowhills suitable for agriculture, vast forest areas of high commercial value and mineral and marine resources of equal importance. In recent years, off-shore oil explorations have been successful and the potential for natural gas in Northern Palawan is expected to provide a viable alternative energy source and major revenue to Palawan.

The 178 fishing grounds in the surrounding seas of the Province are considered to be among the most important in the Philippines. The richest of these fishing grounds are found in the northernmost and southernmost areas of the province. It is estimated that 40 percent of the country's coral reefs are located in Palawan.

Fishing and other marine-based livelihood activities have lured the majority of Palawan's population to settle along the coast. Roughly 60 percent of the people reside in the coastal barangays who depend on fishing for their main source of income.

Traditionally, fishers have survived without any trepidation of exhausting the resource base. During the 1980's, however, the government began introducing institutional mechanisms and technologies to local communities to wean them from non-sustainable fishing practices and environmentally destructive activities. Some initiatives from private individuals and non-government organizations have likewise emerged advocating similar goals. While reception to

these changes and new ideas may not be high, Palawan's local communities have nonetheless achieved modest accomplishments in managing their rich marine resources.

Palawan's Marine Resources

Reefs

Palawan reefs extend to about 9,800 sq.m. or 36 percent of the country's estimated reef area of 27,000 sq.m. Fringing reefs, which are formed close to shore, generally outline the islands and islets of Palawan. Coral atolls, on the other hand, are found mostly in the Cagayancillo area, northeast of mainland Palawan. The most important of these atolls is Tubbataha reef, a 32,000-hectare of submerged corals which are located in the middle of Sulu Sea. The Tubbataha reef is the only national marine park in the country. Recently, it was declared a World Heritage Site. Another important reef area is the Kalayaan island group, a platform or patch reef formed from exposed fringing reefs. This disputed area is reportedly abundant in oil deposits.

A 1981 study of Palawan's coastal ecosystem undertaken by the University of the Philippines-Marine Science Institute showed that only 12 percent of Palawan's reefs was in "excellent" condition while 35 percent was classified as "good" reefs. The majority belonged to the "fair" and "poor" categories at 41 percent and 12 percent, respectively.

Mangrove

In 1992, an estimated 41,000 hectares or 2.2 percent of Palawan's total land area was covered with mangroves compared to 56,000 hectares in 1985. This represents an annual rate of decline of about 2,140 hectares. Data from the 1992 Landsat [1/] showed that fishponds located in mangroves constitute a negligible area of 168 hectares or 0.01 percent of Palawan's total land area.

Small Islands and Beaches

Aside from its economic potential, Palawan's natural beauty is also a strong attraction to both migrants and tourists. The Province is endowed with beautiful, unspoiled white beaches

[1/] As interpreted by the Japan Forest Technical Association for the Information System Development Project for the Management of Tropical Forest.

with the more outstanding ones outlining the small islands that dot Palawan's many bays. A number of these islands and beachfronts have been developed into first-class tourist resorts.

Coastal Marine

An estimate of the extent of the coastal waters of Palawan, taking into consideration the 15 km limit set as municipal waters by the 1990 Local Government Code, was placed at 19,500 sq. km. Palawan waters are also the habitat of endangered species such as the sea cow, sea turtle and the salt water crocodile.

Resource Utilization

The Fishing Grounds

The rich fishing grounds of the northern municipalities of Palawan as well as of Brooke's Point and Narra in the south are being fished by both commercial and municipal fishers. There are reports that transient commercial fishers are encroaching in municipal waters, competing with local sustenance fishers. In a 1988 study on fish population carrying capacity of Palawan by Candido A. Cabrido, the net potential sustainable fishery production was computed at 144,746 tons per year from waters within 20 km from the shore line.

Reports of the Bureau of Agricultural Statistics (BAS) show that the trend in total fishery production had been erratic during the period 1989 to 1993, as follows:

Production (mt)

	1989	1990	1991	1992	1993
TOTAL	**71,025**	**74,905**	**79,030**	**68,885**	**77,945**
Commercial Fishery	24,047	16,957	17,555	12,817	21,188
Municipal Fishery	46,978	57,948	61,475	56,067	56,757

An increasing trend in total production was observed from 1989 to 1991: a consistent 5.5 percent from the years 1989 to 1990 and 1990 to 1991 was recorded. In 1992, the volume of fish caught dropped by 12.8 percent, but eventually rose by 13.2 percent in 1993. From 1990 to 1993, commercial fishery production has been below the base year level (1989) of 24,047 mt.

On the other hand, municipal fishery production had consistently been above the 1989 volume of 46,978 mt.

Catch composition may be classified into: large pelagics (tuna and tuna-like fishes, Spanish mackerel); small pelagics (chub mackerel, sardines, anchovies, crevalles big-eyed scads, etc.) and demersal species (lizardfishes, slipmouths, red snappers, groupers, sea cucumbers, crabs and coral-associated fishes, shells, etc.).

Commercial Fisheries

The 1991 Census of Agriculture and Fishery (CAF) revealed that the province had 441 households classified as commercial fishing operators. More than 75 were registered in the municipalities of Balabac (30 percent), Taytay (15 percent) and Magsaysay (1.3 percent). Some of those using commercial fishing vessels who are operating within Palawan waters are based outside Palawan and do not land their catch here. In fact, a number of these large-scale operators are foreign nationals and there are reports of these fishing boats illegally plying Philippine waters. They use large fishing vessels employing any of the following gears: purse seines, otter trawls, long line, bagnets, deep sea hook and line and the controversial "*pa-aling.*" Commercial production represents 27 percent of the total fish catch and most of the production are transported directly to Manila, Cebu and Iloilo.

Municipal Fisheries

Activities of the 11,444 municipal fishing operators (CAF, 1991) are generally located within the three nautical mile limit. The fishing boats of these operators have a gross weight of three metric tons or less. Concentrated in the municipalities of Coron, Taytay and Puerto Princesa City, these fishers operate within the municipal waters of El Nido, Coron, Taytay, Narra and Puerto Princesa and contribute about 72 percent of the total fish production of the Province. Further, it is estimated that more than 77 percent of the catch landed in the Province by municipal fishers are subsequently transported by fish traders to Manila by cargo ships or airplanes, fresh or processed.

Aquaculture Fisheries

The following is a breakdown of areas devoted to aquaculture as gleaned from the 1991 CAF:

	No. of Operators	Area (Ha)
Fishpond	106	207,291
Fishpen	5	6,570
Fishcage	4	2,355
Oyster Farm	2	1,125
Mussel Farm	1	.02
Seaweed Farm	751	301,059
Other Aquafarm	11	3,300

Seaweed culture in Palawan, particularly in the island municipalities of Agutaya, Cagayancillo and Balabac, is on a commercial scale. In 1993, seaweed production was placed at 124,000 mt, about 30 percent of the total production of the whole Philippines. The estimated aggregate area of 280,000 hectares of freshwater bodies of Palawan show excellent potential for culture which, if properly stocked with suitable fish species and managed efficiently, will provide high returns.

Fish Handling Facilities

A total of 46 wharves/fish landing facilities ranging from 50 meters to 300 meters long are currently operating in Palawan. Records show that 37 of these facilities are government-owned while 9 are privately operated.

The Port of Puerto Princesa, which was improved in 1988 under the ADB-funded Palawan Integrated Area Development Project - Phase I, and seven feeder ports under the Department of Transportation and Communication's Feeder Ports Program financed through Overseas Economic Cooperation Fund (OECF) are the more adequately equipped port facilities. The other fish landing facilities are generally in poor condition and lacking in supply of fresh water. Meanwhile, ice plants and cold storage facilities are inadequate and virtually absent in some areas. Again, only Puerto Princesa and other major fishing villages (such as Liminangcong, Taytay and Poblacion, Coron) have adequate fish preservation facilities.

Fish distribution to inland barangays is also a problem primarily due to a poor road network and lack of land transport vehicles. As such, traders opt to utilize the more profitable direct marketing to Manila or Cebu through cargo boats. Only small fishers sell their catch fresh in neighboring villages. Fish processing is seldom practiced considering that only Narra, Taytay and Puerto Princesa have facilities for drying and fish sauce and fishpaste making.

Tourism Industry

During the past decade, Northern Palawan has drawn the attention of both national and international communities as an excellent scuba diving and eco-tourism destination. Entrepreneurs, a significant number of whom are foreigners or Filipinos with foreign partners, have developed small islands and beachfronts into worldclass resorts catering to the upper class. Unfortunately, however, because of their exclusivity and exorbitant costs, the local populace do not have access to these places. Employment of local residents has likewise been minimal and very seldom are they given managerial/supervisory posts.

Resource Management

In the early 1980's, serious efforts to assess the state of Palawan's natural resources began under the Integrated Environmental Program, a component of the Palawan Integrated Area Development Project, Phase I. Findings of the evaluation studies pointed out the alarming trends of over-exploitation of the resource base which, if allowed to continue, will result in the devastation of the country's last ecological frontier. Both the terrestrial and marine resources are at stake. Destruction in the critical uplands such as over-logging, unscrupulous mining practices and the combined effects of otherwise small-scale slash-and-burn farming eventually cause erosion in Palawan's equally sensitive lowlands and siltation of the waterways. The rich marine life of Palawan ultimately suffers the adverse consequences.

Rampant illegal fishing methods and over-fishing, especially in traditional areas, have likewise contributed to the depletion and destruction of the coastal and marine areas. Reports on apprehension further show that some of the more serious crimes were committed by non-residents of Palawan. Since important natural resources and the livelihood of more than 54,214 families are at stake, Palawan's policy-makers, political leadership, local populace and non-governmental institutions have been convinced that all efforts to exploit Palawan's resources should be within sustainable limits and undertaken hand in hand with strong conservation and protection measures.

The Strategic Environmental Plan for Palawan Act

The Strategic Environmental Plan (SEP) for Palawan is a unique legislation for the Province. Enacted into law on June 19, 1992 by virtue of Republic Act 7611, it provides a *"comprehensive framework for the sustainable development of Palawan compatible with*

protecting and enhancing the natural resources and endangered environment of the Province" (Section 4, R.A. 7611). Through its main strategy, the Environmentally Critical Areas Network or ECAN, management schemes and zonation of the whole of Palawan will be applied to each of its three main components, that is, the terrestrial area, coastal/marine area, and the tribal ancestral lands. In the treatment of the coastal/marine areas, "*equitable access to the resource and management responsibility by the local community shall be the underlying management philosophy of this component" (Section* I 0, R.A. 761 1).

In February 1994, the Palawan Council for Sustainable Development, the body mandated by R.A. 7611 to implement the SEP, adopted the guidelines for implementing the ECAN. The general criteria for zoning the coastal/marine component into either core zone/maximum protection area or multiple use zone as embodied in the guidelines will ensure that relatively intact coral reefs and certain mangrove areas and seagrass beds are protected. Only in those areas that are designated as multiple use zones will mariculture and fishery development be allowed. Consultations with the policy decision-makers and findings of researchers in this field, as well as inputs from the local leadership and agencies operating in the area, will be consolidated and will serve as a basis for the refinement of the criteria, the detailed implementing process and activities allowed in each zone.

The National Integrated Protected Areas System (NIPAS) Act

A parallel law, but of national application, is the National Integrated Protected Areas System (NIPAS) or Republic Act 7586. It addresses all designated protected areas. The administration and management of the NIPAS is placed under the control of the Department of Environment and Natural Resources (DENR).

The European Union-funded National Integrated Protected Areas Programme will be implemented over a six-year period from 1994-2000. Its overall objective is to help protect, conserve and manage tropical forest bio-diversity areas with endangered endemic species. Specifically, it also aims to increase the wise use of available resources especially those of forest and coastal areas. The Programme covers eight protected areas in the Philippines, three of which are in Palawan, namely: the El Nido Marine Reserve, Coron Island and Malampaya Sound in Taytay.

PO-Initiated and NGO-Assisted Resource Management Programs

Recognizing the critical role played by the local communities in the implementation of resource management projects, a number of NGO's in Palawan have been actively involved in the community organizing aspect and institutionalization of programs in the coastal areas. It is a common situation for government-initiated and foreign-funded projects to have a partner NGO which is responsible for organizing the targeted beneficiaries and providing training on livelihood and management skills.

A number of fishers have likewise started to realize the advantages of working together to achieve common goals, whether to improve their economic well-being or to protect their source of livelihood. The Puerto Princesa City Seaweed Farmers' Multi-purpose Cooperative was organized in 1990 to provide financial assistance to the members as well as facilitate delivery of production inputs. The Roxas Small Fishers Multi-purpose Cooperative had similar goals. Meanwhile, the Roxas Aquaculture Multi-purpose Cooperative also attempted to generate sources of livelihood and to protect the swampland surrounding the site of their crab fattening project.

Interventions of Local Government Units

The growing awareness of the local population of the need to safeguard the coastal/marine environment of Palawan is strongly supported by an equally conscious political leadership. With the expanded empowerment of the LGU's as embodied in the Local Government Code, they have initiated orientation seminars and dialogues particularly to improve their knowledge of the consequences of destructive fishing methods.

In March 1993, the Provincial Government spearheaded a concerted effort to arrest, among others, those reported of engaging in illegal fishing activities throughout Palawan with the launching of *Bantay Palawan*. Subsequently, the municipal governments formed their own teams comprising representatives of various sectors of the community. Puerto Princesa City's *Bantay Dagat* program has shown how far an LGU can go in guarding its municipal waters, along with its capability of going beyond its territorial waters to extend assistance to other municipalities upon request.

Sectoral Issues and Problems

Many are surprised to know that although the Province of Palawan has a relatively unspoiled coastal/marine resource base and a very high potential for fishery-based industries, the plight of the Palaweño fisher is not that significantly better than those who reside in areas that have resources in worse condition. There are a number of issues that continue to plague the fishery sector in general. Nonetheless, with the support and interest that is beginning to be enjoyed by Palawan, both from within the country and the international community, the policymakers and the local constituents are confident that many of these setbacks will be surpassed.

A major concern of Palawan is the destruction of the resource base brought about not only by the commercial-scale fishing operators but also by harmful fishing methods employed by a number of municipal fishers. Dynamite and cyanide users, although of a lesser number compared to the previous decade, are still being apprehended. Meanwhile, the Province has still to find a solution on how to stop "*pa-aling*" fishing operators from encroaching into Palawan waters. This fishing method is an innovation of the "*muro ami*" which uses air bubbles from compressors (instead of rocks as used in the now banned "*muro ami*") to drive the fish from the corals to the nets. The Department of Agriculture legally sanctions this fishing method which was opposed both by the PCSD and the Provincial Government.

While the effect of these resource-draining activities have not been manifested yet on the production level, still the technocrats have sounded the alarm that coupled with the destruction of the uplands, Palawan may soon follow the fate of the rest of the country's coastal/marine areas if this abuse of nature will continue.

It is a common observation that the working man can be expected to look beyond earning his livelihood only if the basic needs for survival are adequately met. Thus, to improve the plight of Palawan's small fisher, the government, with the help of concerned sectors of the economy, have to reckon with intertwining factors that have to be solved first before any concrete effect can be expected. These include inadequate transport and communication facilities to provide the fisher access to markets so as to free them from unscrupulous middlemen who often exploit the former by dictating unfairly low prices. This situation is also linked to the prevailing marketing system that places the small fishers at the mercy of the middleman. Emerging cooperatives organized primarily to alleviate market-related constraints

are slowly easing the fisher's problems. In order for the fishery industry to develop and arrest stagnation, it is important to ensure the preservation of surplus production and open up opportunities for processing of the produce. Currently, the lack of storage and processing facilities in Palawan tends to discourage small fishers with resources to use more efficient gears or maybe venture into aquaculture. This is the reason why credit plays a very crucial part if expansion is an objective. Again, since almost all government-sponsored credit programs grant loans only to pre-organized borrowers, the small fishers consider this a very good reason to form cooperatives.

As many conservationists point out, it is not too late for Palawan to try and start implementing seriously the goal of protecting its marine environment. While we have gone beyond plain intentions and plans, and actions are in progress, it is strongly believed that significant headway towards the proper management of the resources can be accomplished only if and when the aforementioned problems and constraints are sufficiently addressed. Only then can the local communities and leadership concentrate more on giving equal importance to protecting the resource and benefiting from it and less on merely exploiting nature's bounties.

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PART 2
Integration Paper

The Application of the Institutional Analysis Research Framework in the Evaluation of Fisheries and Other Coastal Resources Management Systems in Palawan, Philippines

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Abstract

The Philippines is undergoing a major transformation towards common property management and/or co-management of marine fisheries. Among the most important sites is the island-province of Palawan which has the richest fishing grounds and the largest intact assemblage of coral reefs, sea grass beds and mangroves in the Philippines. These resources, however, are increasingly threatened by population pressure and various illegal or destructive fishing practices. Small-scale fishers remain among the poorest population.

A provincial forum was held on 12-13 September 1994 to discuss with resource managers and decision-makers the various management systems of fisheries and other coastal resources in Palawan, guided by institutional analysis as the framework for evaluation. The various experiences suggest that the current fisheries management systems are determined by several contextual variables such as biophysical and technological attributes, market structure, attributes of fisher stakeholders as well as external institutional arrangements and other exogenous factors.

Three emerging fisheries co-management systems were identified. Two are spearheaded by national government agencies while one is administered by a city government. A common theme is the delineation of management responsibility among the various participating organizations. To become fully operational, however, co-management systems must meet certain requirements. These include development interventions, e.g. provision of physical infrastructure and post-harvest facilities; further research, particularly on subjects where information is lacking like level of fishing effort and supplemental/alternative livelihood activities, and activities to operationally define the organizational and institutional arrangements.

Introduction

The Philippines is one of several countries in Southeast Asia where major changes are underway in the management of fisheries toward community-based property management and/or co-management (Pomeroy 1994). This trend towards co-management is especially pronounced in the island province of Palawan, the most important area for marine fisheries in the Philippines today.

Over the last ten years, a substantial devolution of authority to manage the fisheries resources has been brought about in the Philippines by policy reforms, particularly by the 1987 Philippine Constitution and the Local Government Code (LGC) of 1991. The devolution of power from the central government to the local government and the fishing communities and organizations, however, is not absolute. A more dynamic partnership must still evolve, where the government and the fishers share authority and responsibility for fisheries management. This may be called co-management.

The purpose of this integration paper is to provide a preliminary discussion and synthesis of the current fisheries management system and of the efforts towards co-management in Palawan. Some recommendations are given to serve as a guide for developing a detailed research and development agenda for fisheries management in Palawan.

Palawan as Philippine Study Site

The island-province of Palawan is among the Philippine priority sites chosen under the "Fisheries Co-Management: A Worldwide, Collaborative Research Project." This project is being implemented by the International Center for Living Aquatic Resources Management (ICLARM), Manila, Philippines, the North Sea Centre (NSC), Hirtshals, Denmark and National Aquatic Research Systems (NARS) partners in Asia and the Pacific, including the Philippines. The choice of Palawan as a study site was prompted, in part, by earlier research that showed that Palawan has been the beneficiary of the most number of community-based coastal resource management (CB-CRM) projects during the period 1984-1994 (Carlos and Pomeroy 1995).

The ICLARM researchers made several visits to Palawan between December 1993 and May 1994. Discussions with representatives from the government, fishing communities, non-governmental organizations (NGOs), people's organizations (POs), and private groups led to

the "Forum on Co-Management of Marine Fisheries and Other Coastal Resources in Palawan, Philippines: Concepts and Experiences" on 12-13 September 1994. This forum provided a venue to clarify the issues related to co-management and/or CB-CRM of marine fisheries and coastal resources in Palawan, and to explore the appropriate research, planning and management interventions for sustainable utilization of fisheries and coastal resources. The forum had over 70 people representing these individuals and groups involved in fisheries and coastal resources management in the province.

Methodology

Institutional analysis served as the research framework to structure this evaluation of fisheries and coastal resources management systems in Palawan (Pomeroy 1995). Several sources of data were used in this analysis including: (1) theme and perspective papers presented; (2) notes of the session rapporteurs; (3) transcriptions of the open discussion; and (4) individual notes of the ICLARM and PCSDS staff.

Institutional Analysis of the Palawan Fisheries

This section provides a narrative description of the six contextual variables relevant to the analysis. These are described following the research framework shown in Figure1.

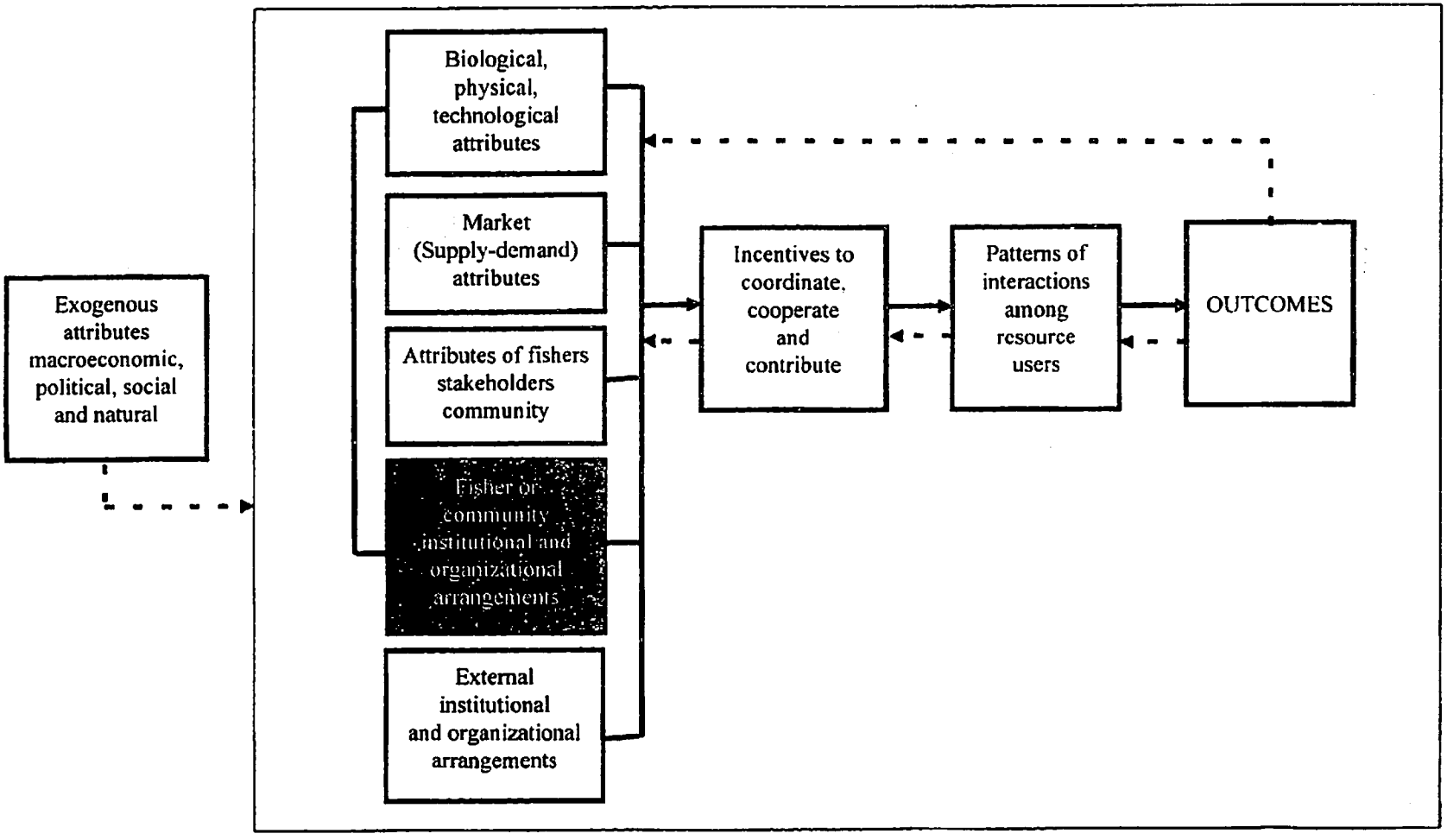
- **Biological and physical attributes**

Palawan is the largest province in the Philippines, occupying some 1.5 million hectares of land spread over 1,768 islands (Figure 2). The 1.2 million ha mainland is the most important economically and the most vulnerable ecologically because of its very steep uplands and narrow lowlands. Palawan is flanked by the South China Sea on the west and the Sulu Sea on the east.

Palawan is often dubbed as the country's last ecological frontier because many of its rich natural resources are still relatively intact. It still possesses the largest tract of tropical rainforest in the country. In 1968, some 92% of the total land area was forested but this figure has been reduced to about 50-60% by current estimates. Although most of the forests in the steeper slopes remain intact, many of those in the plains and lower hills have been cleared for

FIGURE 1

A Research Framework for Institutional Analysis



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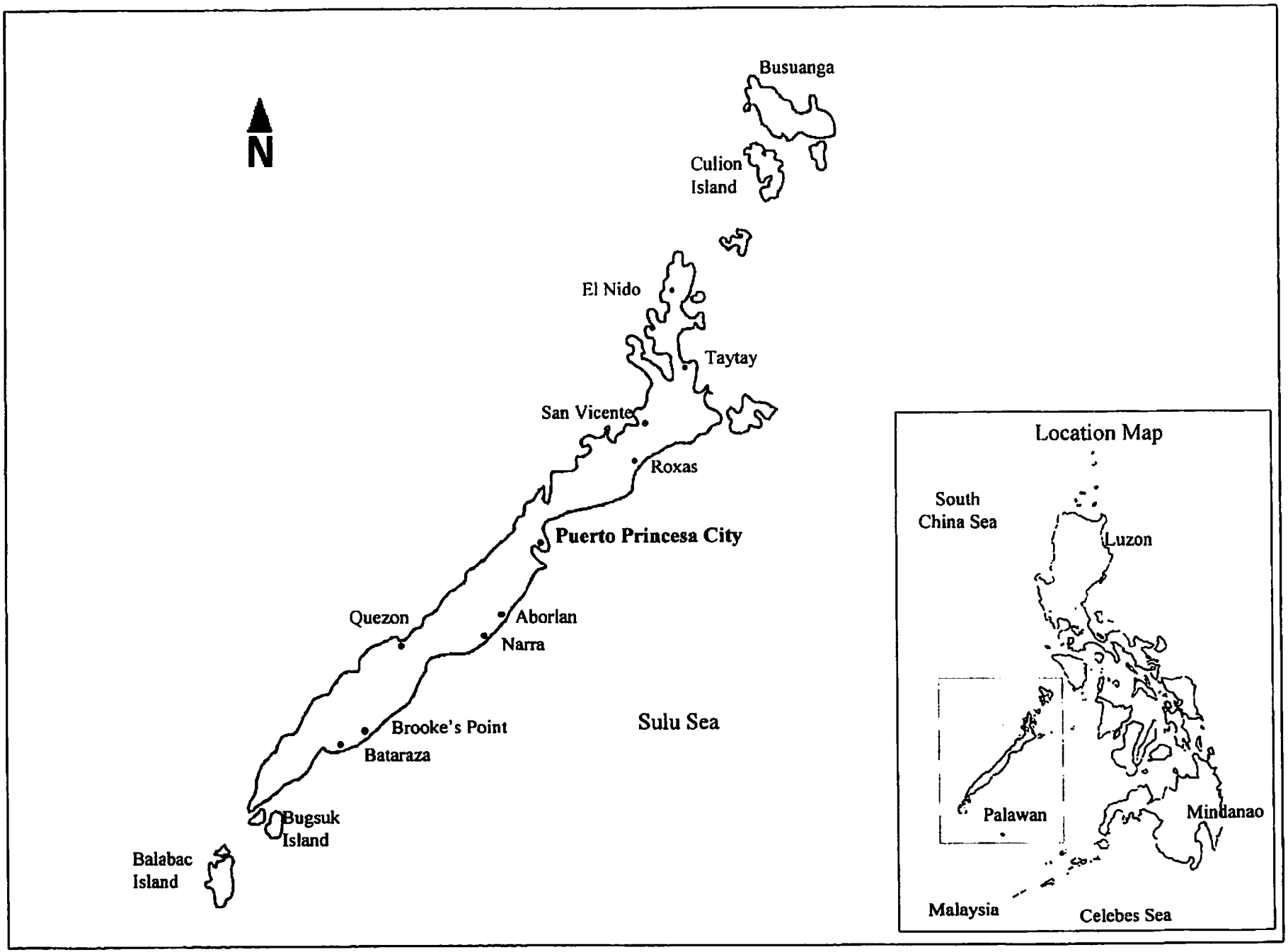

Figure 2. Location map of Palawan.

agricultural, mining and forestry purposes. These land-based activities have had negative impacts on the marine fisheries due to soil erosion that ultimately ends up in the sea. The lowlands and lower hills are planted to a wide range of agricultural crops. Palawan is currently an exporter of rice and cashew nuts. The province has abundant mineral resources such as chromite, nickel, silica, manganese and off-shore oil. The spectacular natural landscapes including excellent beaches, lakes, waterfalls and limestone cliffs, along with diverse flora and fauna, offer considerable attractions to tourists.

The in-shore coastal marine waters of Palawan are considered the richest fishing grounds in the Philippines. It is in Palawan where the largest and most intact assemblage of marine habitats in the country is found. The off-shore marine resources, including the hotly-contested Spratley Islands group, are frequented by commercial fishers from all over the Philippines and other countries. The off-shore marine resources are those beyond fifteen kilometers from the shoreline. Figure 3 shows the location of the major fishing grounds. The province has the largest intact area of mangrove in the country. The long coast and wide adjacent seas contain 40% of the country's coral reef areas. The estimated sustainable yield for fish is 136,000 metric tons annually (PIADPO 1987). There are no current statistics to compare the pattern of marine fishery catch over the last 15 years. A government evaluation indicated that as late as 1975, the exploitation rate for marine fisheries had not yet reached the maximum sustainable yield (MSY) (Abarquez this volume). The overall marine water quality is within the standards set by the Department of Environment and Natural Resources (DENR).

- **Technical attributes**

Before World War II, the fishing gears used in Palawan were traditionally simple, such as gill net and hook and line. The utilization of in-shore coastal habitats is typically by small-scale fishers. Small patches of mangroves were cut for house poles and charcoal production. The reefs were gleaned using simple fishing gears for bivalves (e.g., giant clams, oysters), cephalopods (squids and octopus), echinoderms (sea cucumber and sea urchins) and crustaceans (crabs and shrimps).

After World War II, however, the fishing effort increased considerably due to the modernization of fishing gears and an increase in the number of fishers. The exploitation of the sea by Palawan fishers went beyond the seven-kilometer limit to as far as the marine waters bordering Sabah in Malaysia, Celebes Sea in Indonesia and even up to the Spratleys. This new

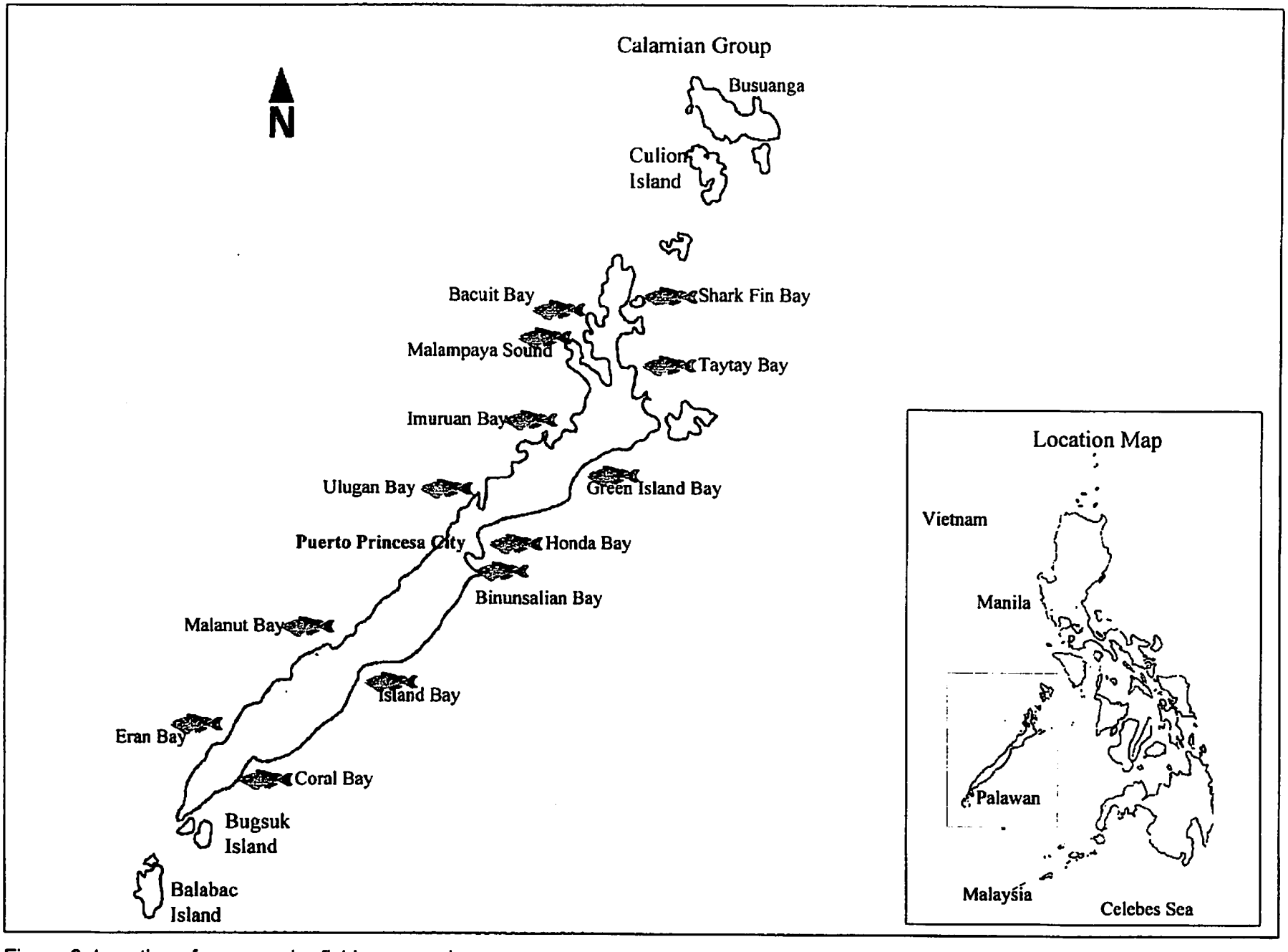

Figure 3. Location of some major fishing grounds.

exploitation pattern was brought about by migrant fishers from the Visayan region who had acquired modern technological skills in capture fisheries. It has also shifted the exploitation from the reef fisheries to the pelagic species such as anchovies, sardines, mackerel and squid. Unfortunately, some of the new fishing methods introduced were environmentally destructive, such as the use of synthetic poison and dynamite, or the use of fine mesh nets for the trawl. The number of boats not only increased but also became bigger and mechanized. The fishing gears became increasingly more sophisticated (e.g., seines and trawls). The increase in the number of artisanal fishers, together with the high rate of in-migration to the province, likewise contributed to the increase in fishing effort.

The improvement in gear technology, coupled with in-migration, has resulted in fishing conflicts not only between commercial and artisanal fishers, but also among artisanal fishers utilizing various gears. It has led to a transformation of the marine resource into other uses. For example, some of the traditional fishing grounds have been converted into pearl farming and fish cage culture farms.

It is reported that the use of highly efficient gears may have led to excess effort in some fishing grounds. Some government statistics show that Malampaya Sound, which is considered to be the "Philippine Fish Bowl," accounted for 19% of the total national municipal fishery catch reported in 1973. A 1993 figure, however, indicates that Malampaya Sound now accounts for merely 1.17% of total national municipal fishery production (BAS 1993).

- **Market (supply-demand) attributes**

The fish caught in Palawan have three major markets. First is the local market within Palawan, which absorbs approximately 10-25% of the total catch. The species sold here include those captured by gill nets in the reef areas such as groupers and snappers; by spear fishing and fish corrals in sea grass beds such as siganids; and by commercial fishers using purse seines such as anchovies and clupeids and trawl nets such as slipmouths. Second is the Metro Manila market, where most of the catch of the commercial fishers is sold. Palawan has been supplying, on average, 60% of the fish consumed in the Metropolitan Manila area. The third is the export market, particularly to Taiwan and Hongkong, which prefers mainly first class fish and some live species of groupers and lobsters. There is allegedly a fourth "underground" market in which the fishers barter their fish for electronic goods in the maritime borders of Taiwan, Malaysia and Indonesia.

Fish traders or intermediaries largely handle fish marketing. Marketing cooperatives are generally absent. Most cooperatives failed due to mismanagement. The *suki* relationship (a credit-marketing relationship between fisher and fish trader) is fairly common. Market facilities are poor and inadequate, particularly landing ports and cold storage facilities. Credit and financing are generally not available, except those provided by the fish traders. Since the primary market for fish is outside Palawan, market information is disseminated through a sophisticated but informal communication network, mainly between local traders, traders from Manila and exporters/importers.

- **Attributes of fisher stakeholders**

The coastal and marine fisheries resources of Palawan have traditionally been exploited by the indigenous fishing communities. Among these are the sparsely distributed coastal tribes of Bataks and Tagbanuas. The population of Palawan remained low up until World War II. After World War II, migrants from the Visayas started to arrive in search of better livelihood opportunities, particularly for farming and fishing. In 1988, the estimated population of Palawan was 478,000, while the density was 32 persons per sq km (Philippine Almanac 1990). The annual rate of increase during the 1980's was 4.6%, of which more than half was due to in-migration. The estimated population in 1995 is 620,000 with a population density of 42 persons per sq km.

Rapid in-migration is becoming a problem, particularly from the resource use viewpoint. More than half of the population of Palawan is under 20 years old. The majority of the populace are landless migrants who are residing in the ecologically sensitive uplands and coastal areas. In 1983, it was estimated that on the main island of Palawan 100,000 ha (8%) were used for settled agriculture, while 265,000 ha (23%) were already utilized for various forms of shifting cultivation.

At present, about 60% of the province's poverty stricken population lives along the coast. Many of them are landless and are highly dependent on the fisheries resources for their livelihood. Those who are engaged in part-time farming are often involved in slash and burn agriculture. Both off-farm and non-fishing livelihood opportunities are very limited.

Most fishing villages in Palawan are heterogeneous. Many fishers believe in superstitions and resort to various fishing rituals. A very high environmental literacy exists. The fishers are aware of the negative environmental repercussions of engaging in destructive

fishing practices. Nonetheless, some are engaged in cyanide and blast fishing to satisfy basic family needs.

- **Local institutional arrangements**

The traditional property regime for marine fishery resource as practiced by the indigenous tribes was basically common property. The management was largely informal, where fishing activities were managed by a senior fisher or village chief. The advent of the fishers' associations (FAs) is fairly recent. Before, the need to organize was not apparent because the resource was abundant and the fishers were few. Most of the fishing rights were also informal. Given the depletion of the resource and the growing number of users, the need for collective action has become more pressing.

Fishers in Palawan have begun to develop and implement informal institutional arrangements. In Ulugan Bay, for example, a gill netter may only set his net at least 10 meters away from the entrance of the fish corral. In Binunsalian Bay, a verbal agreement exists among the religious ministers to continuously remind their members about engaging in destructive fishing practices.

- **External institutional arrangements**

The formal state management of the marine fisheries in the Philippines was introduced by the Spanish and American colonial powers. This management structure was legalized when Fisheries Act No. 4003 was promulgated on December 5, 1932. This Act authorized the compilation of laws and regulations relating to fisheries and aquatic resources development and management. The formal management of fisheries was effectively transferred to the state, shared by both the local and the national governments. The boundaries of the municipal (artisanal) fisheries was set at three nautical miles (roughly converted to seven kilometers) from the shoreline. Fisheries Act No. 4003 promoted the development of the Philippine fishing industry. It was effective in developing and managing fisheries at the time because the human population was sparsely distributed and the demand for fish and other marine products was largely for domestic consumption.

In 1975, Presidential Decree (PD) 704 was issued, and has since become the main law guiding fisheries management in the Philippines. PD 704 reiterated the geographical limit of municipal fisheries within the seven kilometer limit. Beyond seven kilometers was allocated to

the commercial fishers. The commercial and municipal fisheries sectors were subdivided based on vessel gross tonnage (GT): commercial fisheries include fishing operations that use vessels of over 3 GT, while municipal fisheries involve the use of 3 GT or less, including operations that do not involve a watercraft. The state ownership or management of the fisheries was divided between the national government through the Bureau of Fisheries and Aquatic Resources (BFAR) and the local government units (LGUs), principally through the municipalities. BFAR has the jurisdiction and responsibility for the management of all fishery resources of the country outside the municipal marine waters.

The passage of the Local Government Code (LGC) in 1991, however, has modified this system of fisheries management. Many of the powers and responsibilities lodged within BFAR have been devolved to the LGUs, specifically to the municipal governments, NGOs and people's organizations. In particular, the boundary of the municipal fisheries has been expanded from 7 to 15 kilometers from the shoreline and the municipal council has been empowered to issue municipal licenses. Hence, Palawan's municipal waters are independently managed by the 21 coastal municipalities (including the capital city of Puerto Princesa) while those beyond 15 km are managed by BFAR.

The management of the municipal fisheries is legally a state property regime through the municipal governments. In reality, what has been happening is more of an open access regime. First, municipal fishers are largely unhampered in their movement from one municipal fishing ground to another. Second, the municipal governments are generally ineffective in protecting their marine waters from the intrusion of commercial fishers and in enforcing laws and regulations.

- **Exogenous factors**

Three external factors affect the fisheries of Palawan. First is the demand for fish by foreign markets. There has been an increasing demand for fresh and live fish for restaurant consumption in international markets. There has also been an uptrend in the demand for live tropical fish for the aquarium industry.

The second factor is related to boundary conflicts. The Spratley Island group, which is a very rich marine fishing ground, is hotly contested by several South East Asian nations including the Philippines. Another boundary-related issue is the intrusion of foreign vessels into Philippine territorial waters. A number of foreign-owned vessels have been apprehended.

The third factor is linked to tourism. Tourism has had both positive and negative impacts. On the conservation side, the use of reef areas for outdoor recreation, e.g. snorkeling, diving, etc., has led to their protection. On the economic and equity side, however, those who obtain the most benefits from tourism are the capitalists rather than the poor coastal residents.

- **Patterns of interactions and outcomes**

This contextual background of fisheries management in Palawan may be summarized in three major time lines. Up until the 1900s, there were no major fisheries resource problems because the resource was abundant and the resource users were very few. Problems began to emerge in the 1950s when people started to migrate to Palawan and the gear technology improved. Although the marine habitats began to decline in area coverage, due in part to the conversion of mangroves and use of explosives on coral reefs, the fisheries yields were still at the sustainable level. The situation started to worsen between 1970 and 1990. The fishing effort increased for both the municipal and commercial fishing sectors and the demand for fish increased from both the local and foreign markets. The rate of destruction of marine habitats also accelerated. It is felt that the current pattern of resource utilization is not sustainable since many of the municipal fishing grounds are already overfished. This contention is illustrated by the examples from Ulugan and Binunsalian Bays, both in Puerto Princesa City.

The temporal and spatial pattern of fishing in Ulugan Bay is typical of the whole province. In the 1970s, most fishers were confined to the interior of the Bay. There were few coastal dwellers at that time and there were also very few transient fishers. The market demand was largely limited to the local residents. Beginning in the 1980s, the population increased dramatically due to in-migration. This population increase, coupled with the use of more efficient gears, resulted in biological overfishing. This is a combination of growth and recruitment overfishing where the level of fishing effort in a given fishery exceeds that needed to generate the MSY (ICLARM 1992). This has forced the fishers to move their fishing activities from inside the Bay to the mouth of the Bay. Within a span of ten years, the mouth of the Bay also became overfished. At present, most of the fishers have moved their fishing outside the Bay. Even in this area, there are now signs of biological overfishing. Some fishers have begun to move further south in Palawan to Quezon municipality. Those who continue fishing in the interior and mouth of the Bay are doing so for household consumption only.

The same situation is occurring at Binunsalian Bay on the eastern coast of Palawan. Traditionally, only Puerto Princesa Bay was utilized for fishing activities. Given the influx of the migrants in the 1980s, the fishers began to exploit the northern portion of the coastal village of Mangingisda as well as certain spots of Binunsalian Bay. By the 1990s, the entire stretch of the Bay, particularly 1-2 kilometers off the shoreline, was utilized for various types of fishing activities. Signs of biological overfishing are evident in declining catch rates for gill net and hook and line fishers. Many fishers in Binunsalian Bay have moved outside the Bay and fish as far away as the southern islands of Balabac.

There are a number of land-based activities, which are external to the fisheries sector, that threaten the functional integrity of the marine waters. The siltation of the coastal area is starting to become serious due to the forest destruction going on in the adjacent catchment areas. Slash and burn agriculture, which leads to soil erosion, is being practiced in the surrounding catchment of both Bays. There is also the dumping of domestic waste due to the absence of treatment facilities.

There are no available quantitative data to establish whether or not the maximum economic yield (MEY) in the fisheries has been reached. It appears, however, that many of those engaged in fishing are still making some profit. In terms of profit distribution, it appears to be largely skewed in favor of those who have capital: the traders, the middlemen, and the large commercial boat owners.

In terms of resource management, it appears that the state regulatory mechanisms of both the national and municipal governments have been ineffective in managing the fisheries resource. This particularly holds true in the case of enforcement of the fisheries laws. Figure 4 shows that many of the destructive fishing practices occur within Palawan waters. These fishing methods are illegal under both national laws (e.g. P.D. 704) and other municipal and provincial ordinances.

Emerging prototypes of co-management and common property regimes

It appears that the state-led management of the marine fisheries in Palawan has been inadequate in promoting the sustainable utilization of the coastal resources. Although some privatization schemes (e.g., some small islands) have been successful, these have not substantially produced broad-scale results in reversing the degradation and overexploitation of

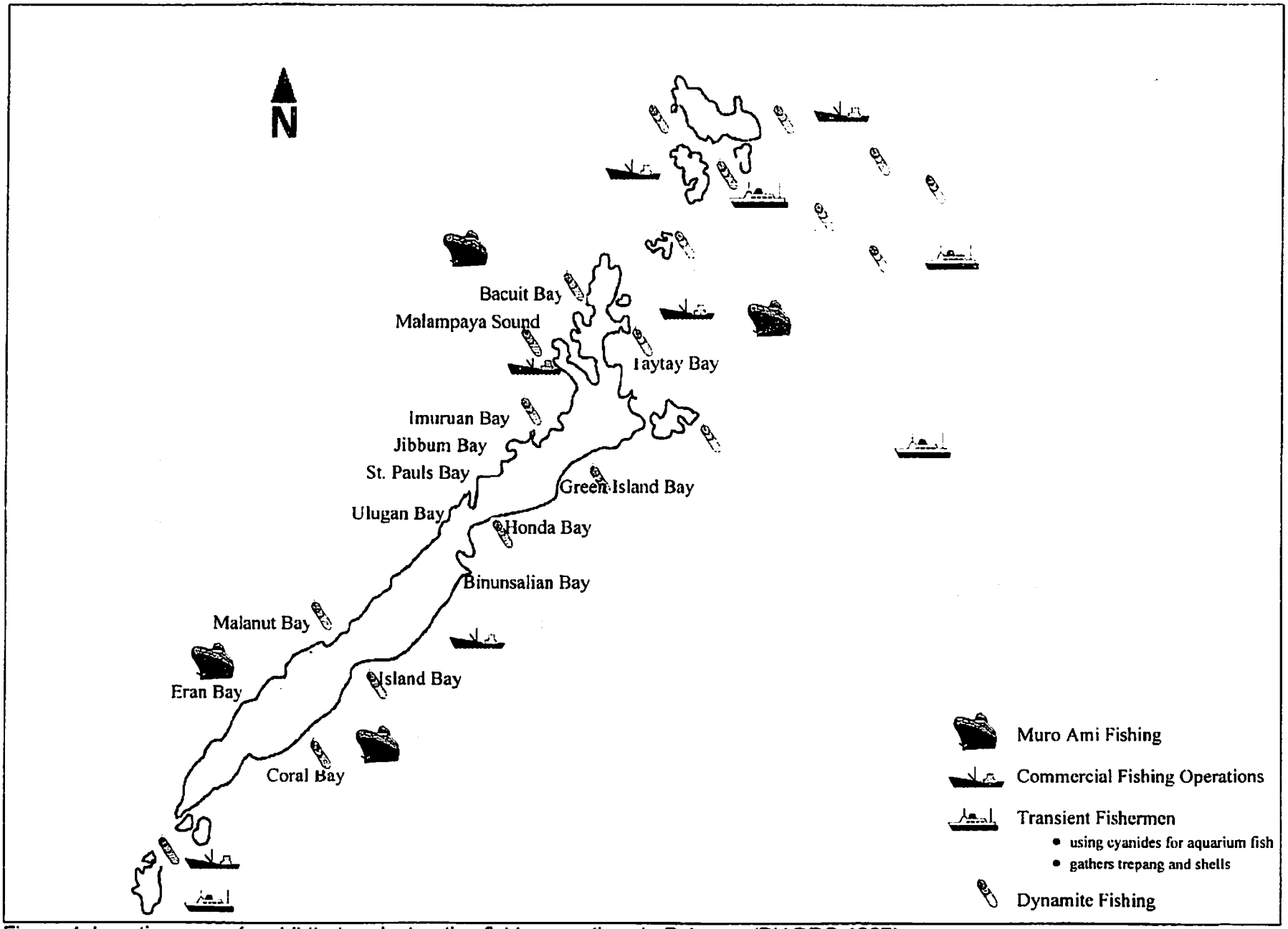

Figure 4. Location map of prohibited or destructive fishing practices in Palawan (PIADPO 1987).

resources. Hence, the management strategy for marine resources is towards more localized co-management or community-based resource management.

Within Palawan, emerging "prototypes" of co-management may be observed in at least three coastal areas (see Table 1 and Figure 5). At these sites, the ecological systems have been under stress but are now showing recovery. At the three sites, various local and government institutions have specific roles in the co-management scheme. In reviewing these cases, only four management functions are considered: (1) community organizing, (2) education and information campaign, (3) project assistance to beneficiaries, and (4) law enforcement. Ulugan and Honda Bays are both situated in the capital city of Puerto Princesa. Bacuit Bay is located in the northwestern coast of Palawan.

Case No. 1 - Ulugan Bay

Ulugan is a traditional fishing area which lies 47 km northwest of Puerto Princesa City. It is a shallow bay with surrounding mangrove forest, coral reefs and seagrass beds. Five fishing villages, comprising some 5,000 individuals, are located around the Bay. Various destructive fishing techniques were previously practiced but their use has been recently curbed. (see the paper of D. Sibal for the detailed site description).

In July 1993, the DENR chose Ulugan Bay as one of its nationwide sites for the Coastal Environmental Program (CEP). The CEP aims to promote the sustainable utilization of coastal resources with the active participation of the local communities. It has several components, including community organizing (CO) and livelihood assistance.

The CO component has been subcontracted to a local NGO, the Ulugan Bay Foundation, Inc. (UBFI). Prior to the CEP, UBFI carried out CO activities in Ulugan Bay using its internal funds. Under the CEP, UBFI has undertaken CO-related activities such as community dialogues, generation of some baseline socieconomic data, formation of fishers' associations (FAs) and supervision of livelihood projects.

The DENR has taken the lead in information, education and communication activities. More than a hundred fishers have participated in lectures on coastal and terrestial ecosystems, population control and nutrition. The DENR also provides some development assistance to the project participants. To date, 13 livelihood projects have been introduced.

Table 1. Prototypes of co-management initiatives at selected bays in Palawan.

Site/Activity	Government		Non-government	Community/ POs	Private
	National	Local			
Ulugan Bay, Puerto Princesa					
- community organizing			#		
- education / information	#	+	+		
- project assistance	#	+			
- enforcement	+	#		+	
Honda Bay, Puerto Princesa					
- community organizing	+	#			
- education / information	+	#			
- project assistance	+	#			
- enforcement		#		+	
Bacuit Bay, El Nido	#		+		
- community organizing	#		+		+
- education / information	#				
- project assistance	#			+	+
- enforcement					

Legend: # - lead
+ - support

The City Government of Puerto Princesa, through its *Bantay Dagat* Task Force, has been at the forefront of enforcing fisheries and other maritime laws. Other agencies providing support include the national government through its Naval Station in Ulugan Bay and the members of the POs and FAs.

A number of factors make Ulugan Bay a good site for fisheries co-management. The UBFI, as the lead NGO, has committed, competent and credible community organizers. There is a high level of local environmental awareness and active participation from the FAs and POs. This has led to the acceptance of the CEP as an alternative coastal management strategy. There is also strong institutional support from the city government at the local level and the DENR at the national level.

Case No. 2 - Honda Bay

Honda Bay covers some 28,000 ha with 12 charted islands. Both the islands and the coastline are surrounded by extensive shallow coral reef platforms, sand cays and mangroves. About 85% of the 2,500 households in the coastal villages are engaged in fishing either as a primary or alternative source of income (Sandalo 1994).

The Honda Bay case illustrates how the fisheries management functions change over time with the reorganization of the government bureaucracy. Currently, many of the management functions are undertaken by the city government. In the past, however, the CO and the IEC activities were carried out primarily by national agencies. Among these were the field activities in the village of Tagburos and neighboring islands by the Natural Resources Management Center (NRMC), an agency attached to the DENR. The former Palawan Integrated Area Development Project Office (PIADPO) spearheaded the pilot testing of the Honda Bay Resource Management Project in the villages of Manalo and Sta. Cruz.

The city government, however, is the most active in law enforcement. The entire stretch of Honda Bay was earlier frequented by fishers using cyanide and dynamite. Under the current political leadership of the city, the Coastal Areas Protection Project (popularly known as Baywatch) was created in 1992. It is a drive against destructive fishing and other sea-related illegal activities. Honda Bay is one of its strategic sites. Baywatch members conduct 24-hour patrols. Its biggest apprehension to date are four big fishing boats involved in blast fishing and one big fishing boat involved in cyanide fishing. This has resulted in the convictions of 96

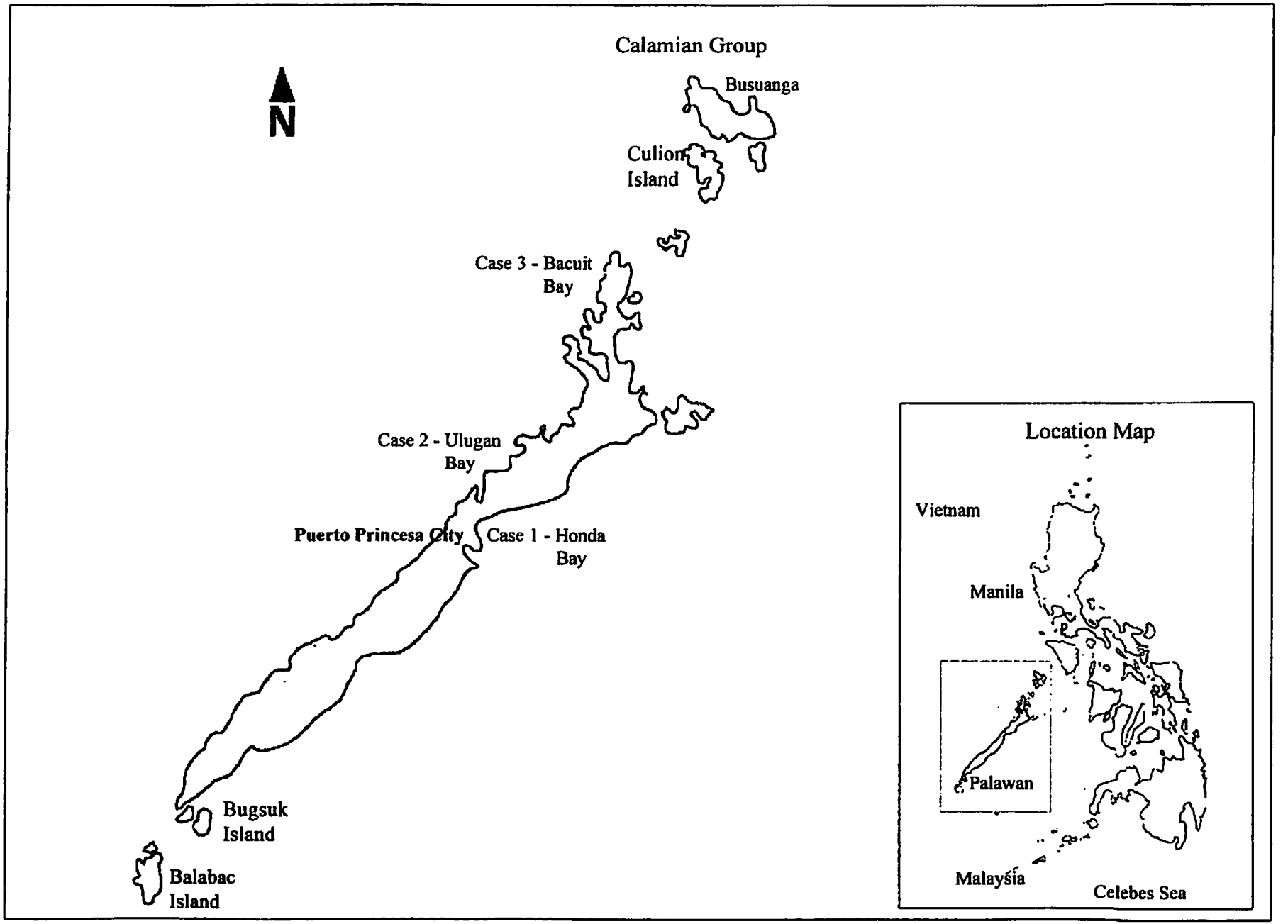

Figure 5. Location map of candidate co-management sites in Palawan.

persons (Marcelo this volume). Since 1992, the destruction of Honda Bay's coastal habitat has been effectively halted.

Several factors may be attributed to the initial success of the Baywatch. One, the political leadership has legitimized and supported the initiative by the issuance in 1992 of City Ordinance No. 19-92 and 15-92 and of Executive Order No. 01. Two, the village constituents and NGOs cooperate by providing information on violations of fisheries laws. Third, the field staff of Baywatch have demonstrated their commitment despite great odds and risks in their law enforcement activities.

Case No. 3 - Bacuit Bay

Bacuit Bay is situated on the northwestern tip of mainland Palawan, within the municipality of El Nido. It forms part of the 96,000-ha El Nido Marine Reserve (ENMR) which was established under DENR Administrative Order (AO) No. 14 in 1991. The marine waters of Bacuit Bay are surrounded by extensive coral reefs, seagrass beds and fine sandy beaches. Aside from being a local fishing ground, several islands are being used for various tourist-related activities.

What makes Bacuit Bay unique is that the DENR takes the lead in all the four functions of coastal resources management. The basic approach is the use of marine protected areas (MPA). The DENR initiatives are supported by other organizations. One NGO, the Haribon Foundation, undertakes some CO and IEC activities. The Ten Knots Company (Soriano Group), which owns the largest tourist resort, has been very active in IEC and in patrolling activities around its marine areas. The law enforcement function is shared by the municipal government and the community members. Pido (1992) documented the various "men in uniform" involved in law enforcement: (1) the Citizen Armed Forces Geographical Unit (CAFGU) under the general supervision of the Western Command (WESCOM); (2) the Philippine National Police (PNP), (3) the PCG under the Philippine Navy; and (4) the Special Project Unit (SPU) of the Philippine Army.

Other factors, aside from the cooperation of various organizations, may be attributed to the initial success on management of Bacuit Bay. DENR's commitment has played a pivotal role towards increasing acceptance by the community of marine resource conservation through the MPA approach. It has also generated employment since 98 percent of the park's staff are

from the local community. Also, the whole area is a prime tourist destination. The private operators have cooperated in environmental protection efforts for their own benefit at a very minimal cost.

Implications for Future Interventions

The above picture of fisheries and coastal resources management systems in Palawan has implications for planning and policy-making. It provides some guidelines for research, information needs, and development of projects to mitigate or solve certain management issues. The recommendations are grouped into three, following the classification of Eskeland and Jimenez (1991): (1) institutional and organizational arrangements, (2) incentives/regulations to change behavior, and (3) direct public involvement/investment.

Institutional and Organizational Arrangements

One major research concern is the clarification of legal rights and responsibilities. Most of the legal rights are contained in legal documents such as P.D. 704 and RA 7160. There are, however, informal or traditional rights and rules systems that are not contained in the statutes. These informal fishing rights systems, which operate at the village level, have been adopted by the fishers without any legal sanction. The compatibility of the formal and informal rules needs to be studied and resolved.

Another area that requires research is the clarification of organizational jurisdiction and responsibilities. This is rather crucial because of the special status of Palawan. At present, there are still some gray areas about the fishery jurisdiction of BFAR versus the municipal governments. There is an on-going jurisdiction battle between BFAR and the Palawan Council for Sustainable Development (PCSD), the highest policy-making body in the province, over the issue of "*paaling*" - a fishing method that uses air compressor to drive fish into the nets. BFAR has allowed its use while PCSD has expressed disapproval.

The issue of organizational jurisdiction and responsibilities is most crucial in terms of law enforcement. There are unresolved issues on the appropriate agency for monitoring and inspecting markets and ports to ensure that fish are not illegally caught. The boundary limits of the PNP maritime police versus the PCG are unclear. The roles of POs and FA need to be

clarified. Should POs and FAs report violators or can they themselves make the arrest? The organizational overlaps must be clarified among the national government agencies (NGAs). Mangrove management is still a controversy between the Department of Agriculture (DA) and the DENR. Organizational integration must work both horizontally and vertically.

Incentives/Regulations to Change Behavior

The impacts of the various regulatory tools, e.g., environmental, economic, social, etc., should be determined. These include instruments such as tradable fishing permits or quotas, taxes, license fees and regulation by gears, vessels or season.

Licensing is another area that must be given attention. It appears that the government revenues generated through licensing fees are not commensurate with the profits gained from commercial fishing. The current commercial fishing boat license (CFBL) fees as specified in Fisheries Administrative Order No. 144 are no longer realistic. These fees must be re-structured in such a manner that they reflect production and market realities.

Direct Public Involvement/Investment

There are a number of conservation and infrastructure projects that require direct public involvement and/or investment from the government or from foreign sources. One is mangrove reforestation to enhance coastal habitats and provide a nursery ground for some juvenile fish.

The improvement of physical infrastructure is also needed to support fishery operations. Among those recommended are a fishing port in Puerto Princesa City (Camacho, this volume) and cold storage facilities in Malampaya Sound (Pido et al. 1990). A fish port is imperative for landing, packing and safe storage of fish caught in Palawan waters. Cold storage facilities are needed to preserve the quality of fresh fish products. The law enforcement agencies in Palawan, moreover, require better patrol craft with proper communication equipment that can match the sophisticated boats and equipment of violators.

Another area is local institution building. Capability upgrading efforts, experiential learning and networking are needed to enable local institutions to fulfill their strategic mandates and respond to new challenges in the fishery sector on a collective front.

Government investment may also take the form of direct financial support to fishers. In the case of the Northern Palawan Fisheries Development Project (NPFDP), the government provided direct credit access for the acquisition of non-destructive fishing gears and supplies which provided work to approximately 2,500 fishers between 1980 and 1989 (Abarquez, this volume). Investment may also take the form of alternative income-earning projects such as non-coastal dependent livelihood activities as well as aquaculture practices that lessen pressure on capture fisheries and marine habitats.

Other Concerns

Many of the current attempts towards co-management have achieved initial success because of strong leadership or personalities. Hence, there is a need for continuity and sustainability. Efforts towards co-management need not stop because of a change in political leadership.

Fisheries co-management also requires a systems approach to management. It implies that fisheries co-management should become a component of a broader integrated coastal zone management strategy (CanSea et al. 1995). It calls for the development of a province-wide CRM program, and may require a formal memorandum of agreement (MOA) among the relevant parties involved.

Some new management ideas may also be tested, such as the establishment of Management Fishing Cooperatives (MFC) (Reyes this volume) to serve as an umbrella organization of all the fishing organizations within the province. Its main aim is to support smaller fishing cooperatives in their operations by providing direction, management and administrative inputs as well as technical assistance. The MFC also hopes to promote not only livelihood among its members but also protection of the marine environment.

Finally, the issue of sustainability of funding is crucial. Grants from external/foreign and other private sources must be secured and local sources must be tapped beyond a certain point of external investment.

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PART 3
Experience Papers

The Experience of the Ulugan Bay Foundation Inc. in Community-Based Coastal Resources Management

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Abstract

This paper discusses Ulugan Bay Foundation's (UBFI) experiences and insights in implementing community-based coastal resources projects in Ulugan Bay, Palawan. The area lies at the midwestern coast of Palawan, 47 km northwest of Puerto Princesa City. It is a major, shallow bay with diverse coastal mangrove forests, associated with tidal mudflats, coral reefs, seagrass beds, small islands, smaller bays, and rivers that empty into the bay. Five barangays of about 5,000 people surround the bay.

The people of the Ulugan Bay area, who are mostly fishers and upland farmers, are the main beneficiaries of the project. UBFI, a locally based non-government organization, aims to empower people through capability-building activities for the communities. The national government, through the Department of Environment and Natural Resources, and the city government, through its *Bantay Dagat* and *Bantay Gubat* Programs, provide institutional support.

The real challenge to community organizing comes when a crucial issue requires a collective struggle. This has produced remarkable results. An important factor that may have brought about initial success in CRM efforts in Ulugan Bay was the presence of competent and strongly committed community organizers (COs) who believe that community-based resource management is the most viable and sustainable approach to resource management.

Based on the experiences of UBFI, the following conclusions and recommendations are seen as vital to the success of the CB-CRM project: (1) efforts and funding support (of DENR) must be sustained without letup; (2) a credible NGO intervenor must be locally-based and deeply committed to the program; (3) the selection process for COs must be rigid to assure a reasonable quality of output and commitment to work; and (4) the principles and processes of community organizing must be internalized and seriously applied.

Background

The Coastal Environment Program (CEP) is a flagship project launched in mid-1993 by the Department of Environment and Natural Resources (DENR) in various regions of the Philippines. Ulugan Bay is the pilot site for Region IV. The Philippine government-funded CEP has eight components: (1) community organizing, (2) information, education and communication (IEC), (3) resource mapping and assessment, (4) techno-economic work, (5) livelihood, (6) networking, (7) resources protection and rehabilitation, and (8) monitoring and evaluation. The community organizing (CO) component was contracted to UBFI, a locally-based NGO. CO is the backbone of the CEP, being a major intervention for the sustainable management of coastal and marine resources.

The UBFI initiated community organizing activities in Ulugan Bay in 1992. These initiatives, however, were funded mainly from its internal resources. With the launching of the CEP in mid-1993, CO activities were formalized, reinforced and expanded.

Through its seven community organizers working in 16 communities, UBFI pursued several CO interventions. The strong sense of commitment, integrity and competence of the COs were crucial to work implementation. The COs acted as observers and catalysts in effecting change. The communities, though, remained as the beneficiaries of and main actors in the CO process. The distribution of beneficiaries is given in Table 1.

Table 1. Beneficiaries of Livelihood Projects in Village/Sitios.

Barangay/Sitio	**No. of Beneficiaries**
1. Manabori	6
2. Bahile, Matahimik	10
3. Macarascas, Baruang	11
4. Buenavista, Madahon	17
5. Macarascas, Bagong Sikat	21
6. Macarascas, Masaya	19
7. Tagabinit, Tagabinit Centro	23
8. Tagabinit, Nasuduan	11
9. Cabayugan, Tagnipa	16
10. Buenavista, Centro	12
11. Bahile, Tarunayan	23
12. Bahile, Umalagan	14
13. Buenavista, Dacolanay	12
14. Tagabinit, Makirawa	14
15. Bahile, Pagkakaisa	12
16. Bahile, Pag-asa	14

The DENR, through its Provincial Environment and Natural Resources Office (PENRO) and Community Environment and Natural Resources Office (CENRO) as well as the city government, through its *Bantay Puerto* Program, provided institutional support. The implementation of the CO component of the CEP required collaborative efforts with the city government, the different barangays in Ulugan Bay and the local DENR-PENRO and CENRO. Most of all, it badly needed a sustained and adequate financial support from the DENR or the city government. The city government assisted UBFI in making available to Ulugan Bay communities information and services on the city's environment thrust. This also holds true for the DENR's local office.

Although UBFI's role in implementing the CO component is legally that of a contractor, it has expanded its role as a partner of the DENR and the city government in the conservation and sustainable utilization of the resources in Ulugan Bay. It believes that community-based resource management is the most viable and sustainable approach to resource management.

Organizational Set-up

The CEP is planned and approved at the regional level through the Regional Executive Director (RED) of DENR. It has a Project Manager under the Office of the RED and a Provincial Coordinator counterpart at the DENR Provincial Level. These personnel are directly in charge of supervising field level implementation. The local DENR-CENRO plays a supportive role in the project. The DENR-PENRO delegates to UBFI the implementation of the CO and small livelihood generation components. The organizational chart of UBFI is shown in Figure 1. The resource mapping and assessment component is channeled to a private firm. The contractor coordinates with UBFI during actual work. DENR-PENRO has direct links with the community through the implementation of five other CEP components, namely, information, education and communication, techno-economic work, networking, resource protection and rehabilitation, and monitoring and evaluation. Whenever issues in the community are beyond its jurisdiction, UBFI coordinates with other concerned agencies in conducting dialogues/consultations.

The COs are on equal footing with the residents and the local leaders. They act as facilitators whenever issues/problems need to be resolved. They do not, however, provide solutions or inject personal opinions. They simply elicit information from the residents and extend technical assistance whenever needed. All decisions are reached through a consensus.

Figure 1. Organizational Structure of UBFI.

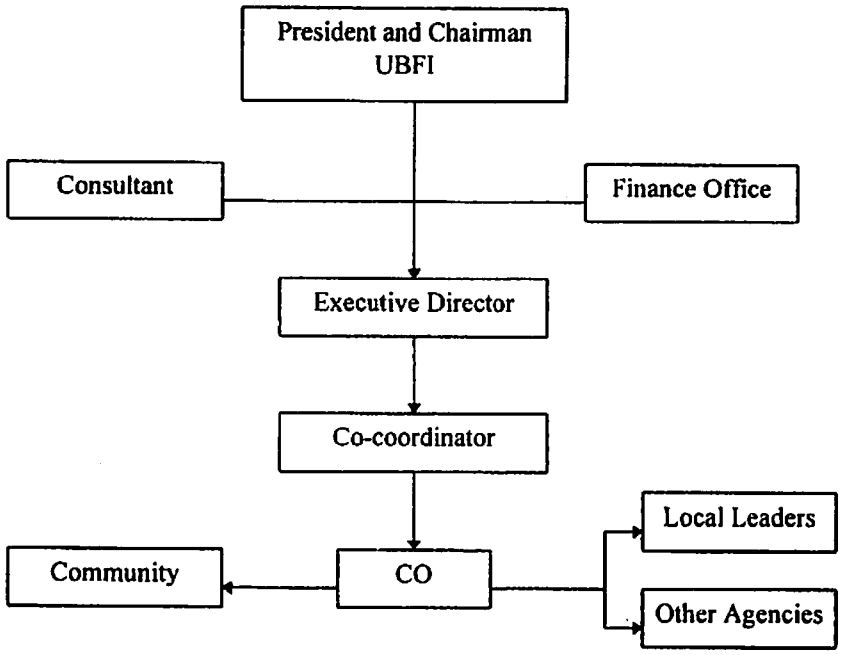
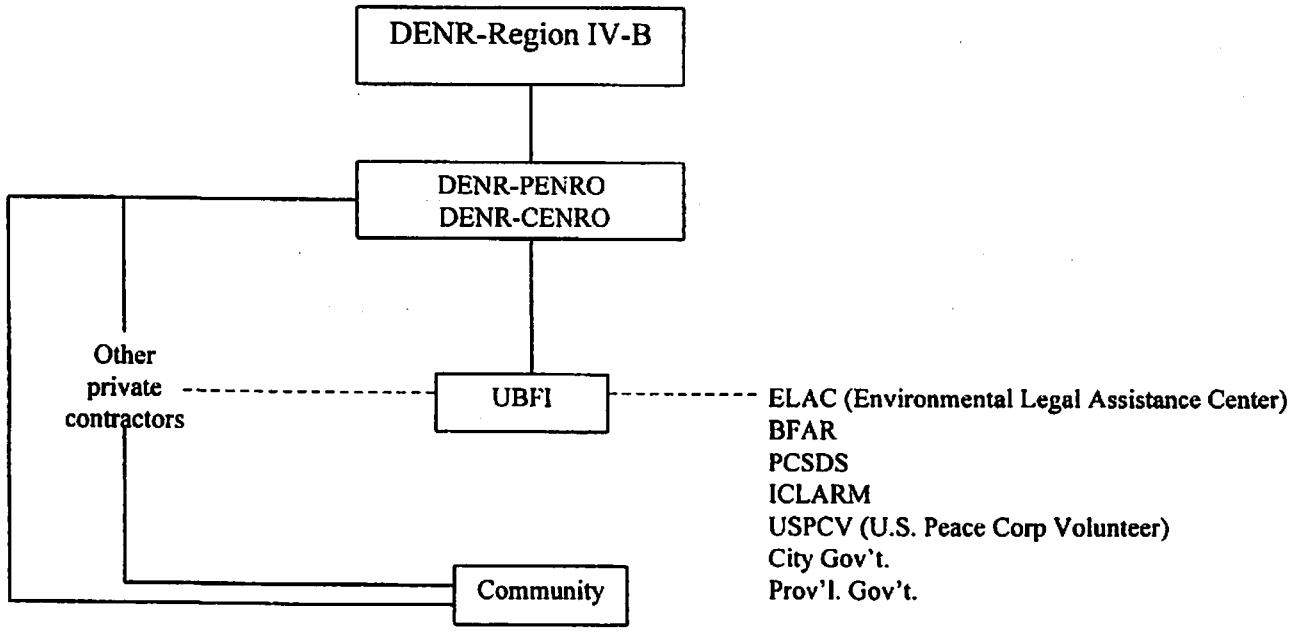


Figure 2. Institutional Linkages.



Summary of Experiences

Selection and Assignment of COs

COs were selected based on the following qualifications: (1) degree in fisheries, agriculture, sociology, forestry, community development or related disciplines; (2) work experience in CO; (3) preferably residents of Ulugan Bay; and (4) willingness to be assigned in Ulugan Bay. An advertisement over two local radio stations generated a total of 57 applicants.

The hired COs were briefed by UBFI on the CEP and on the Ulugan Bay situation. The place of assignment of each CO was given together with a letter of introduction by UBFI to the barangay officials. No directions were provided on how to get to the site. They were also not informed of where they would stay in their respective assigned areas. This was part of the requirement to be flexible and innovative in the field. A refresher training was given to the COs after two weeks of community integration.

Area of Coverage

According to DENR's definition of coastal communities, areas within 1 km from the highest tide going landward are covered by the CEP. Without substantially departing from this definition, UBFI included certain communities that have an impact on the bay. Seven COs and one CO Coordinator were hired to cover 16 communities in 5 barangays of Ulugan Bay.

CO Intervention

Community Integration

The COs were required to live in their respective areas of assignment to establish rapport with the community. This gave the COs a deeper understanding of the people's problems and perceptions of coastal resources. By staying in their area of assignment, they developed a feeling of belonging with the community. They joined fiestas, school, church and other social activities, e.g., *gulpi mano*, *kawilan*, *pandawan* and *inuman.* In the process, spot mapping, household socioeconomic survey and social investigation of the community were done, as these are essential for reflection and analysis. Community confidence in the COs was also built and nurtured.

Community Orientation on CO Role

To lay down the community expectations of their CO and vice versa, an orientation was undertaken one month after the fielding of the COs. This proved to be beneficial since the community was already able to relate to the COs and the local people were able to articulate their expectations. But more than the levelling off of expectations, the orientation became an opportunity for the village residents to identify their needs. It also became a forum for ventilating their frustrations on government personnel.

Community Dialogues

The people themselves asked for dialogues as a venue for addressing prevailing issues in the community. Common sentiments on various issues cropped up during the dialogues. These issues were land tenure, relocation of fisher-occupants on Rita Island, use of compressors in the bay, cutting of forest trees for housing and fish corral, and a ban on *kaingin* (shifting cultivation).

Some of these issues still remain unresolved today. However, bringing them to the attention of concerned agencies during the dialogues was already considered a big leap for the communities. In the past, dialogues were not conducted. Why some of the issues have remained unresolved up to this time can be attributed to the inadequacy of the local DENR to provide answers to or take action on the issues.

Building on the Prevailing Issues

a. Displacement of Rita Island Fisher-Occupants

When the fisher-occupants were ordered by the owners of Rita Island to vacate the island, they felt that the city government's designated relocation site in Sitio Manabori was unacceptable. The fishers were not willing to resettle because of livelihood-related problems. Instead, they inched their way to the shores of Sitio Tarunayan despite the efforts of the local DENR to dissuade them. Because of lack of space, they used the forest near the shore to build their houses. Tarunayan thus became blighted. As a strategy, the COs, together with the barangay and sitio officials, passed on the problem to the residents of Tarunayan. The Tarunayan residents came up with a consensus to reduce the size of their present lot to accommodate the displaced Rita Island fishers on some conditions. One of these was that the new occupants should not sell their "rights" to the piece of land that would be allotted to them.

With this development, the community tried to reblock the houses and to realign the water pipes. It was mutually understood, however, that they did not and could not own the land since it was a timberland.

b. *Kaingin* Ban in Puerto Princesa City

The city government banned *kaingin* in the entire city. Ulugan Bay was one of the affected areas. The ban was considered a good environmental move by the city government but a sustainable alternative for the upland farmers was not put in place. Thus, life for the affected people in Ulugan Bay area became miserable. Meetings initiated by the COs in their respective areas provided a venue for the people to air this problem and to collectively find solutions. The meetings were so well-attended that they overshadowed other meetings in the area. Since the city government's monitoring staff were present in some of the meetings, they provided a link between the affected communities and the city officials. Although the city government's approach may not be sustainable now, it nonetheless provided the necessary rice rations to the people. The momentum gained during the initial meetings did not stop even with the rice rations. One of the actions taken by the communities was to shift from upland rice farming to off-farm economic opportunities.

c. Use of Compressors in Ulugan Bay for Spear Fishing

The fishers complained that fish catch using hook-and-line in Ulugan Bay had considerably declined, not necessarily because of depletion but largely because compressor users got the bulk of the catch. Because of this, Ulugan Bay fishers realized that something had to be done to remedy the situation. The CO acted as a facilitator in finding persons who could enlighten them on the matter. The CO also moderated the meetings. This reached the attention of the city government and soon the use of compressors in the bay was banned.

Building on the Strength of the People

Two day-care centers and two *purok* centers were constructed without any government contribution. Seeing the clamor of mothers and their active participation in community activities, the COs discussed with them how materials could be generated even without government support. Everyone contributed his material share to the project. The centers were constructed

by the village residents themselves. Indeed, this is a living testimony of the people's collective capacity once they are properly enhanced and guided.

Initial Impact of Organizing on the Communities

1. The use of compressors has been limited outside of the bay.
2. The communities have become aware of conservation and in vesting their stake in the resources of the bay.
3. The communities can ably identify their needs and prioritize them by consensus-building. This was best manifested in the recent implementation of livelihood projects.
4. The proposal of the city government to convert part of the forestland west of Ulugan Bay into a wildlife sanctuary has met strong opposition from the affected communities. They claimed that the area could not support the introduction of exotic species because of the terrain and vegetation. According to them, as fishers, they do not need to cut the trees in the forest, but making the area suitable for exotic species would require clearing some portions of the forestland, which is more damaging. They came up with a petition opposing the plan.

Main Conclusions and Recommendations

Community organizing is a long, slow, and painful process. The communities are capable of organizing, being trained and empowered, if properly guided. An NGO like UBFI has a big advantage in the implementation of social projects because it is site-based. It is also committed, competent and credible. However, in any project where CO is a major component, UBFI strongly proposes the following:

1. Financial support should be sustained. This is where foreign funding must be obtained to make way for a definite and firm work plan and financial plan.
2. The policy formulators and implementors both from the government and private sector must know and understand by heart the principles of CO to ensure quality output and the people's faith.

3. The rights and capacities of the communities must be respected at all levels of government. Decisions, programs or projects affecting them must go through the process of real consultation and their conformity obtained.
4. The government's thrust of people empowerment must be observed by the officials themselves so as not to run counter to the objectives of the program.
5. The credibility of the NGO as well as of the government must be maintained at all times. This is the only way to restore the people's faith in the government.

Reference

CPDS (City Planning and Development Staff). 1991. Socio-Economic Profile, by Barangay, Puerto Princesa City, Palawan.

The Coastal Environment Program: the Case of Palawan

Delia Formento-Sualog
Provincial Coordinator
Coastal Environment Program (CEP)
Chief, Ecosystems Research and Development Services (ERDS)
Department of Environment and Natural Resources (DENR) Palawan

Abstract

This paper describes the role of the Department of Environment and Natural Resources (DENR) as a line government agency (LGA) in the management of Ulugan Bay, one of the sites under the Coastal Environment Program (CEP). The strategy for the management of the CEP sites is embodied in DENR Administrative Order No. 19 (see Box 1) and its implementing guidelines.

The CEP is an innovative, integrated, participatory and multisectoral approach envisioned by DENR. Essentially, the task of resource management is delegated to the local people who depend heavily on the coastal resources for their livelihood. Being direct beneficiaries, the local users are in a position to identify management problems and formulate and implement appropriate corrective measures.

In Palawan, the prospects for management viability, through the CEP approach in Ulugan Bay, are noteworthy because of the following features: (1) the availability of a coastal resource as a management subject; (2) a high degree of ecological awareness among the local people and their manifested appreciation of the CEP program as an alternative coastal management strategy; (3) the existence of the Ulugan Bay Foundation, Inc. (UBFI), a bonafide technically capable and locally-based NGO; and (4) accessibility and logistical facility.

The different components of the program are: (1) community organizing being undertaken by UBFI; (2) information and education campaign; (3) development of alternative livelihood (also being done by UBFI); (4) conservation and protection of Ulugan Bay's coastal resources; (5) monitoring and evaluation; (6) techno-economic work component; and (7) networking. The coastal profile of Ulugan Bay was contracted to Raymundo Engineering Services of Los Baños, Laguna.

Rationale for the Coastal Environment Program

The sustainability of terrestrial and coastal resources depends on their prudent use. In this regard, resource-dependent coastal communities within the area of Ulugan Bay are ideally the best partners in the development of appropriate technology applications and innovations for the sustainable management of the coastal resources. Hence, the CEP aims to establish and promote a good working climate with the coastal dwellers taking into account their development priorities, problems/issues, strategies and concerns towards a participatory rural development.

The objectives of the DENR for the CEP are:

1. Minimize overlaps and improve the efficiency and effectiveness of the implementation of DENR's activities on resource and environmental management and coastal ecosystems in Region IV;
2. Integrate the strategies, thrusts and directions of DENR Region IV's activities in coastal environment by:
   a. using community organizing as a primary means of intervention to protect and improve the level of sustainable use of coastal resources;
   b. involving communities and immediate stakeholders of coastal resources;
   c. mobilizing as many of the other coastal activities of the DENR and their associated financial and administrative resources to support program thrusts in different areas of the country; and
   d. utilizing the total systems approach to identify resource issues, institutional problems and local opportunities for human welfare in each coastal activity of the DENR.
3. Attain higher levels of productivity, biodiversity, sustainability, stability and ecological integrity of coastal resources systems through the promotion of environment-friendly technologies;
4. Improve cultural, socioeconomic and generational equity in access to and use of coastal resources through the expansion of livelihood opportunities and democratization of control of ecological support systems in coastal environments;
5. Expand sectoral participation in protecting and managing coastal environments;
6. Strengthen regional presence in both field and support offices and undertake community-based protection and management of coastal environments and reserve systems; and
7. Develop and implement policies to augment community participation and control of access to the use of coastal reserve systems and improve the productivity, biodiversity, sustainability and equity of human benefits and utilization of coastal environments and ecosystems.

Launching of CEP and the Information, Education and Communication Campaign (IEC)

On 31 July 1993, the DENR launched the CEP in Barangay Macarascas, Puerto Princesa City. It identified, as its pilot site, 7,615 ha of Ulugan Bay's marine and coastal areas which encompass five barangays (i.e., Macarascas, Bahile, Buenavista, Tagabinit and Cabayugan), where close to 5,000 people live. The program's primary aims are to conserve, protect and rehabilitate Ulugan Bay through sustainable resource management.

The program is subdivided into several components, the two most vital of which are community organizing and information and education. Community organizers were trained and deployed by UBFI in the five barangays and two small fishing settlements where they have gained some ground in establishing core groups. This is the initiative from which community-based organizations are expected to grow.

To provide the impetus for larger people participation in development, 110 fishers and farmers underwent lectures and workshops on marine resources like fish, coral reefs and seagrass, population control and nutrition. In turn, the trainees were expected to disseminate the learning experiences to their respective barangays. This is to complement the core leaders and community workers in achieving the higher goal of organizing for people's economic empowerment.

The need for a wider understanding of the CEP concept by the people, particularly the coastal communities which are the ultimate beneficiaries, were aired on a radio station (DYPR) in Puerto Princesa. Live interviews were conducted with the Regional CEP Coordinator, Ecosystems Research and Development Services (ERDS)-Palawan staff, the UBFI President and LGUs.

To further disseminate information on the CEP, a 60-minute airtime slot from 6:00 to 7:00 a.m. every Sunday was arranged by the ERDS-Palawan staff with the radio station. This was covered by a memorandum of agreement starting on the last Sunday of July 1994. All research and development activities being administered and accomplished on coastal resources management in Ulugan Bay were disseminated.

In addition to the signboards put up by the UBFI, a total of six billboards emphasizing coastal resources management were installed strategically within the five coastal communities

around the bay. These signs/billboards stimulated awareness among the coastal and upland dwellers dependent on the bay.

Development of Alternative Livelihoods

This CEP component is being contracted to UBFI. To date, UBFI has introduced 13 livelihood projects to coastal communities.

1.	Barangay Bahile		
	a.	Peanut Production	- Purok Pagkakaisa
	b.	Peanut Production	- Purok Matahimik
	c.	Peanut Production	- So. Umalagad
2.	Barangay Macarascas		
	a.	Community Store	- Purok Bagong Sikat
	b.	Rice Trading	- Purok Masaya
	c.	Vegetable Gardening/ Rice Trading	- So. Baruang
3.	Barangay Buenavista		
	a.	Duck Raising/Rice Trading	- Buenavista Proper
	b.	Goat-Raising	- So. Dacolanay
	c.	Community Store	- So. Madahon
4.	Barangay Tagabinit		
	a.	Sugar Cane Milling	- Centro
	b.	Shallow Fish Coral	- So. Makirawa and Nasuduan
	c.	Drug Store and Fishing Supply Store	- So. Tarunayan
	6.	Community Store	- So. Manabori

Project duration is five years with an estimated budget of about P30 million.

Monitoring and Evaluation

A feedback mechanism is necessary to monitor, validate and reassess the efficacy of the plan during and after implementation. This process will lead to the improvement of the implemented activities/components. A monitoring and evaluation team was organized for CEP composed of a team leader from PENRO; representatives from the Provincial ENRO, City ENRO, CENRO of Puerto Princesa; two barangay captains from Macarascas and Bahile; and an NGO, represented by Haribon.

BOX 1

The Coastal Environment Program

The Need for CEP

The urgent need to protect and preserve the country's diminishing coastal and marine resources prompted DENR Secretary Angel C. Alcala to issue Administrative Order No. 19 on 22 April 1993 creating the Coastal Environment Program (CEP). The creation of the CEP has allowed the DENR to place equal emphasis on the protection of our resources.

The CEP is tasked to promote the use of environment-friendly coastal technologies; expand livelihood opportunities in, and assure equal access to, coastal resources; and upgrade the capabilities of all DENR personnel in the management of coastal environments.

In so doing, the Program staff are expected to continuously review existing policies while formulating and implementing new directions to improve the productivity and equity of human benefits in coastal areas.

Implementing Strategies

In carrying out its basic tasks, the CEP shall adopt strategies to promote:

- Community organizing
- Involvement of communities in the protection and management of coastal ecosystems
- Mobilization of financial and administrative resources from the public and private sectors
- Use of contingent approaches in identifying issues, problems and opportunities for human and environmental welfare.

The CEP is guided by the principles of equitable and sustainable resource use as defined in the Philippine Constitution, the Philippine Strategy for Sustainable Development, the Philippine Medium-Term Development Plan, and agreements adopted by the Philippine Council for Sustainable Development.

The implementation of the CEP is also consistent with all commitments entered into by the Philippine government including, but not limited to, Agenda 21 of the 1992 United National Conference on Environment and Development (UNCED). Montreal Protocol, Basel Convention, and charters of the ASEAN, UNEP and the International Maritime Organizations.

Program Management

The DENR Secretary, with the assistance of a program Steering Committee, provides overall direction to the CEP.

All orders, policies, guidelines and actions formulated by the Secretary and the Steering Committee are implemented by the Undersecretary for Field Operations in coordination with the National CEP Coordinator and the CEP Technical Staff.

Local programs are carried out by the DENR Regional Coordinators jointly with Provincial Environment and Natural Resources Offices (PENROs), Community Environment and Natural Resources Offices (CENROs), local communities, local government units (LGUs) and other government agencies and non-government organizations (NGOs).

Program Components

To achieve its objectives, the CEP undertakes the following major endeavors:

1. Conservation and management of coastal habitats
2. Protection of endangered species
3. Monitoring and control of coastal pollution
4. Inventory/assessment of coastal resources
5. Applied research
6. Development of special projects
7. Establishment of coastal/marine protected areas

Program Activities

Activities under the program involve three general phases of work:

PHASE I - Information campaign and community organizing to encourage the participation and support of the people.

PHASE II - Introduction of interventions/package of developmental activities for adoption by partner communities and sectors.

PHASE III - Monitoring and evaluation of activities to allow for improvements in the Program.

Regional CEP Pilot Sites

To date, 12 regional pilot sites have been identified by the CEP, namely:

Region I - Telbang, Alaminos, Pangasinan (Lingayen Gulf)
Region II - Palaui Island, Cagayan
Region III - Masinloc and Oyon Bay, Masinloc and Palauig, Zambales
Region IV - Ulugan Bay, Palawan
Region V - Prieto Diaz, Sorsogon
Region VI - Taklong, Island, Guimaras, Iloilo; Saay, Negros Occidental; and Sapian-Ivisan Bay, Capiz
Region VII - Mahanay Island, Bohol
Region VIII - Guiuan, Samar
Region IX - Murcielagos Bay, Misamis Occidental
Region X - Baliangao, Plaridel and Lopez Jaena, Misamis Occidental
Region XI - Pujada Bay, Davao Oriental
Region XII - Lebak-Kalamansig, Sultan Kudarat

The management of more coastal and marine areas in the country hinges on the successful implementation of the CEP in these 12 regional pilot sites.

Presidential Initiatives in Coastal Protection

To complement the CEP, President Fidel V. Ramos issued Executive Order No. 117 on 11 August 1993 creating an Inter-Agency Task Force on Coastal Environment Protection. The Task Force is chaired by the Secretary of the Department of National Defense. Its members include the Secretaries of the DENR, Department of Agriculture, Department of Justice and Department of Interior and Local Government; the Flag Office-in-Command of the Philippine Navy; and the Director General of the Philippine National Police. Among others, this Task Force is mandated to formulate policies, guidelines and programs for the protection of the coastal environments nationwide.

Baywatch: The Coastal Areas Protection Project

Benito C. Marcelo III
Chairman, BAYWATCH
Puerto Princesa City, Palawan

Abstract

The Coastal Areas Protection Project (Baywatch) is a component of Bantay Puerto, a reinforcement drive against destructive fishing and other sea-related illegal activities. Project implementation is concentrated along the strategic bays of Puerto Princesa City, namely: Puerto Princesa Bay, Honda Bay, Ulugan Bay and other surrounding waters of the city. The long-term objective of the project is to develop the marine resources of Puerto Princesa City in ways that are environmentally sustainable, socially equitable and economically practicable.

Baywatch members conduct 24-hour patrols and monitor the movement of every seacraft in the marine waters. The barangay constituents, barangay officials and non-government organizations support Baywatch by providing information on violations of fishery laws and ordinances.

Baywatch has imposed penalties on thousands of minor and major violations. The apprehension of four big blast fishers and one big fishing boat involved in cyanide fishing was a major accomplishment, along with the conviction of 96 persons.

The project believes that further action should be taken to ensure the protection of Puerto Princesa's coastal areas including: (1) upgrading of Sea Borne Patrol boats to keep up with sophisticated boats used by illegal fishers; (2) procurement of a helicopter to monitor the entire geographical site of the city and adjoining municipalities; (3) banning the use of compressors as a fishing device; and (4) correcting some flaws in fishery laws, such as imposing maximum fines on violators.

Background

An assessment made by the city government of Puerto Princesa confirmed the rampant use of illegal fishing methods such as the use of poisonous substances and explosives, *muro-ami*, trawl, *hulbot-hulbot* and fine-mesh nets. This led to issuance of City Ordinance No. 199-92 (Appendix 1), known as the cyanide ordinance, and City Ordinance No. 15-92 (Appendix 2), which bans the shipment of live fish and lobster outside Puerto Princesa City, and the strict implementation of the Fishery Law.

However, considering the vast coastal areas of Puerto Princesa, there is a need to organize an agency to effectively enforce these laws. Thus, Baywatch, a component of Bantay Puerto created by Mayor Edward S. Hagedorn and members of the City Council in July 1992, was organized by virtue of Executive Order (EO) No. 01 (Series of 1992) (Appendix 3). Section 1 of the EO created a Special Task Force Unit (STFU), also known as the "FORCE," directly

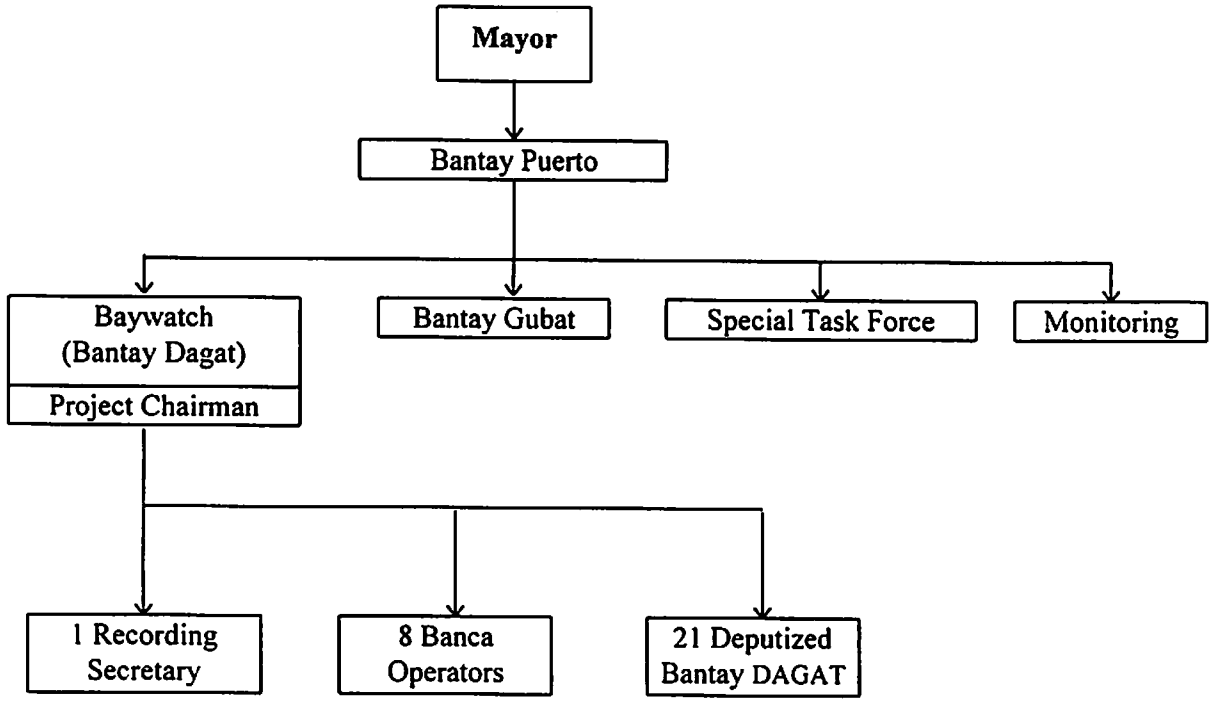
under the control and supervision of the city mayor. This organizational initiative is consistent with the provisions of RA 7160. Baywatch is mandated to eradicate illegal fishing and to implement the protection, conservation, utilization and exploitation of marine resources of Puerto Princesa City.

Organizational Profile

The objectives of Baywatch are: (1) to develop the natural water resources of Puerto Princesa City in ways that are environmentally sustainable, socially equitable, and economically practicable; (2) to conduct information dissemination activities and dialogues on environmental and ecological protection with fishers residing in island, barangay and coastal areas; and (3) to coordinate with and assist other law enforcement agencies in the apprehension and prosecution of all cases taken in cognizance by the city government.

Figure 1 presents the organizational structure of Baywatch. Its staff consists of a project manager, a recording secretary, 8 boat operators and 21 deputized *Bantay Dagat.*

Figure 1. Organizational structure of Baywatch in relation to other conservation task forces of Puerto Princesa City.



Activities of the Organization

Baywatch's activities are: (1) monitoring, apprehension and curtailment of all forms of nefarious maritime activities within the coastal waters, rivers, and lakes of Puerto Princesa City; (2) patrolling of Puerto Princesa waters on a 24-hour basis throughout the year; (3) inspection of marine products in transit from north and south of Palawan to Puerto Princesa City; (4) information dissemination campaign on the protection and conservation of marine resources; and (5) implementation of fishery laws and ordinances. Baywatch is funded by the city government. Its annual budget is P1,300,000.

Baywatch teams, together with the PNP Maritime, Special Forces and other NGOs which volunteer any information about illegal activities, apprehend violators of fishery and other marine conservation laws. After apprehension, the violators are brought to Puerto Princesa City for proper investigation. The filing of appropriate charges in court follows. A fine of P500,000 was imposed for various violations, which went to the city's coffers. The summary of Baywatch's accomplishments is given in Box 1.

Box 1. Summary of Baywatch's accomplishments from 1992 to 1994.

Summary Of Violations

1. Violation of city ordinances - - - - - - - 1,200 violators
2. Violation of FAOs - - - - - - - - - 250 violators
3. Violation of PD 704 Sec. 33 Dynamite Fishing and Sodium Cyanide 8 violators
4. Confiscated sodium cyanide - - - - - - - 500 kg
5. Violation of PD7-5 Sec. 68 Assorted Lumber - - - 5,000 Board Feet
6. Number of violators given administrative penalty - - - 1,500 violators

Number Of Cases Filed

1. Violation of city ordinances - - - - - - - 15 cases
2. Violation of PD 704 Sec. 33 - - - - - - - 6 cases
3. Violation of PD 1698 - - - - - - - - - 3 cases
4. Violation of MNR Administrative Order No. 12 Marine Turtles - 2 cases

Number Of Convicted Persons - Total of 96 persons sentenced to imprisonment of 6-8 years

Five big fishing boats with a total estimated value of P28,000,000 at the time of apprehension were confiscated in favor of the city government. These were: (1) F/B Robinson, (2) M/Bca Ireliza, (3) Sta. Lucia, (4) JR and (5) Queen Eva. The first is a Hongkong vessel owned by Hongkong nationals without passports and working visas. The rest are owned by big-time fishers from Quezon and Batangas.

A fine of P200 is imposed administratively on violators. After complying, however, the violators commit the same offense. The city does not give any special permit to maintain cages and aquariums. Sometimes, Baywatch is requested by other municipalities like Roxas in the north and Aborlan in the south. Although these areas are beyond its jurisdiction and territory, Baywatch still extends assistance. In the first few months, illegal fishers were caught within the 7-km limit. After a year of operation, illegal fishers no longer operated along the shoreline. Instead, they moved beyond 15-km from the shoreline.

The key strategy employed by Baywatch is to send out patrol boats for 15 days. The patrol teams check all boats in their areas and make all operators sign the accomplishment report for any violation. The teams also hold monthly conferences to thresh out problems. Seminars on fishery and city ordinances to improve Baywatch's mission and functions are likewise regularly conducted.

Baywatch, moreover, gives a monthly report to the mayor and city councilors to inform them of its activities and accomplishments. It also coordinates with the Bureau of Fisheries and Aquatic Resources (BFAR) for the deputization of most of its staff who volunteer as fish wardens to enable them to effectively enforce fishery laws not only in Puerto Princesa but also in other parts of Palawan.

Baywatch staff/volunteers are also adept in determining and identifying blasted fish. They are trained in the preparation and submission of reports of apprehensions which are the urgent requisites of any case that may be filed against violators.

Positive Experiences

1. Coordination and support of the PNP Maritime Command in the apprehension, filing of cases and provision of firepower and personnel
2. Cooperation of the NGOs and the community residents in the fishing villages in the provision of intelligence reports

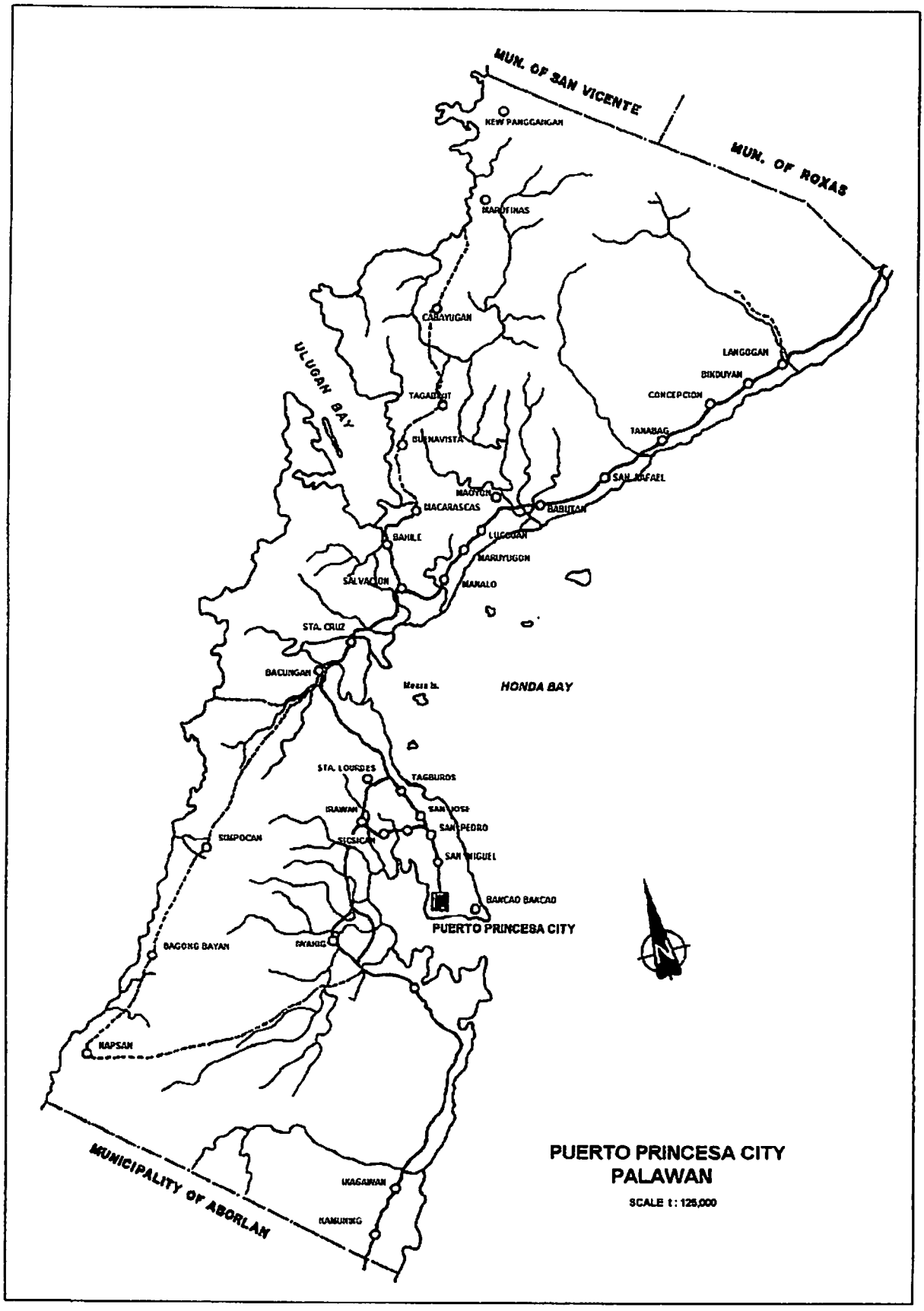
3. Mitigation of destructive fishing practices through information dissemination campaigns on the proper exploitation of marine resources
4. Decline in illegal fishing activities and nefarious maritime practices
5. Growth of coral reef, seagrasses and mangroves along the coasts of Puerto Princesa City
6. Reduction of fuel used in fishing. Based on the reports of fishers and recorded video files in coastal barangays, fishers used to consume four drums of crude oil to fish as far as Bataraza, the southernmost municipality of mainland Palawan, using big motorized boats. After the creation of Baywatch, changes were observed in the amount of fish caught. Even at the shorelines, fish abound again. Hence, owners sold their big boats for smaller 5-10 HP boats because they could already fish along the shorelines. Baywatch has also eliminated, if not eradicated, the shipment of live fish in Puerto Princesa City because of the strict implementation of City Ordinance 15-92 at the pier and airport.

Negative Experiences

1. Lack of budgetary support for the maintenance and operating expenses of existing boats as well as for the restoration of dilapidated and confiscated motorized boats which could immensely bolster the effectiveness of *Bantay Dagat* in fighting illegal fishers.
2. Reluctance of the Philippine Coast Guard (PCG) to re-measure 3-t boats and to reclassify them as commercial boats. (The status of some confiscated boats turned over to the PCG is not known).
3. Use of high-powered engines of 4-6 cylinders by illegal fishers. The Baywatch boat, which is only a one-cylinder Briggs & Stratton 16 HP, cannot match their speed and maneuverability in the high seas.
4. Light penalties for violations of fishery laws and ordinances. Fines range from P200 to P5,000 per penalty from small to big violations. Because of this, those apprehended simply pay the fine and go back to their illegal fishing activities.

Recommendations

1. Review and modify fishery laws and regulations in terms of penalties, e.g., increase of fine for violators.
2. Review Provincial Ordinance No. 2 (Series of 1992), as amended by Ordinance No. 29, which bans live marine aquatic products. The ordinance enumerated the four species of *lapu-lapu* included in the ban. There are still 25 species of *lapu-lapu* that can be shipped live.
3. Forge closer ties with the local Philippine National Police (PNP) and other government units to assist Baywatch and other implementing agencies during emergency cases and pursuit operations (i.e., use of facilities and equipment).
4. Increase the annual budget of Baywatch by P3,000,000 to sustain operation, maintenance, monitoring/surveillance and education information/dissemination.
5. Procure a helicopter (or light sea plane) for aerial surveillance and seacraft with speed and maneuverability to detect, apprehend and stop illegal activities at high speed.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MUN. OF ROXAS
NEW PANGGANGAN
MARUFINAS
CABAYUGAN
ULUGAN BAY
LANGOGAN
BIKOLIYAN
CONCEPCION
TANABAG
TAGABINIT
BUENAVISTA
SAN RAFAEL
MAOYON
MACARASCAS
BABUITAN
BAHILE
LUCBUAN
MARUYUGON
SALVACION
MANALO
STA. CRUZ
BACUNGAN
HONDA BAY
STA. LOURDES
TAGBUROS
IRAWAN
SAN JOSE
SAN PEDRO
SIMPOCAN
SICSICAN
SAN MIGUEL
BANCAO BANCAO
PUERTO PRINCESA CITY
BAGONG BAYAN
NAPSAN
MUNICIPALITY OF ABORLAN
IKAGAWAN
KAMURING
PUERTO PRINCESA CITY
PALAWAN
SCALE 1 : 125,000

APPENDIX 1

Ordinance No. 199-92

An ordinance regulating the use, sale, distribution, transfer and conveyance of sodium cyanide, potassium phosphate and other obnoxious substances.

Be it ordained by the *Sangguniang Panlungsod* of the City of Puerto Princesa in its session assembled:

Section 1. The title of this ordinance shall be "An Ordinance regulating the use, sale, distribution, transfer and conveyance of sodium cyanide, potassium phosphate and other obnoxious substances".

Section 2. Definition of terms as used in this Ordinance, the following terms are defined as follows:

a) Sodium cyanide
b) Potassium Phosphate
c) Fishing with the use of explosives
d) Obnoxious or poisonous substances

Section 3. Mayor's Permit - All persons, corporations, partnerships or business establishments selling, distributing, dispensing, transferring, conveying or using sodium cyanide, potassium phosphate and other obnoxious substances shall secure a Mayor's Permit to exclusively cover the above purpose before any of the above enumerated acts will be allowed.

In their application for a Mayor's Permit, they shall provide the following information:

a) Name of the Applicant
b) Business permit number
c) Exact address
d) Specific purpose for which the application is being filed
e) Quantity of volume applied for
f) Profession or occupation
g) The application shall be under oath

Section 4. Any person, partnership or corporation engaged in this business or selling, distributing, dispensing, transferring or conveying sodium cyanide, potassium phosphate and other obnoxious substances shall require the buyer, purchaser, user or transferee to show his/her mayor's permit number before any such sale, transfer shall be effected. He shall record it in this logbook for the purpose the name of the buyer or transferee, age, address, residence certificate number, quantity/volume, purpose of the purchase of mayor's permit number. For this purpose, he shall keep a book of record indicating the foregoing information.

This record book shall be open for inspection by the City Mayor or his duly authorized representative. Moreover, he shall submit a monthly report to the City Mayor of all transactions involving the above-specified substances.

Section 5. Penalty for violation - Any person, partnership association or corporation found violating any provision of this Ordinance shall be penalized with a fine of Two Thousand Pesos (P2,000.00) and/or an imprisonment of five (5) months upon the discretion of the court. In case of a corporation of registered partnerships, the officers who knowingly violate, allow or tolerate them in violation shall likewise be meted the same penalty. In addition, this business establishment shall be ordered closed.

Section 6. This Ordinance shall effect 15 days after its approval.

So ordained.

Approved:

(Sgd.) CEFERINO S. DIMALANTA
City Vice Mayor
Presiding Officer

Approved: Resolution No. 1059-92 on April 30, 1992

(Sgd.) FELIBERTO R. OLIVEROS, JR.
City Mayor

Attested:

(Sgd.) TIBURCIO B. MAGAY
Secretary to the Mayor

APPENDIX 2

Ordinance No. 15-92

An ordinance banning the shipment of all live fish and lobster outside Puerto Princesa City from January 1, 1993 to January 1, 1998 and providing exemptions, penalties and for other purposes thereof.

Section 1. Title of the Ordinance - This Ordinance is entitled: An ordinance banning the shipment of all live fish and lobster outside Puerto Princesa City from January 1, 1993 to January 1, 1998 and providing exemptions, penalties and for other purposes thereof.

Section 2. Purpose, Scope and Coverage - To effectively free our City Sea Waters from Cyanide and other Obnoxious substances, this ordinance shall cover all persons and/or entities operating within and outside the City of Puerto Princesa who are directly or indirectly in the business of shipment of live fish and lobster outside the city.

Section 3. Definition of terms - For purpose of this Ordinance the following are hereby defined:

a) Sea Bass - a kind of fish under the family of Centropomidae, better known as *apahap*;
b) Catfish - a kind of fish under the family of Plotosidae, better known as *itok;*
c) Mudfish - a kind of fish under the family of Orphicaphalidae; better known as *dalag*;
d) All live fish - all alive, breathing not necessarily moving of all fish species used for food and for aquarium purposes;
e) Live lobster - any of several relatively large marine crustacean of the genus Homarus that are alive and breathing not necessarily moving.

Section 4. It shall be unlawful to person/s or any business enterprise or company to ship out from Puerto Princesa City to any point of destinations either via aircraft or seacraft of any live fish and lobster except sea bass, catfish, mudfish, and milkfish fries.

Section 5. Penalty Clause - any person/s and or business entity violating this Ordinance shall be penalized with a fine not more than P5,000.00 or imprisonment of not more than twelve (12) months, cancellation of their permit to do business in the City of Puerto Princesa or all the herein stated penalties, upon the discretion of the court.

Section 6. If the owner and/or operator of the establishment found violating the provisions of this ordinance is a corporation or a partnership, the penalty prescribed in Section 5 hereof shall be imposed upon its president and/or General Manager or Managing Partner and/or Manager, as the case may be.

Section 7. Any existing ordinance or any provision of any ordinance inconsistent to this ordinance is deemed repealed.

Section 8. This Ordinance shall take effect on January 1, 1993.

So ordained.

Approved:

(Sgd.) GIL P. ACOSTA
Kagawad
Temporary Presiding Officer

Approved:

(Sgd.) EDWARD S. HAGEDORN
City Mayor

Attested:

(Sgd.) LUCILO R. BAYRON
City Administrator

APPENDIX 3

Republic of the Philippines
Office of the Mayor
City of Puerto Princesa

Executive Order No. 01
Series 1992

Creating under the Office of the City Mayor a Special Task Force Unit (STFU) for the City of Puerto Princesa, identifying its composition, defining its duties, responsibilities and other related purposes.

Whereas, Section 16 of R.A. 7160, otherwise known as the Local Government Code of 1991, and Rule XV, Art 86, par. (b) sub-par. (2) of its implementing Rules and Regulations mandate the City Executive to enforce all laws and ordinances related to the governance of the City, including, but not limited to, exercising general and operational control and supervision over local police forces in the city, in accordance with R.A. 6975.

Whereas, under Section 51 (b) of R.A. 6975, otherwise known as the Department of the Interior and Local Government Act of 1990, the exercise of operation, supervision and control includes the power to employ and deploy units or elements of Philippine National Police within their respective jurisdictions to ensure public safety and effective maintenance of peace and order within the locality;

Whereas, existing conditions within the City of Puerto Princesa cry for the creation of a special task force unit to undertake special and coordinated efforts to combat rampaging illegal activities and syndicated crimes like drug pushing, illegal logging, illegal fishing, gunrunning, prostitution, illegal gambling and similar activities:

Now, therefore, I, Edward S. Hagedorn, City Mayor of the City of Puerto Princesa, by virtue of the powers vested in me by law and pursuant to the provisions of R.A. 7160 and R.A. 6975, do hereby order.

Section 1. Creation - There is hereby created under the office of the City Mayor a Special Task Force Unit (STFU), hereinafter referred to as the "FORCE" directly under the control and supervision of the City Mayor.

Section 2. Composition - The Special Task Force Unit (STFU) shall be composed of eleven (11) members of the Philippine National Police assigned to the Puerto Princesa City Police Force and an equal number of civilians appointed for this purpose by the City Mayor. the number of members of the FORCE may be increased or decreased upon orders of the City Mayor, depending on the existing conditions.

Section 3. Deployment - Deployment of the FORCE as well as its division into sub-units shall devolve solely upon the City Mayor who may utilize its units for specific tasks.

Section 4. Functions and Responsibilities - the FORCE shall have the following duties and responsibilities, to wit:

a. Study and monitor the crime situation in the City of Puerto Princesa and identify specific areas where deployment of the FORCE is necessary;
b. Gather, process, evaluate and disseminate intelligence information and prepare a plan of action relative thereto for submission to and approval by the City Mayor;
c. Coordinate, where feasible; with other agencies, civilian or military, to ensure the success of all operations;
d. Apprehend/arrest, observing all legal requirements, any malefactor;
e. Perform such other duties as may be required by the City Mayor from time to time;
f. Submit to the City Mayor regular monthly reports on the progress of operations.

Section 5. Effectivity - This Executive Order shall take effect immediately.

Done this 6th day of July 1992 in the City of Puerto Princesa.

(Sgd.) EDWARD S. HAGEDORN
City Mayor

Enhancement of Marine Habitat Through Artificial Reefs to Promote Cage Culture

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Abstract

This paper highlights the experience of the Palawan National Agricultural College - Institute of Marine Sciences (PNAC-IMS) in the seabass cage culture project. In 1989, the PNAC-IMS initiated a cage culture project of seabass at Tiniguiban Cove on the east coast of Puerto Princesa. The site has an area of about 90 ha. Initial project results showed that it is not economically feasible if all the feed requirements of the cultured fish are purchased. One way of mitigating this problem is the on-site collection of feed. However, an assessment of the site showed that it cannot support the feed requirement of the project. The site has a very low fish feed productivity.

Habitat enhancement of the site was achieved through the deployment of artificial reefs and fish aggregating devices. At present, the feed requirement of the project is sustained by fish harvested with the use of a liftnet installed at one side of the cage system. It also provides the daily food sustenance of the nearby community.

Rationale for the Project

Increased fishing pressure, coupled with the continuous destruction of mangrove swamps, seagrass beds and coral reefs, is pushing coastal resource productivity beyond its sustainable limit. If not mitigated, stock depletion and loss of species diversity in the coastal areas will occur.

The majority of Palaweños depend on fisheries and other coastal resources for their food sustenance and livelihood. Thus, it is imperative to have an alternative method of fish production to sustain the fish protein requirement of the people and to preserve Palawan's fragile coastal ecosystem. This can only be done through the culture of fish in enclosures such as pens, cages and ponds. These aquaculture practices reduce the pressure on coastal resources and provide time for them to regenerate and return to their normal and sustained productivity.

Fish cage culture has been traditionally used in rivers and tributaries for about a century mainly for the production of freshwater fish of families Cyprinidae, Siluridae, Ictaluridae, Claridae, Ophicephalidae, and Ciclidae (Coche 1976). In 1967, fish cage culture was initiated in Japan using *Seriola quinqueradiata* (Fujiya 1976). This was followed by cage culture of *Salmo* spp. and *Oncorhyncus* spp., both brackishwater fish species (Coche 1976).

Fish cage culture in marine waters started only recently with the increased demand for live fish such as groupers, seabass and wrasses. Groupers and seabass, although carnivorous, can be successfully reared in cages provided sufficient "trash fish" (fish of low economic value) and meat of similar kind are given.

Artificial Habitats

The artificial habitats were made of 4 m of bamboo poles constructed in 2 m x 2 m triads of pyramids, with 5-7 coconut fronds hanging vertically at the center of the structure. Several units of these indigenous artificial habitats were deployed in strategic locations within the 500-m radius of the project site. Other artificial habitats include the discarded bamboo frames and floats of the cage system.

Effects of Artificial Reef/Fish Aggregating Devices (AR/FAD) Deployment in Marine Habitat

The deployment of indigenous "artificial habitats" at Tiniguiban Cove (Figure 1) contributed in many ways to habitat enhancement and sea ranching of the cove area and its environs and to the sustainability of the cage culture project. Habitat enhancement was made possible through the additional surface area and spaces created by these "artificial habitats" in the water column. These additional spaces provided a surface for marine algae to attach to, thus creating an additional food chain base.

Studies showed that fish have the tendency to be close to solid objects which they use as a visual point of reference in determining barren areas or a temporary shelter to conserve their energy during migration (White, *et al.* 1990). Once the fish are in these structures, herbivorous fish may feed on the algae growing on the surface. Larger omnivorous and carnivorous fishes may be attracted by the herbivorous fish, making the structures an aggregating device for various species of fish (White, *et al.* 1990). The "artificial habitats" do not only attract fish but also serve as a sanctuary to various benthic organisms such as sea cucumber, mollusks, etc.

One year after the deployment of "artificial habitats" in this area, an almost three-fold increase in the animal population was observed (Table 1). The majority of the fish caught were schooling and pelagic fishes attracted by the FADs. In Hawaii, it was reported that fish population doubled and even quadrupled with the deployment of artificial reefs (White *et al.* 1990).

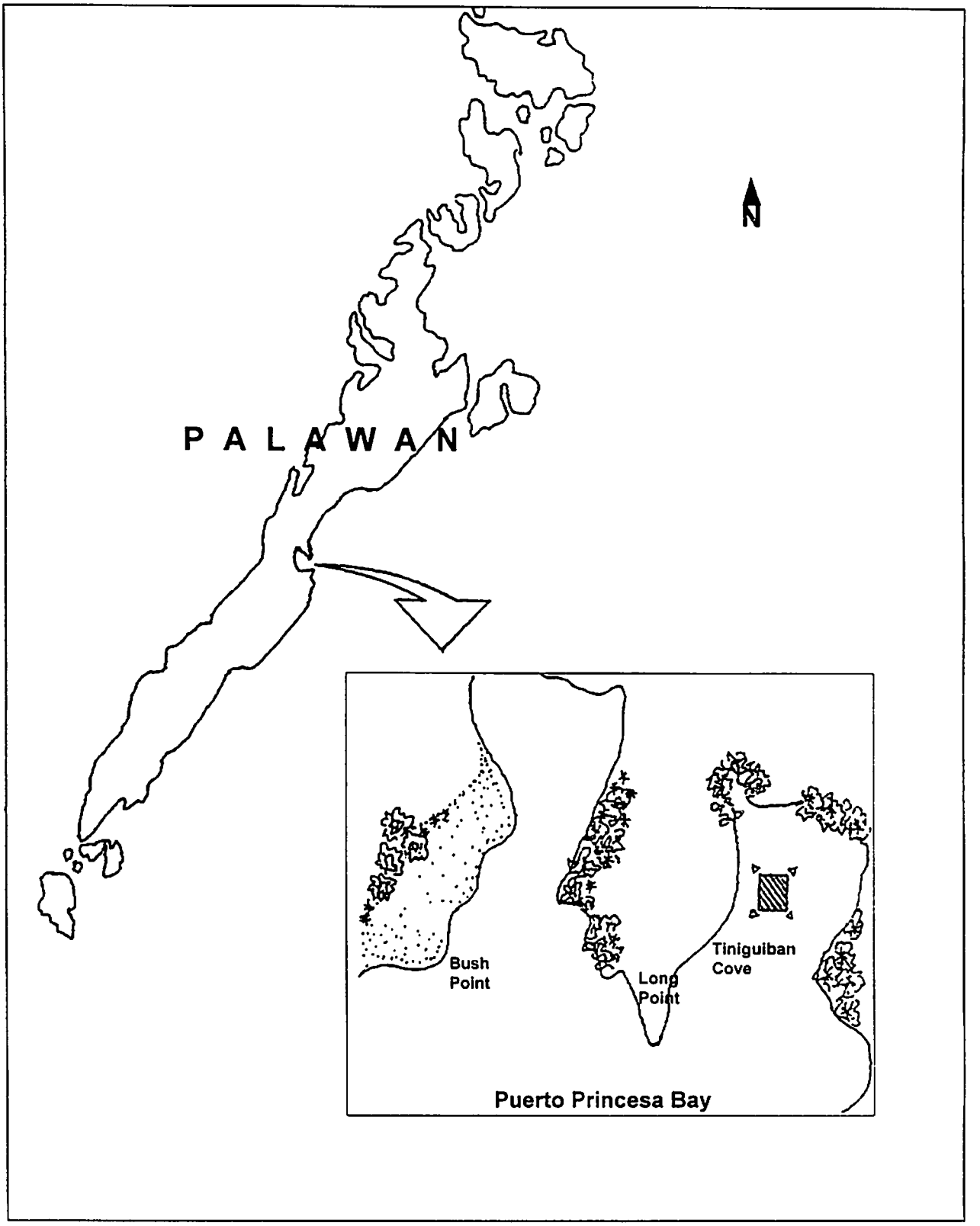

Figure 1. Location map of Tiniguiban Cove.

Alcala (undated) reported that a 65 m^3 bamboo reef yields about 10 kg/week using fish traps. He further stated that a 50-unit bamboo reef can yield a net profit of P7,000 during a three-month period based on the experience of Central Visayas. Miclat et al. (1989) also reported that an eight-bamboo reef module combined with a floating FAD with a bottom area of 254 m^3 at 12 m depth yielded 900 kg of fish in four months.

The fish cage facility likewise acted as an additional artificial habitat. Numerous marine plants grew particularly on its support system and nets. With the abundance of fish frequenting the cage facility, a lift net was installed to sustain the daily feed requirement of the cultured finfish. Sampling showed that a minimum of 12 species of fish were caught using the lift net. The volume of daily catch ranged from 2.5 kg to 14.5 kg (Alcantara *et al.*, 1993) depending on the lunar phase. This meant project savings of about P2,000 a month, considering an average market price of trash fish at P15.00/kg and other incidental expenses. This also sustained the food requirement of the caretaker and the nearby community due to the higher fish catch after habitat enhancement.

The structures also served as breeding and spawning grounds for various fish species. Floating eggs and fry of different species were frequently observed in the area. These fry will eventually become the source of "seeds" for sea ranching of the cove. Furthermore, the area also acted as a nursery ground for juvenile fishes and other marine organisms.

Conclusions

Habitat enhancement through the deployment of artificial habitats promotes cage culture venture in areas with low productivity. The artificial habitats increase the surface area for marine epiphytes and zoophytes to attach to, thus creating an additional food chain base. This increases the level of possible feed sources for the cultured fish, reducing feed expenditures in the process. These structures also serve as breeding, spawning and nursery ground for various marine animals.

Although the deployment of artificial habitats positively increased the fish population in the project site, it may also affect the general productivity of the bay. There is no study, however, on the status of the fishery resource of the Puerto Princesa Bay before and after the enhancement of the project site. Some fisheries and other marine resources may have been attracted by the artificial habitats deployed, hence reducing the population and diversity of organisms in other parts of the bay.

Table 1. Species composition of vertebrates and invertebrates at Tiniguiban Cove before and after habitat enhancement.

Before Habitat Enhancement		After Habitat Enhancement	
1. *Sphaeramia orbcularia*	Cardinal Fish	1. *Sphaeramia orbicularis*	Cardinal Fish
2. *Apogonicthvs marmoratus*	Eared-cardinal Fish	2. *Apogonicthvs marmoratus*	Eared-cardinal Fish
3. *Abalistes stellaris*	Triggerfish	3. *Abalistes stellaris*	Triggerfish
4. *Strongvlura incisa*	Neddlefish	4. *Strongvlura incisa*	Neddlefish
5. *Parupeneus barberinoides*	Goatfish	5. *Parupeneus barberinoides*	Goatfish
6. *Muraenesox bagio*	Pike Congers	6. *Muraenesox bagio*	Pike Congers
7. *Stelophorus indicus*	Anchovy	7. *Stelophorus indicus*	Anchovy
8. *Ostracion nasus*	Boxfish	8. *Ostracion nasus*	Boxfish
9. *Strombus sp.*	Shell	9. *Strombus sp.*	Shell
10. *Crassostrea sp.*	Bivalve	10. *Crassostrea sp.*	Bivalve
11. *Synapta maculata*	Water Snake	11. *Synapta maculata*	Water Snake
12. *Holothuroidea sp.*	Sea cucumber	12. *Holothuroidea sp.*	Sea cucumber
		13. *Siganus javus*	Spinefoot
		14. *Siganus guttatus*	Scat
		15. *Scomber australasicus*	Slimy Mackerel
		16. *Gazza minuta*	Slipmouth
		17. *Leiognathus elongatus*	Slipmouth
		18. *Sphyraena barracuda*	Banded Barracuda
		19. *Zanclus cornutus*	Moorish Idol
		20. *Epinephelus macroloba*	Grouper
		21. *Cromileptis altives*	Grouper
		22. *Epinephelus areolatus*	Grouper
		23. *Dendrochinus zebra*	Lionfish
		24. *Euxiphipops sexstriatus*	Angelfish
		25. *Nemipterus hexodon*	Threadfin
		26. *Alepes melanoptera*	Blackfin Crevalle
		27. *Alepes djeddaba*	Banded Scad
		28. *Sardinella fimbriata*	Herring
		29. *Sardinella gibbosa*	Herring
		30. *Sardinella sp.*	Herring
		31. *Scarue bleekeri*	Parrotfish
		32. *Loligo sp.*	Squid
		33. *Metapeneus ensis*	White Shrimp
		34. *Stolephorus sp.*	Anchovy
		35. *Pomacentrus sp.*	Damselfish
		36. *Caesio cunning*	Fusilier
		37. *Pomacentrus ambionensis*	Damselfish

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Marine Reserve Management: The El Nido Experience

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Abstract

The El Nido Marine Reserve was established in 1991 under the Department of Environment and Natural Resources' Debt-for-Nature Swap Program to promote the sustainable development of resources and preserve the ecotourism, biodiversity, cultural and archaeological attributes of the area.

Through the Debt-for-Nature Swap Program, a portion of the Philippine foreign debt will be waived by the World Wildlife Fund (WWF) in exchange for government funds committed to the operation of a resource conservation project. The El Nido Marine Reserve is such a project. Formerly limited to being a marine turtle sanctuary, the area was expanded to include watersheds draining directly into the Bacuit Bay.

The paper discusses several experiences in the management of the area, highlighting the translation of regulatory prescriptions in protected areas through an approach acceptable to the community. The use of resources by local people during the project's entry can be assessed as fairly sustainable. In the beginning, seizures and impoundments made as a result of enforcement (especially land-based) caused antagonism and skepticism on the true objective of protecting the area. Worse, the Debt-for-Nature Swap Program was misconceived as a strategy to displace local folks or limit their use of resources in exchange for the country's debts in foreign banks. Intensive information campaigns and credibility in enforcement are being undertaken to allay these fears of the local people. These campaigns and the noticeable increase in fish yields may eventually draw the support of local people for regulation by an institution such as a Marine Reserve Authority.

The Project Site

Located at the northernmost tip of mainland Palawan, the 96,000 ha protected area in El Nido (Figure 1) is one of the pilot sites of the Debt-for-Nature Swap Program initiated in 1989. The implementation of a conservation project under this program was tailored according to the needs and existing conditions of the country. The highlights of the program are given in Box 1.

El Nido's population is composed of native Palaweños with a heavy presence of Visayans, who migrated primarily because of the peace and order condition and better livelihood opportunities in Bacuit Bay. Local residents use the area as their homestead. Their income is primarily derived from collecting edible bird's nest (*balinsasayaw*), shells and other marine products; farming of cashew, mango, rice and vegetables; fishing through hook-and-line, nets, corrals, spears, crab pots, dynamite and poison; and tourism and other allied business. The beaches are used for recreation and for dry-docking and refuge of small boats during inclement weather.

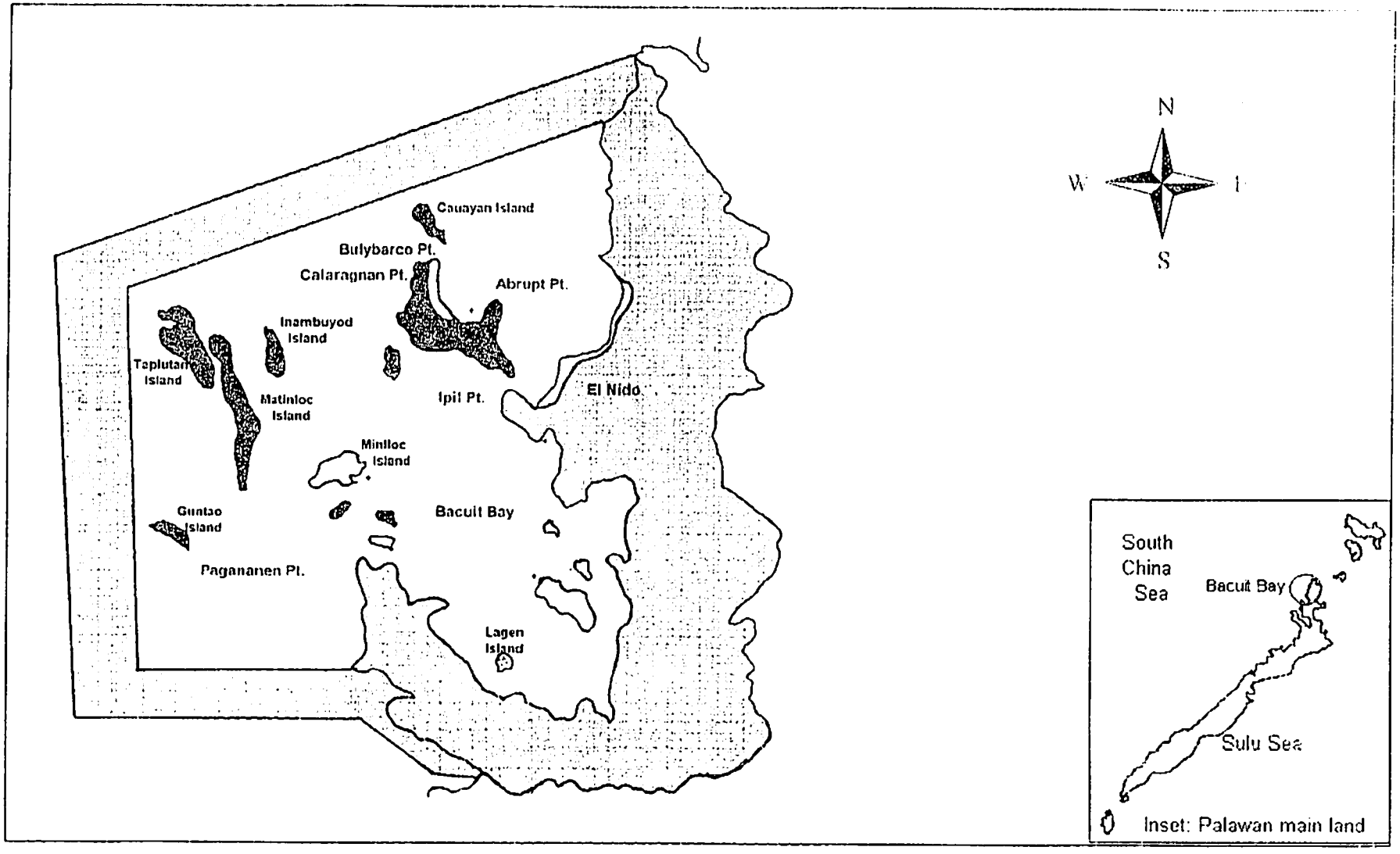


Figure 1. Location map of Bacuit Bay.

From Marine Turtle Sanctuary to ENMRP

The earlier information campaigns on the Debt-for-Nature Swap Program elicited a better response from the community in eastern El Nido. This coastal stretch, however, is not covered by the present El Nido Marine Reserve boundary. Although the marine reserve was envisioned to benefit the entire municipality of El Nido, the territorial jurisdiction was limited to the site of the then Marine Turtle Sanctuary at the western coast. The *Sangguniang Bayan* (Municipal Council), which is the legislative body at the municipal level, questioned the legality of the program for two main reasons. First, no public consultation was made before El Nido was selected as one of the pilot sites under the Debt-for-Nature-Swap Program. Therefore, instead of being appreciated, the effort was misinterpreted as using El Nido as a collateral for Philippine foreign debts. Second, the former Marine Turtle Sanctuary was not popular to the community because of an anticipated regulation of resource use and the perceived bias to protect the business interest of a Filipino-Japanese resort. Hence, the plans and strategies for the introduction of the ENMRP in the different coastal barangays factored in these two expressed sentiments.

The boundary of the Marine Turtle Sanctuary was finally expanded and renamed ENMR in 1991 by virtue of Department of Environment and Natural Resources Administrative Order (DENR-AO) No. 14. Two public hearings were conducted before it was finally approved.

The expansion was guided by the following: (1) watersheds draining directly into the Bacuit Bay greatly affect the integrity of the coastal and marine ecosystem; (2) local people's wants and preferences on the resources deserve consideration and regulation; (3) the high ecotourism potential of the area can be tapped to spur economic development in the area; and (4) the need for a legal instrument for the management of a protected area as insisted by the municipal government is valid.

Approach and Components of the ENMRP

The formulation of the DENR AO 14 considered the above uses and threats to the livelihood of the local people. The existing uses of the reserve likewise determined the type of management being implemented now, i.e., the open access type or multiple-use concept. This concept allows flexibility from the stringent standards of the national park system, making it a

more responsive approach to existing conditions. The flexibility also serves as an investment in the local people's support for the project objective of promoting the sustainable use of the marine resources.

The establishment of a marine protected area takes into account the peculiarities of the local condition, particularly the wants and preferences of the local community. In the case of El Nido, the local residents consider the following as threats to their livelihood: commercial trawls and purse seines, dynamite fishing from within and by fishing boats from other provinces, *basnig*/bagnet fishing by Taytay residents, cyanide and live fish collection, collection of shells, sea cucumbers and other marine products by Cebu fishers, *kaingin* by newly-arrived migrants, and development of too many resorts.

Law enforcement and information and education campaigns (IEC) formed the two early components of the project. While studying the amendment and expansion of the Marine Turtle Sanctuary to become the ENMR, law enforcement activities and information and education campaigns were simultaneously intensified. Illegal activities, especially destructive fishing practices, were rampant in the area such that law enforcement became imperative. The IEC, on the other hand, stressed the benefits of a protected area to help attain the sustainable development of the coastal resources. The five project components are: (1) community organizing, education and interpretation; (2) resource protection; (3) research and restoration; (4) visitor management; and (5) general administration. The IEC focuses on the coastal mainland of El Nido where at least 95% of the total population reside. Community participation is important. A plan to conduct a meeting with barangays is implemented through a notification letter to the barangay captain (village headman) stating the agenda or issues to be taken up. There are cases where house-to-house visits are also undertaken, particularly when attendance in barangay assemblies is not guaranteed due to distance and hectic schedules.

In all meetings and visits, the vernacular is used by the Information Officers for people to better understand the laws and issues being tackled and to encourage them to express their opinions and sentiments. The IEC supplements the basic ecological principles taught in schools through modules developed for different levels.

ENMRP Organizational Structure

ENMRP had 11 personnel during its first year, which included administrative and support staff. At present, there are 34 staff undertaking the five components (Figure 2). Ninety-eight percent of the staff consider ENMRP as their first formal job. Many of them are local

residents or long-time migrants. The author as the Project Leader of the ENMRP, is a non-Palaweño and is a DENR employee on detail. Previously, the staff employed worked as fishers, carpenters, motorboat operators, resort employees and part-time tourist guides. Educational attainment ranges from primary level (Grade 3) to college level (a Bachelor's degree). Although many of the staff have limited formal education, they have shown willingness to learn new technologies as evident during training activities and workshops.

There are only two technical staff. One is a soil technologist who handles reforestation and mangrove rehabilitation activities. The other is a US Peace Corps volunteer who recently joined the research component activities.

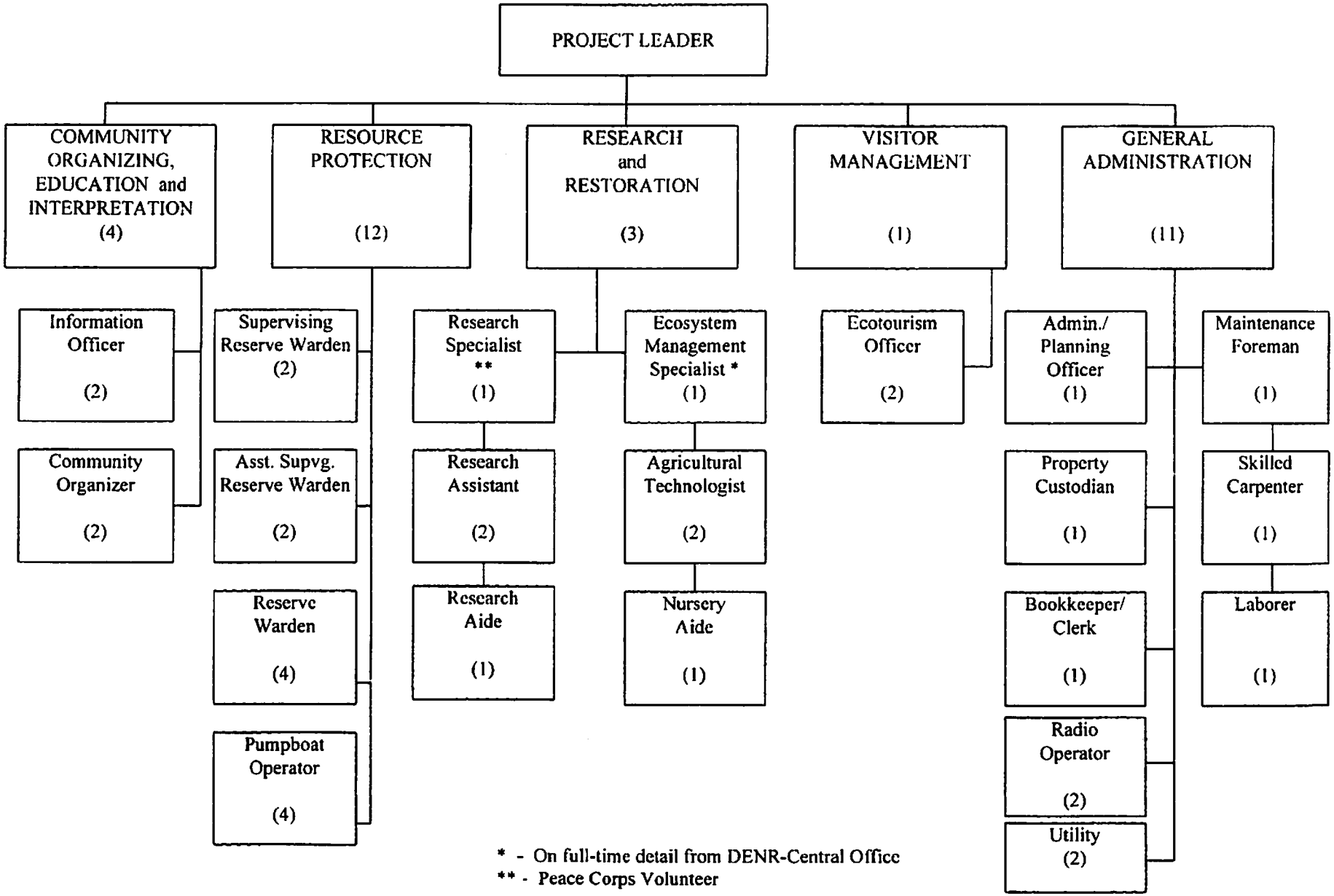
Funds were initially sufficient and permitted mobility with dispatch especially during crucial operations such as surveillance, apprehensions and community service. However, there has been a drastic cut by as much as 60% of the usual funds received. This budget cut-back is expected to affect field operations.

Institutional Linkages and Constraints

Key players in the protection of El Nido's resources were identified when the Debt-for-Nature Swap Program was introduced in 1989. These are the Philippine National Police (PNP), the Philippine Coast Guard (PCG), the Civilian Armed Forces Geographic Unit (CAFGU) under the Western Command (WESCOM), the Philippine Army based at Matinloc Island, the local government units (provincial, municipal and barangay), the Community Environment and Natural Resources Office (CENRO) of the DENR, and the staff of the ENMRP.

The local government and the Special Forces of the Philippine Army under the WESCOM are vital in passing resolutions to strengthen the attainment of common goals and in providing reinforcement to reserve wardens, respectively. The Department of Agriculture through the Municipal Agricultural Officer provides technical advice on fisheries and upland agriculture. Haribon Palawan, an NGO, complements the community organizing activities of the project. The Foundation for the Philippine Environment (FPE), an NGO, provided the funds for the transition period after the completion of the Debt-for-Nature Swap Program and is providing the funds for 1994.

Figure 2. El Nido Reserve organizational set-up.



The government's deputation of the ENMRP staff to enforce fishery and forestry laws and municipal ordinances on fishing in a way devolved its responsibility over the marine resources. Matinloc Island's distance to the marine reserve's headquarters was a constraint in coordinating efforts with the Army for joint operations. The local PNP is underequipped and more responsive to local crimes and offenses. The Matinloc Resort sometimes lends speedboats during emergency cases but has business priorities over this task. There is only one PCG personnel and he is oftentimes stationed in Liminangcong, Taytay. The CAFGU are available but they do not have police powers necessary for enforcement. The CENRO has administrative jurisdiction over El Nido but since it is based in Taytay, communication either by land or boat is difficult. Because of these institutional difficulties, the enforcement activities are mainly undertaken by the ENMRP.

Lessons and Conclusions

Among the important conclusions which can be drawn from the five-year management of the El Nido Marine Reserve are:

1. Protected areas allow priority of use to immediate residents/users and is one effective way of allaying displacement and antagonism of the local people towards management objectives.
2. Credibility/discipline of protected area workers can win the support of the locality.
3. A clear plan for phase-in and phase-out of a program provides security for initial efforts to be continued and boosts the overall well-being of protected area workers.
4. Women can be effective protected area managers.
5. Seriousness in regulation makes the local people aware of the utilization and storage of regulated species in anticipation of their dissipation and foreseen regulation through banning of use.
6. Locally hired employees can be motivated in enforcement work given proper training, leadership and incentives.

BOX 1

DEBT-FOR-NATURE SWAP PROGRAM

In 1984, World Wildlife Fund (WWF), a U.S.-based international non-government organization (NGO), first proposed debt-for-nature swaps as an innovative way to address two problems at the same time: reduce the Third World debt on the one hand, and protect the global environment on the other. The scheme is premised on the observation that most of the world's remaining tropical forests are located in some of the world's most indebted nations. To ease their debt burden and spur economic development, many of these nations have tried to raise production and boost exports by clearing tropical forests for farmland, pastureland, mining, and timber.

Debt-for-nature swap is an attempt to slow the trend of tropical deforestation. By taking advantage of favorable conditions in the commercial debt/equity market, international funding agencies are able to purchase portions of Third World countries' debts and convert the proceeds into conservation projects.

The mechanics of individual debt-for-nature swaps vary according to the debt/equity laws and financial positions of the nations involved. The practice is still so new that many countries have not adopted debt-swapping policies. Aside from the Philippines, other countries which have adopted debt-for-nature swaps are Costa Rica, Ecuador, Bolivia and Madagascar.

The Philippine Experience

Through the Department of Environment and Natural Resources (DENR), the Philippines has availed of a debt-for nature swap. Under the scheme, NGOs are allowed to use grants from abroad to retire part of the Philippine external debt. In exchange, the Central Bank buys at nearly full value the government's debts which the NGOs have bought for half their value.

The Philippine experience has been limited to an agreement between DENR, World Wildlife Fund, and Haribon Foundation, a local NGO. Under the agreement signed on 24 June 1988, WWF committed to acquire over a period of three years (1989-1992) up to U.S. $2 million worth of Philippine external debt (in Central Bank notes and a discount of about 50%). The notes are to be redeemed at face value in Philippine currency to finance several priority conservation projects identified by DENR, WWF and Haribon Foundation. The DENR chose this scheme for its first venture into an alternative financing system for environmental protection projects.

As specified in the agreement, the proceeds from the exchanges are to be used by the Philippines to finance the protection and management of protected areas and their buffer zones, training and community programs, and institutional support for both government and NGOs as well as support for research activities. DENR, WWF, and Haribon are collaborating in the selection, development and implementation of the specific projects.

Realizing that the initial assistance had a strong and positive impact on actual conservation activities and the perception of conservation in the country, the United States Agency for International Development (USAID) has committed an initial grant worth U.S. $25 million under a similar scheme to sustain the projects already in the pipeline and to finance new projects. The Philippine experience is now recognized worldwide as the first successful debt-for-nature swap completed in the Asia-Pacific region.

Institutional Framework

The DENR has developed a close working relationship with the Haribon and WWF in the implementation of the various projects under the Debt-for Nature Swap Program. A management committee, composed of representatives from DENR, WWF and Haribon Foundation sets general management policies governing the Program in consonance with the Philippine national policies on conservation and natural resources. The Committee, chaired by the DENR, screens and evaluates all activities included in the program.

Conservation Strategy

The debt-for-nature swap conservation initiatives for three years are:

Protected Areas Management and Development

This involves the sound management of key protected areas by the DENR. Active community participation in management and protection is encouraged through on-site training programs, community organizing and extension components. Management plans for the three protected areas are being worked out at present.

Training and Professional Development

This entails the training of DENR officials, personnel and local community resource managers on wildlife management and ecology and fellowship programs for graduate students to undertake field research.

Environmental Education and Public Awareness

Conservation awareness and education is a process by which future generations can become good stewards of the environment. Public awareness campaigns on wildlife trade are being undertaken through exhibits at airports and wildlife markets and public service announcements over the radio.

Ecological Information Base and Surveys

Environmental research programs, including botanic studies on important centers of plant endemism and diversity, are being conducted to build an ecological data base and provide information for the delineation of reserve boundaries and development of management plans for protected areas.

Integrating Conservation and Development

Incorporating development-oriented programs into the Program demonstrates the integral relationships between the wise management and use of natural resources and the economic and social well-being of the nation.

Conservation Threats

Destruction of Coastal Resources

While spectacular reef and coastal zone ecosystems remain, these are found only in the least populated and most remote islands. Coastal areas continue to suffer from dynamite and cyanide fishing, coastal trawling and mangrove-cutting for fishponds and charcoal. The most serious cause of reef destruction is sedimentation and siltation resulting from irresponsible and destructive practices on land. The impact of widescale commercial logging has degraded the terrestrial environment in addition to depositing millions of tons of valuable topsoil over the coast and smothering reef life. Compounding the problem are degraded watersheds and the dumping of poisonous effluents and mine tailings in the sea.

Logging

Although the government has severely restricted commercial logging operations, an estimated 10,000 hectares of forest continue to be cleared monthly.

Shifting Cultivation (*Kaingin*)

Local authorities need to adopt a rational zoning policy, stabilize agriculture and initiate alternative income-generating programs if the remaining natural forest cover is to survive.

Wildlife Exploitation

Habitat loss is the single largest threat to wildlife in the Philippines. Wildlife exploitation for private and commercial use continues unabated and unmonitored.

Community-Based Resources Management: The San Vicente Experience

Hon. Antonio C. Alvarez
Hon. Tito D. Arias
San Vicente Council for Sustainable Development
SEP-SVP

Abstract

On 3 April 1993, Mayor Antonio C. Alvarez signed Executive Order No. 1 creating the Strategic Environmental Plan-San Vicente Project (SEP-SVP). The project's thrust is to enhance the capabilities of local government units, NGOs and POs in natural resource management through human resource development, community organizing, development support communication, environmentally critical areas network and institution-building. Its approach includes participatory community appraisal and planning, value-based development orientation, democratized resource access, devolution of administrative system and introduction of helpful mechanisms to improve techno-managerial skills. The project covers all the ten barangays of San Vicente.

During the pre-implementation phase (January-December 1993), a Technical Assistance Office (TAO) under the Office of the Mayor was established. Consultants and community organizing specialists were recruited. Several training workshops were held, culminating in the conduct of a rapid rural appraisal (RRA) in all barangays of San Vicente. The RRA results were then used as inputs to the planning/programming and budgeting workshop at the municipal level.

The first year (1994) of Phase I (1994-1998) focused on the social preparation and community organizing of the *de facto* resource managers (forest dwellers, upland farmers, and artisanal fishers) in close coordination with the barangay officials. Heightening the awareness and consciousness of the beneficiaries on environmental concerns was followed by organizing and equipping core leaders, working groups and associations at the barangay level with the necessary skills. Activities included field visits, workshops, and seminars/training. Working groups and associations have been formed and mobilized to protect municipal waters from destructive methods of fishing (e.g., dynamite, cyanide). Also, other groups/associations have started mangrove reforestation, installation of artificial reefs and establishment of coral reef sanctuaries. In the uplands, the farmers and forest-dwellers have initiated community-based nurseries. The target for 1994 is to plant 200,000 forest trees in addition to the different fruit trees already being distributed.

Introduction

San Vicente is a municipality in the northwestern part of Palawan. It has a total area of 82,057 ha and a total population of 18,472 as of 1993. Its settlement zone is composed of 590 ha; the agricultural area, around 8,595 ha; the forest zone, the biggest, 56,486.75 ha; and grassland and brushland zone, 11,156 ha. San Vicente's industrial zone is 52 ha; and the mangrove and forest zone, 1,538 ha. Its municipal fishing grounds total 140,805.50 ha. The

average annual household income is P28,892 based on 1986 data. Major sources of household income are fishing and farming. Per capita income is P5,252 per annum.

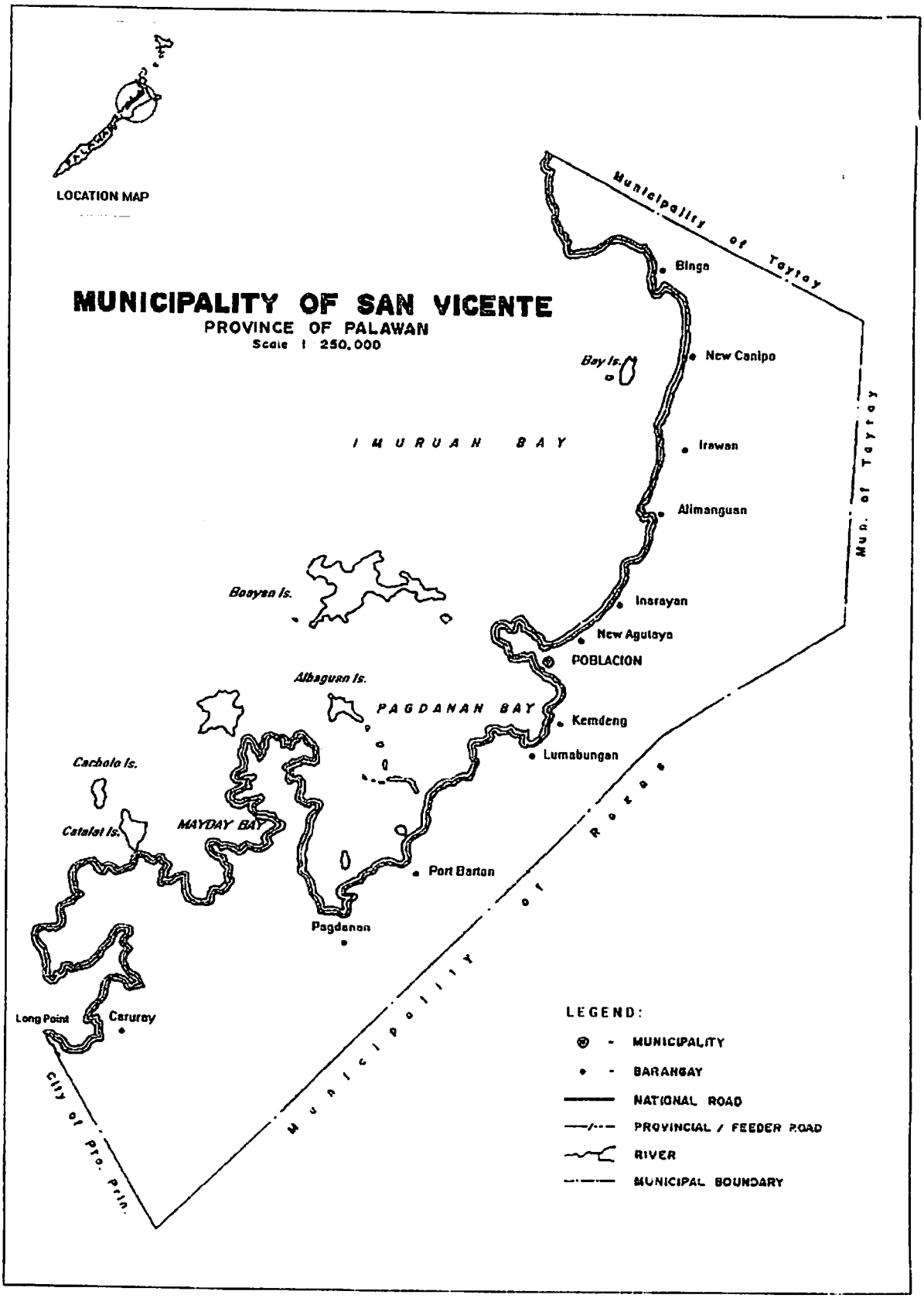
In April 1993, Executive Order 1 creating the Strategic Environmental Plan of San Vicente Project (SEP-SVP) was issued (Box 1). The project is a showcase of community-based resource management and operationalizes the policy of San Vicente on the protection, conservation and development of its natural resources. The goal of the project is sustainable socioeconomic development. Its thrust is to enhance the capabilities of LGUs, NGOs and POs in natural resources management. The strategies being used are: human resource development, community organizing, community-based resource management, development support communications, Environmentally Critical Areas Network (ECAN) and institution-building. The approaches being used are: participatory community appraisal, participatory planning, value-based development orientation, democratized resource access, devolution of administrative system and support services, and improved techno-managerial skills.

The legal basis of the project is derived from several legislations. In the Local Government Code (LGC) of 1991, the local government units (LGUs) are mandated to promote ecological balance, provide research and extension services, and manage coastal/marine and forestry resources. On 19 June 1992, the Strategic Environmental Plan (SEP) for Palawan was approved by then President Corazon C. Aquino. The SEP-Palawan uses Environmentally Critical Areas Network (ECAN) as its main strategy. In January 1993, the *Bantay Palawan* Program was created and established, focusing on the campaign against illegal logging, illegal fishing, and other activities degrading natural resources.

The desired results/outputs of the Strategic Environmental Plan-San Vicente Project are: (1) general coordination and supervision of special bodies which are mandated by the LGC in coordination with municipal offices, NGOs and the barangays; (2) continuing human resource development; (3) organization of NGOs, POs and cooperatives; (4) protection, conservation and management of the coastal marine reserves; (5) improved productivity of the upland and brushland; and (6) arrest and control of forest degradation.

Project Accomplishments

Year 1 (January-December 1994) of Phase 1 focused on social preparation and community organizing of the *de facto* resource managers (forest dwellers, upland farmers, and artisanal fishermen) in close coordination with the *barangays*. Increasing the awareness and


LOCATION MAP
MUNICIPALITY OF SAN VICENTE
PROVINCE OF PALAWAN
Scale 1 250,000
Municipality of Taytay
Binga
New Canipo
Bay Is.
IMURUAN BAY
Irawan
Alimanguan
Mun. of Taytay
Bosyan Is.
Inarayan
New Agutaya
POBLACION
Albaguan Is.
PAGDANAN BAY
Kemdeng
Lumabungan
Cachola Is.
Catalat Is.
MAYDAY BAY
Port Barton
Pagdanan
Long Point
Caruray
City of Pto. Prin.
Municipality of Roxas
LEGEND:
MUNICIPALITY
BARANGAY
NATIONAL ROAD
PROVINCIAL / FEEDER ROAD
RIVER
MUNICIPAL BOUNDARY

consciousness of the beneficiaries on environmental concerns was a vital activity. This was followed by organizing and enabling core leaders, working groups and associations at the *purok*, *sitio* and *barangay* levels through field visits, discussions, workshops and seminars/training sessions. To date, working groups and associations have been formed. Some working groups and associations have started protecting municipal waters from purse seiners and destructive methods of fishing (dynamite, cyanide). Other groups/associations started doing mangrove reforestation, installation of artificial reefs, and establishment of fish sanctuaries. In the uplands, the farmers and forest dwellers are setting up community-based nurseries to meet the target of 200,00 forest tree seedlings to be planted by August 1994. This is in addition to the fruit trees being distributed by RAC SPIADP (see Table 1 and Table 2 for details).

Table 1. Institutional Development and Strengthening

Areas of Concern	Year		Total
	1994	1995	
1. Barangays covered	10	10	20
2. Sitios covered	51	5	56
3. Farmers sitio association organized	23	15	38
4. Fishers sitio association organized	36	12	48
5. Farmers sitio federation	2	-	2
6. Fishers sitio federation	3	-	3
7. Indigenous cultural community organized	3	2	5
8. Women organizations formed	1	2	3

Table 2. Physical Accomplishments

Components	Year		Total
	1994	1995	
1. Forestry			
a. San Vicente ECAN Map approved by PCSD	1	-	1
b. Land and Water Use and use Regulations approved by the *Sangguniang Panlalawigan* of Palawan	1	-	1
c. The San Vicente Communal Forest Project approved by PCSD	1	-	1
d. Resource access instruments being facilitated (title and CSCs)			
2. Upland Agriculture			
a. Nursery established	22	8	30
b. No. of seedlings grown	166.491	ongoing	
c. Plantation established	155 has.	ongoing	
d. HRD training	17	22	39
e. Appropriate technology training	9	9	18
3. Coastal Marine			
3.1 Artificial Reef			
a. Constructed	205	195	400
b. Installed	205	135	340
3.2 Coral Sanctuary			
a. Number of areas identified	5	1	6
b. Number of sanctuaries established	3	-	3
c. Number of petitions/resolutions passed for users' right	3	-	3
3.3 Fish-attracting devices			
a. Number of units constructed	7	5	12
b. Number of units installed	7	5	12
3.4 Seafarming/Ranching			
a. Green mussel cultivation	0.25 has.	-	0.25 has.
3.5 HRD Training	17	19	36
3.6 Appropriate technology training	15	11	26

The following section highlights the accomplishments of the San Vicente Community-Based Resource Management Project over the past 1½ years of implementation.

Establishment of the Technical Assistance Office (TAO)

On 8 February 1993, the Technical Assistance Office (TAO) was created under the Office of the Mayor through Resolution No. 13, Series of 1993 enacted by the *Sangguniang Bayan* (Municipal Council) of San Vicente. The TAO is responsible for identifying the technical assistance needs of the municipality, preparing the Terms of Reference (TOR) and work program, and contracting identified consultants and specialists. The TAO also supervises and monitors the consultants and specialists.

Establishment of the San Vicente Liaison Office (SVLO)

On 15 March 1993, the *Sangguniang Bayan* of San Vicente passed Resolution No. 34, Series of 1993 establishing the San Vicente Liaison Office (SVLO) in Puerto Princesa City. The creation of the liaison office was prompted by the need to overcome the poor transportation and communications facilities in the municipality. The SVLO is responsible for strengthening the linkages of San Vicente with various government agencies, NGOs and POs at the provincial, regional, national and international levels.

The SVLO also backstops the municipal government on legal issues, procurement of supplies and materials, delivery of communications, follow-up actions on municipal concerns, gathering data and information on municipal concerns and making travel arrangements for municipal government officials/employees. The SVLO provides a working space for elective officials and appointive officers and employees on official business in Puerto Princesa. It also serves as a venue for representatives of government and NGOs who do not have time to go to San Vicente.

Signing of the SEP-SVP and MOA

On 3 April 1993, Executive Order No. 1 creating the SEP-SVP was signed by Mayor Antonio C. Alvarez. On the same date, a Memorandum of Agreement (MOA) was also signed. The MOA provides for the implementation of SEP-SVP *and Bantay San Vicente* and identifies the policy, facilitating, and implementing bodies, including their roles and responsibilities.

Organization of the Policy-making Body, Coordinating/Facilitating Body and Implementing Body

To ensure smooth project implementation, three complementary structures were established/activated, namely: 1) Policy-making Body: San Vicente Council for Sustainable Development; 2) Coordinating/Facilitating Body: Office of the Executive Officer; and 3) Implementing Bodies: Barangay Council, Barangay Development Council, NGOs, POs and Working Groups (Figure 1).

The San Vicente Council for Sustainable Development (SVCSD) formulates policies and guidelines appropriate to the local setting and consistent with the provisions of RA 7611, RA 7160 and *Sangguniang Bayan* ordinances to enhance project implementation. It reviews and approves plans and budgetary requirements, apart from securing technical and financial assistance from LGUs, NGOs and development assistance organizations/international agencies. The SVCSD is chaired by the municipal mayor. Its multi-sectoral members are drawn from the *Sangguniang Bayan,* Barangay Captains, chairpersons of the Committee on Agriculture, Environment and Natural Resources, president of the *Sangguniang Kabataan* (Youth Council), and representatives from non-government organizations (NGOs) and people's organizations.

The Coordinating/Facilitating Body extends the needed financial, administrative and technical assistance to achieve project objectives. It provides support services in research and extension, education and training, development communication, prosecution and adjudication, monitoring and evaluation, and engineering and infrastructure. It is primarily responsible for operationalizing the guidelines set by the SVCSD.

The Administrative and Finance Unit of the Coordinating Body is responsible for the following: receive, record, disburse and account funds for SEP-SVP; allocate timely funds to support field operations; facilitate and assist in the procurement of project supplies and materials; provide clerical and secretarial services; provide maintenance and upkeep of the Resource Management Center; perform other work as directed by the Executive Officer.

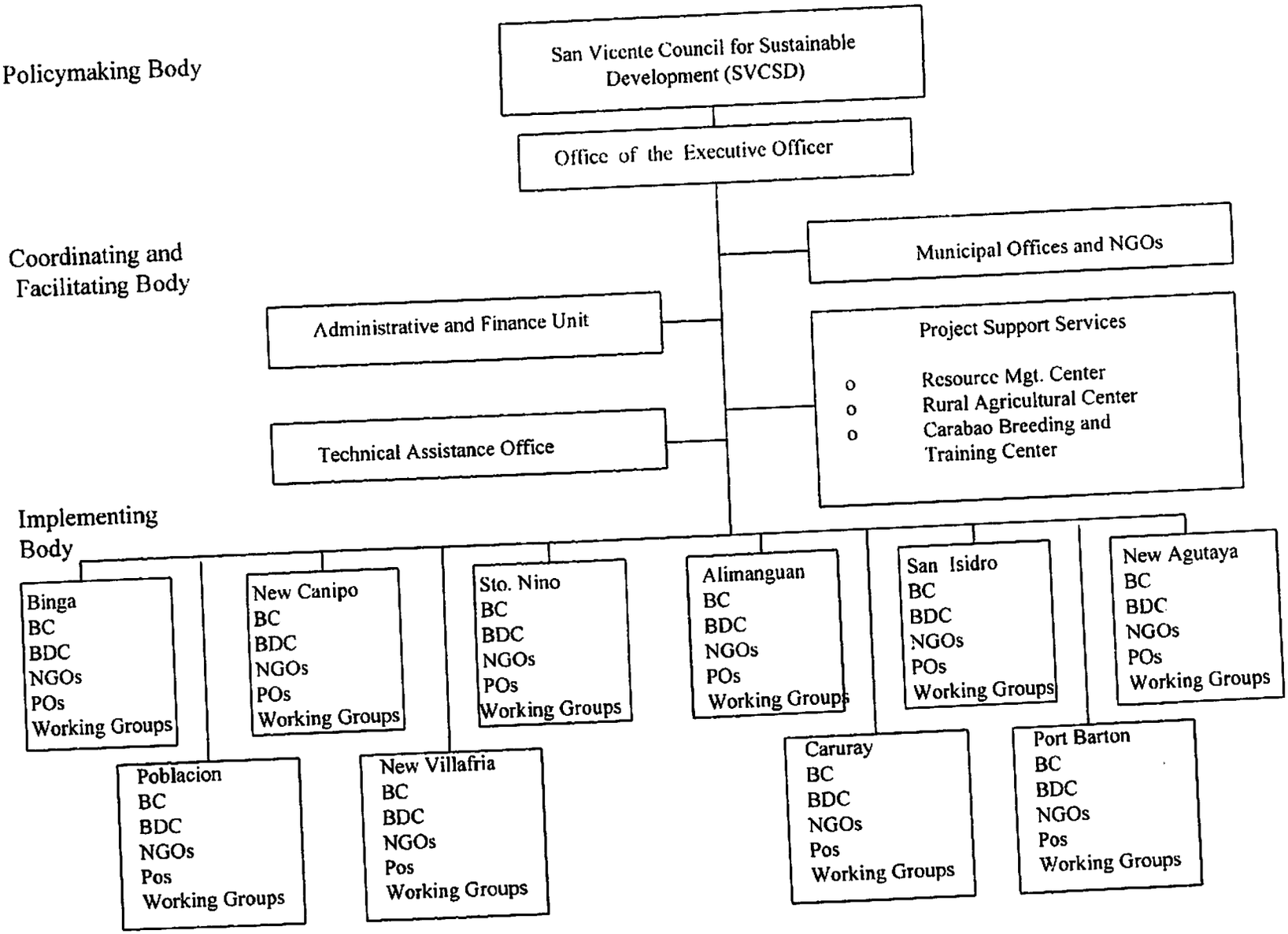
The Project Support Services include the following:

a) The Resource Management Center (RMC)

The facilities at Macatumbalen, San Vicente, Palawan support the institution-building and human resource development program of the municipality and SEP-SVP. The center designs, develops, facilitates, conducts and assesses training intended for local officials and personnel at all levels and all resource managers (fishers, farmers and forest dwellers), in line with conserving, protecting and developing San Vicente's natural resources.

Figure 1. SEP-SVP Organizational Chart

- Policymaking Body
- Coordinating and Facilitating Body
- Implementing Body



b) The Rural Agricultural Center RAC)

The RAC is charged with the implementation of various agricultural development projects in Key Resource Area (KRA) barangays, which include Alimanguan, San Isidro, New Agutaya, Poblacion and New Villafria. It will showcase lowland, upland and marine technologies, provide technical assistance and training, and provide seeds and planting materials to fishers, farmers and forest dwellers.

At present, the RAC is under the management of the Palawan Council for Sustainable Development Staff/Second Palawan Integrated Area Development Project (PCSDS/SPIADP).

c) The Carabao Breeding and Development Center (CBDC)

The 200 ha CBDC at New Villafria, San Vicente, Palawan was established primarily for upgrading the local stock and increasing carabao population in the province. It will undertake herd improvement through artificial insemination. The center will train farmers on pasture management and techniques, feeding and animal husbandry. It will also conduct applied research on carabao husbandry. Like the RAC, the CBDC is under the management of the Palawan PCSDS/SPIADP.

The municipal offices, including NGOs in the municipality, are responsible for the delivery of basic social services to the barangays. These services include civil registry, health, nutrition, taxation, peace and order, and property assessment, among other services.

Fielding of the Community Organizing Specialists (COS)

Five teams of COs were assigned (one team per barangay) in Caruray, Port Barton, Sto. Nino, New Canipo, and Binga in 1993. Their coverage was increased in 1994 to include the remaining five barangays (New Villafria, Poblacion, New Agutaya, San Isidro and Alimanguan). Due to the geographical isolation of the barangays and the encouraging results in social preparation and community organizing, the various task forces are now being organized at the barangay and *sitio* levels. The focus is on social preparation and community organizing.

Organization of *Bantay San Vicente* Task Force

To protect the marine resources from destructive fishing practices, various task forces were organized under *Bantay San Vicente*. The members were trained in: (1) education and training; (2) logistics and finance; (3) prosecution and adjudication; (4) community development; (5) law enforcement; and (6) monitoring and evaluation.

Organization and Training of the Municipal Trainors Team

The Municipal Trainors Team is composed of the Education and Training Task Force, Community Development Task Force and Monitoring and Evaluation Task Force. The Municipal Trainors Team trains Barangay Trainors Teams to hasten the implementation of SEP-SVP and Bantay San Vicente.

Conduct of an Organization and Management Capability Assessment

An organization and management capability assessment workshop was held for the personnel of all municipal offices and members of the *Sangguniang Bayan*. The structures of the *Sangguniang Bayan*, municipal offices and Special Bodies were firmed up. A workshop was conducted to determine unit outputs, work programs, reporting and evaluation system.

Conduct of Rapid Rural Appraisal (RRA)

Three multi-disciplinary teams were organized, trained, and fielded to conduct rapid rural appraisals (RRAs) of 10 barangays in San Vicente. The exercise was highlighted by the presentation and validation of the outputs by the barangay constituents.

Conduct of Goal-Oriented Project Planning (GOPP)

The outputs of the RRA were used as an input to a GOPP exercise done by representatives from line agencies, provincial offices, NGOs, POs and municipal offices of San Vicente. The outputs of the workshop were: 1) a comprehensive framework plan for San Vicente: 1994-1998; and 2) 1994 work program and budget of all departments and special projects, e.g., SEP-SVP.

Conduct of a Barangay Planning Workshop

Using the results of the RRA, the Comprehensive Development Plan and actual needs survey of the barangays, a planning workshop was conducted for the 10 barangays of San Vicente. The workshop generated 1994 work programs and budgets for each barangay.

Preparation of the SEP-SVP documents

Several SEP-SVP documents were prepared, namely: (a) Five-Year Target: 1994-98, (b) 1994 Annual Detailed Physical Targets by Barangay, (c) Five-Year Work Program and Budget, (d) One-Year Work Program and Budget.

Request for Technical Assistance from USAID

The project sought technical assistance from USAID. Two missions came to San Vicente in 1993. Additional missions came in 1994. The initial feedback seems to be positive. USAID might provide technical assistance to San Vicente in the areas of natural resources management and local capability building.

Summary of Key Accomplishments and Important Lessons

The key accomplishments of SEP-SVP can be summarized as follows:

1. Operationalization of Republic Act No. 7160 (LGC of 1991), Republic Act No. 7611 (SEP-Palawan) and *Bantay Palawan*;
2. Establishment of the needed institutional arrangements for SEP-SVP;
3. Laying down of the municipal policy direction on the management of San Vicente's natural resources;
4. Translation of the policy direction into plans, programs and budget; and
5. Initial groundwork at the community level through social preparation and community organizing.

The following lessons were gained from the experience:

1. Political will, legislative and executive cooperation, and participation of NGOs and POs are basic requirements in planning and implementing the Community-based Resource Management Project at the municipal and barangay levels.
2. Social preparation and community organizing are prerequisites to the introduction of technical interventions.
3. "Piloting" (select few) of CBRM project at the municipal level is not a very sound political decision. Other barangays not included in the project will perceive inequity in the distribution of municipal resources.
4. Strengthening municipal and barangay local governments, including NGOs and POs, will bring about more commitment and support for CBRM projects.
5. Clear-cut resource access policies on coastal marine resources will reinforce and boost local efforts on protection, conservation and utilization.

6. The personal interests of local leaders which run counter to the objectives of CBRM projects contribute to the slow pace of social preparation and community organizing.
7. Acute fund constraints result in very limited access of CBRM project to technical assistance and in the absence of project support units (training, development support communication, monitoring and evaluation, and basic infrastructure support).

BOX 1

Executive Order No. 1. Creating the Strategic Environment Plan of San Vicente Project (SEP-SVP).

- Signed by Mayor Antonio C. Alvarez on April 3, 1993, Executive Order No. 1 reflects the municipal government's commitment to the protection, conservation and management of San Vicente's natural resources.

- a showcase in community-based resource management covering the terrestial (core zone, buffer zone, and multiple/manipulative use), coastal/marine (core zone, multiple use zone) and tribal ancestral lands.

- operationalizes the policy of the municipal government to enhance economic prosperity for the present and future generations through the use of complementary activities to develop, conserve, protect life support ecosystem and rehabilitate exploited areas to allow upcoming generations to sustain development/growth.

Legal Basis

Republic Act No. 7160: Local Government Code (LGC) of 1991

- LGU to promote the general welfare of the constituents, e.g., ecological balance
- LGU to provide basic services and facilities, e.g., research and extension services, management of coastal/marine and forestry resources.
- LGU to develop linkages with NGOs, POs and cooperatives.

Republic Act No. 7611: Strategic Environment Plan for Palawan (SEP-Palawan)

- Originated in the House of Representatives and passed by the House of Representatives and the Senate on 7 February 1992 and 6 February 1992, respectively. Approved by then President Corazon C. Aquino on 19 June 1992.
- Environmentally Critical Areas Network (ECAN) serves as the main strategy of SEP-Palawan. ECAN establishes a graded system of protection and development control over the whole of Palawan, including its tribal lands, forests, mines, agricultural areas, settlement areas, small islands, mangroves, coral reefs, seagrass beds and the surrounding sea.

Bantay Palawan

- On January 18, 1993, Executive Order No. 4 created and established the *Bantay Palawan* Program.
- It is a campaign against illegal logging, illegal fishing and other activities in violation of laws degrading the natural resources.

Northern Palawan Fisheries Development Project

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Abstract

The main objective of this paper is to present and share the experience of the Philippine Fisheries Development Authority-Northern Palawan Fisheries Development Project (PFDA-NPFDP) in implementing and managing government investments in a small-scale fisheries project. This can serve as one of the inputs in sustaining development efforts addressed especially to small fishers in Palawan. The site involves the Calamianes Group of Islands and mainland Palawan, including the municipalities of Taytay, Roxas, and Araceli in the northeast coast, and El Nido and San Vicente in the northwest coast. The bonafide municipal/marginal fisher-residents of these northern Palawan towns were the main beneficiaries of the PFDA-NPFDP.

The PFDA-NPFDP was the first project of the Asian Development Bank and the Philippine government to focus on small-scale fisheries in the Philippines. It provided the PFDA direct hands-on experience on fish capture, collection and marketing on a commercial scale. Based on the ADB project evaluation report, fisher-beneficiaries' cash incomes increased from an average of P2,200 to P2,700 or an increment of about 22% in their monthly household cash earnings. The project covered 2,500 beneficiaries distributed in several municipalities within the project area. Commercial activities in the project site were enhanced as prices of fish increased substantially to the benefit of the direct project beneficiaries. Further, government's presence in the project area has been visible with the project's involvement in marine fisheries conservation efforts.

Background

In March 1978, the Asian Development Bank (ADB) approved a technical assistance grant of US$93,000 that was jointly financed by the Food and Agriculture Organization (FAO) Investment Center. The grant was meant to help the Philippine Government determine the best way of implementing its Five-Year Integrated Fisheries Development Plan (IFDP, 1978-1982). The FAO Investment Center conducted a sector survey and prepared an interim report identifying sub-projects in Northern Palawan, Bohol and Panay. Upon completion of the FAO Feasibility Study and detailed discussions between the ADB and the Government, it was decided in April 1979 to proceed with the fisheries development in the Northern Palawan region and to exclude the other sub-project areas also considered. An appraisal team of the bank visited the project area in May 1979. The resulting Northern Palawan Fisheries Development Project was approved by the ADB on 27 September 1979. The corresponding loan (No. 413-PHI) of US$18.0 million became effective on 20 March 1980. The closing date of the loan was set on 30 September 1985.

Modification of the Project Scope

Four months before the original closing date, discussions took place between the ADB and the Philippine Government, which was represented by the Department of Agriculture and the Philippine Fisheries Development Authority (PFDA). PFDA, the executing agency of the Project, initiated the discussions to propose a modification of the project scope. These discussions were prompted by the opposition to the Government's involvement in commercial fisheries expressed by the Federation of Fishing Associations as well as by the Government's own misgivings about the original project design. On 15 September 1985, the Bank approved the government's proposal to essentially delete the commercially-oriented Part B (Offshore fisheries, fish collection and marketing) of the original Project, scale down Part C (Fish landing facilities) to reflect the virtual deletion of Part B but largely retain Part A of the Project (Municipal fisheries), and use some of the expected loan savings to provide physical improvements at the Navotas Fishing Port Complex. Based on this revised scope, the original loan of US $ 18.0 M was reduced to US$6.48 million and the balance of US$11.52 million was cancelled.

Together with the change of project scope, the Bank also endorsed the expansion of project activities into areas south of the original project location around Coron towards the western part of mainland Palawan and its eastern shores. The move was designed to tap new fishing grounds and take advantage of seasonal variations in weather and fishing conditions. The project completion date was subsequently extended until 31 January 1989 when the Project was declared completed by the Bank.

Project Description

Mission and Objectives

The project was conceived and designed based on the socio-economic and resource background of Northern Palawan. The 1975 census revealed that for about 60% of the male population of working age, fishing was the main source of livelihood in an area where average incomes seriously lagged behind the Philippine average. On the resource side, the sea bottom topography of the Calamian group of Northern Palawan (coralline grounds interspersed with reefs) made commercial trawling difficult or impossible. The overwhelming dependence on

small-vessel, municipal fishing, together with the traditionally low degree of economic activity in the area, left the rate of exploitation of marine resources well below the maximum sustainable yield.

In response to this situation, the NPFDP embarked on a mission to improve the lot of the small-scale fishers in Northern Palawan through an environmentally sustainable development of the municipal fisheries in the area. Specifically, the project's objectives are:

1. to optimize production of underfished areas;
2. to prevent wastage in the utilization of fish;
3. to improve the economic returns to fishers by linking them to stable markets;
4. to upgrade fishing technology in the project area; and
5. to promote alternative fishery-related livelihood activities in the area.

Project Area

From the original project area of the Calamian Island Group (Figure 1) composed of the municipalities of Coron, Culion, Busuanga and Linapacan and its surrounding waters, the area was expanded to include the northern part of mainland Palawan covering the east (Roxas town) and west (San Vicente town) coasts.

Project Components

The project scope originally consisted of three separate parts: (1) the Municipal Fisheries Component; (2) the Offshore Fisheries, Fish Collecting and Marketing Component; and (3) the Fish Landing Facilities Component. A segment under the third component, improvements at the Navotas Fishing Port Complex, was added when the scope was modified in 1985. At the same time, the second and third parts were scaled down because of the deletion of the commercially-oriented segments. Table 1 shows the comparison between the original and revised project scope.

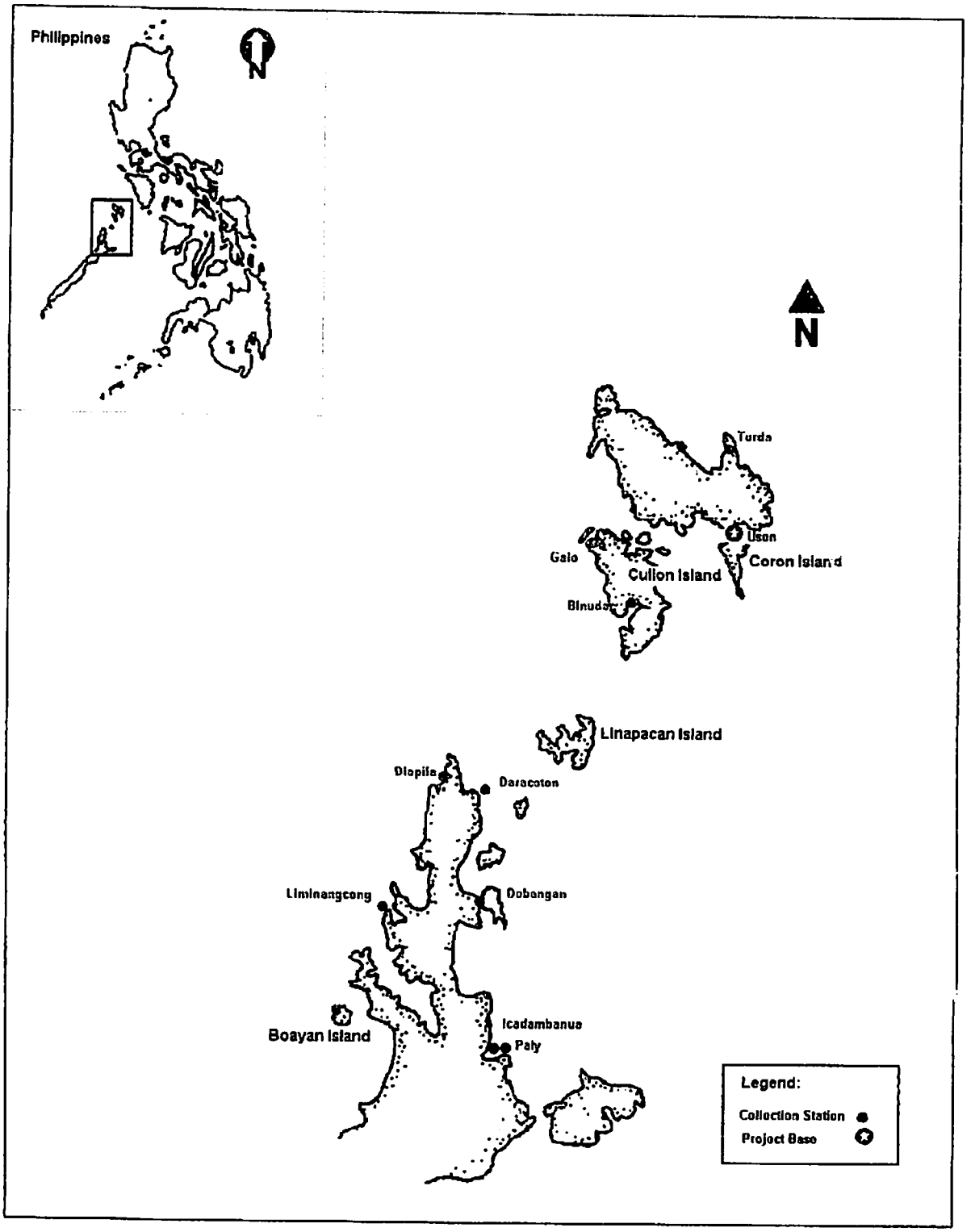


Figure 1. Location map of the Northern Palawan Fisheries Development Project.

Table 1. Project Components.

COMPONENT	ORIGINAL SCOPE (1978)	REVISED SCOPE (1985)
A. Municipal Fisheries	1) 500 bancas and 500 marine engines of 15 - 20 h.p. 2) 18,000 sets hook and line and 500 sets gillnets 3) 500 insulated fish boxes	1) 500 bancas and 500 marine engines of 15 - 20 h.p. 2) 18,000 sets hook and line 3) 1,000 insulated fish boxes
B. Offshore Fisheries, Fish Collecting and Marketing Facilities	1) 10 60 gt class purse seiners 2) 4 170 gt class fish carriers 3) 6 15 gt class fish collecting vessels 4) 1 20gt class supervision vessel 5) 10 sets purse seine nets 6) Coron Offshore Complex: 80ml/day ice plant with 200ml ice and 120ml chilled fish storage workshop - communication equipment fish handling general store and unloading facilities 7) Offshore Complex at Culion 8) 15,000 HDP fish boxes	1) dropped 2) 10 60gt class leased local carriers 3) Dropped 4) 1 leased local vessel 5) Dropped 6) Coron Offshore Complex: reduced size & scope of ice storage, workshop and fish handling facilities - communication equipment - all others dropped 7) Dropped 8) 8,000 HDP fish boxes
C. Fish Landing and Support Facilities	1) Facilities at Coron: - one jetty, - water storage and distribution facilities 2) Facilities at Culion	1) Reduced 2) Dropped 3) Improvements at NFPC

Financing

Loan No. 413-PHI between the Government and ADB, which became effective on 20 March 1980, provides US$ 8.0 million for the financing of the foreign currency and some local currency expenditures of the NPFDP. This amount was reduced in 1985 to US$6.48 million as a result of the modification of the project design. Table 2 presents the detailed allocation of the loan proceeds based on the original and revised project scope.

Table 2. Allocation of Loan Proceeds.

ORIGINAL (1978) CATEGORY	ALLOCATION (US $)	REVISED (1985) CATEGORY	ALLOCATION (US $)
I. Coastal Fisheries		I. Coastal Fisheries	
a. Marine Engines	1,000,000	a. Marine Engines	610,000
b. Hook & Lines	570,000	b. Hook & Lines	50,000
II. Offshore Facilities		II. Onshore Facilities	
a. Purse seiners, Fish Collection Vessels, Chilled-Fish Cabinet	5,000,000	a. Civil Works	170,000
		b. Equipment	190,000
b. Fishing Gear and Chilled-Fish Cabinet	780,000		
III. Onshore Facilities		III. Fish-Landing Facilities	
a. Civil Works	428,000	a. Civil Works	285,000
b. Equipment	1,241,000		
VI. Fish Landing Facilities (Civil Works)	277,000	VI. Fish Landing Facilities (Civil Works)	600,000
V. Local Expenditures for Civil Works	1,200,000	V. Local Expenditures for Financing	
		a. Civil Works	1,720,00
		b. Banca Hull & Other Equipment	710,000
		c. Management Firm and Working Capital	850,000
VI. Interest and Commitment Charges during Construction	3,000,000	VI. Interest and Commitment Charges during Construction	1,600,000
VII. Unallocated	3,804,000	VII. Unallocated	245 000
TOTAL	**17,300,000**		**7,030,000**

Implementation Results

At the time of the loan closing date on 31 January 1989, the overall completion rate of the project was estimated at 95.44%, details of which are presented in Table 3.

Table 3. Implementation Results

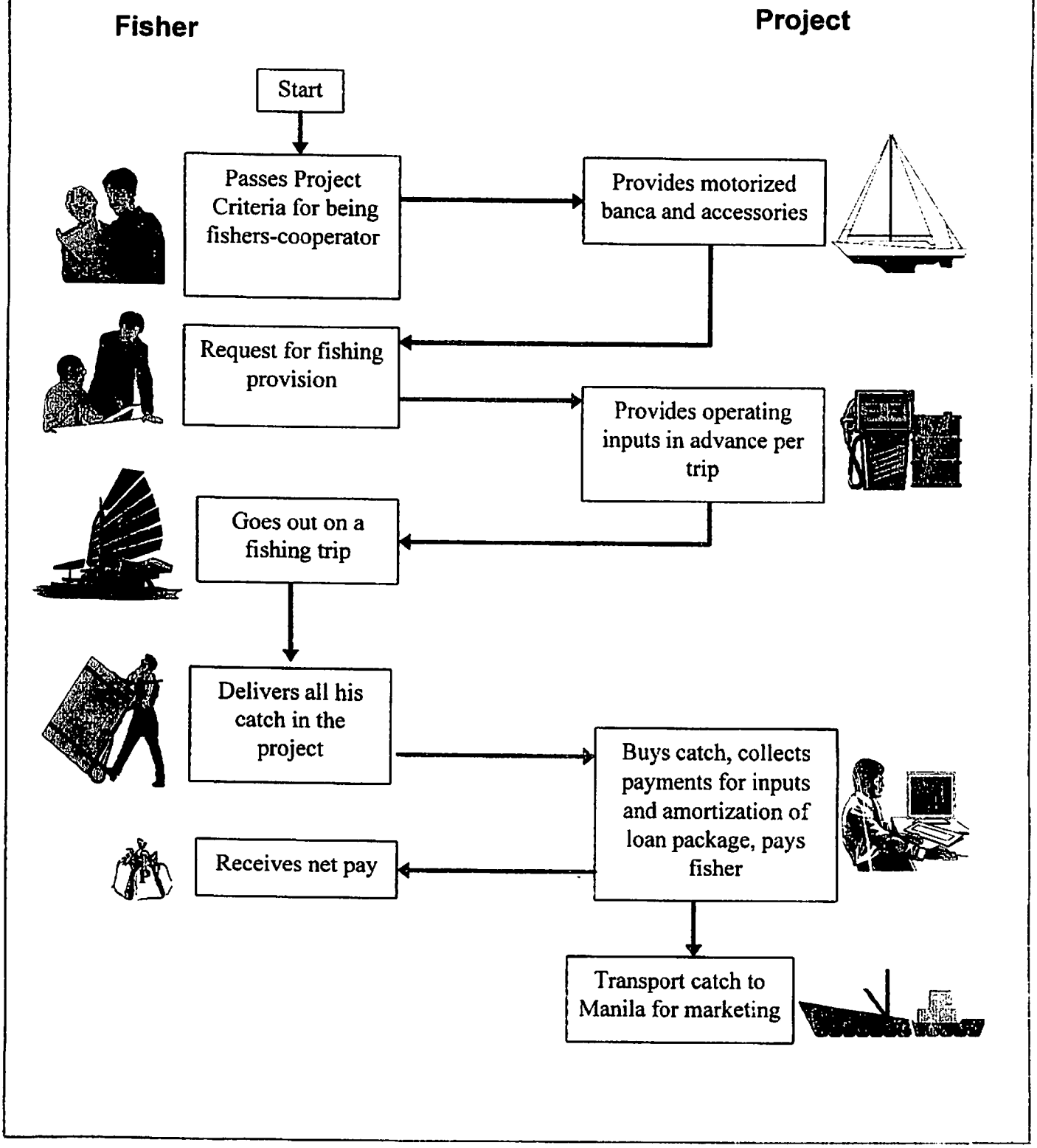
COMPONENTS	TARGET	ACTUAL
Municipal Fisheries		
a. Marine Engines	500	500
b. Bancas	500	448
c. Fishing Gear	18,000 sets	Staggered Purchase
d. Insulated Fish Boxes	1,000	720
Fish Collection and Onshore Facilities		
a. Chartered Vessels	1 Supervision 10 Fish Carriers	6 Fish Carriers
b. Buildings at Coron	100%	100%
c. HDP Fish Boxes	8,000	5,000
d. Communication Equipment	100%	100%
Fish Landing and Improvements at NFPC		
a. Civil Works at Coron	100%	100%
b. Infrastructure at NFPC	100%	100%

Operationalization

The NPFDP staff operated the project under a very different environment from that assumed in 1979 during the project appraisal. Even if the project was reformulated in 1985, its objectives, which are among the parameters in the implementation and gradual operationalization of the NPFDP, were not revised. The project was downscaled after the revision of the project scope in 1985 providing for the continuance of the municipal fisheries component. It was run relatively smoothly amid difficult conditions. It maintained and pursued its objectives attuned to a socio-economic orientation. The flow of project operations is presented in Diagram 1.

DIAGRAM 1

Flow of Project Operations



Results of Operations

A. Banca Deployment

As of April 1994, 266 bancas and engines were deployed within the project area. However, 28% (or 74 units) were in a state of repossession, deterioration or rehabilitation. The 266 units are distributed as follows:

Location	Number
Coron/Culion	23
Linapacan/El Nido/Northeast Taytay	71
Southeast Taytay	56
West Taytay/West El Nido	37
San Vicente	79

B. Fish Production, Collection and Marketing

The project produced 3,135 tons of fish from 1985 to 1993. The highest production was attained in 1990 at 510,000 kgs. Diagram 2 presents the breakdown of this volume while Diagram 3 exhibits salient information on NPFDP fishing operations.

Through the years, from 1984 to 1990, there was an uptrend in fish production. In 1991, production began to decrease. The same observation was true in 1992 and 1993. A similar scenario existed in the number of bancas distributed and the number of operating bancas. The latter can be attributed to the life span of the wooden bancas which the project estimated to be five years.

Diagram 3 shows that the average selling price continued to increase yearly despite seasonal gluts and slumps caused by the red tide scare while the catch rate per banca per month fluctuated every year.

C. Financial Performance

Production income constitutes the bulk of NPFDP income. The highest income was registered in 1990 at P22.99 million while the lowest was in 1988 at P12.50 million. Diagram 4 shows the financial picture of the project from 1987 to 1993. A candid assessment of NPFDP's financial performance indicates a high risk factor considering the depletion of the resource base in Northern Palawan. This is shown by the downward trend in production experienced not only by the project but also by the private sector, the diminishing production efforts on the part of the fishers and the

high administrative overhead of the project. All these were considered in the programmed in-house financial and operational restructuring of project components.

DIAGRAM 2.

Annual Fish Production

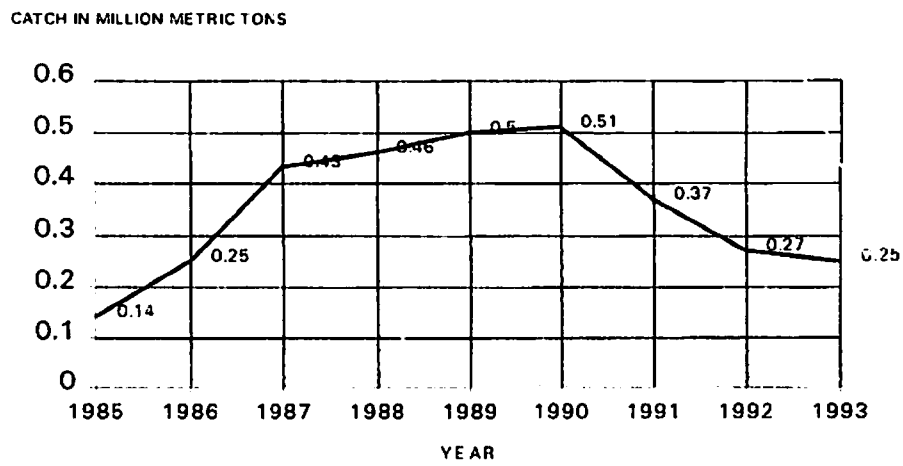
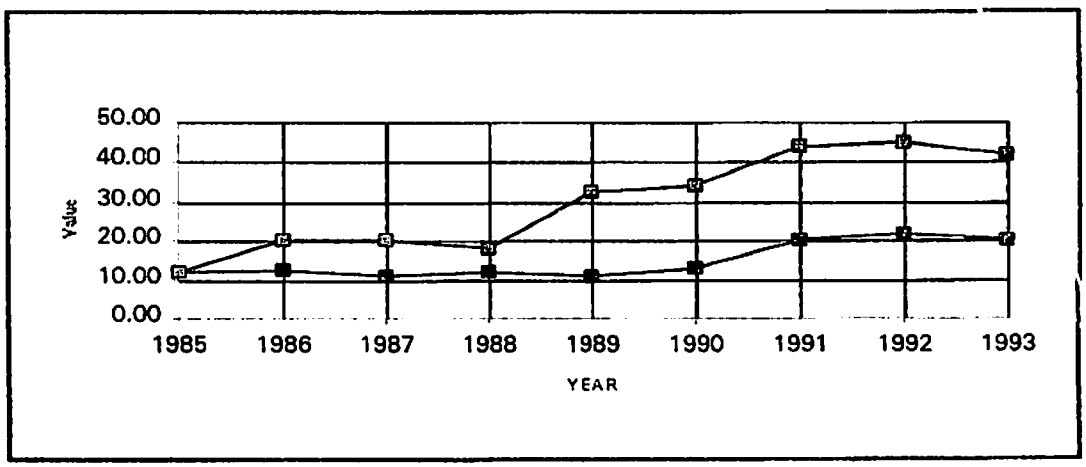


DIAGRAM 3

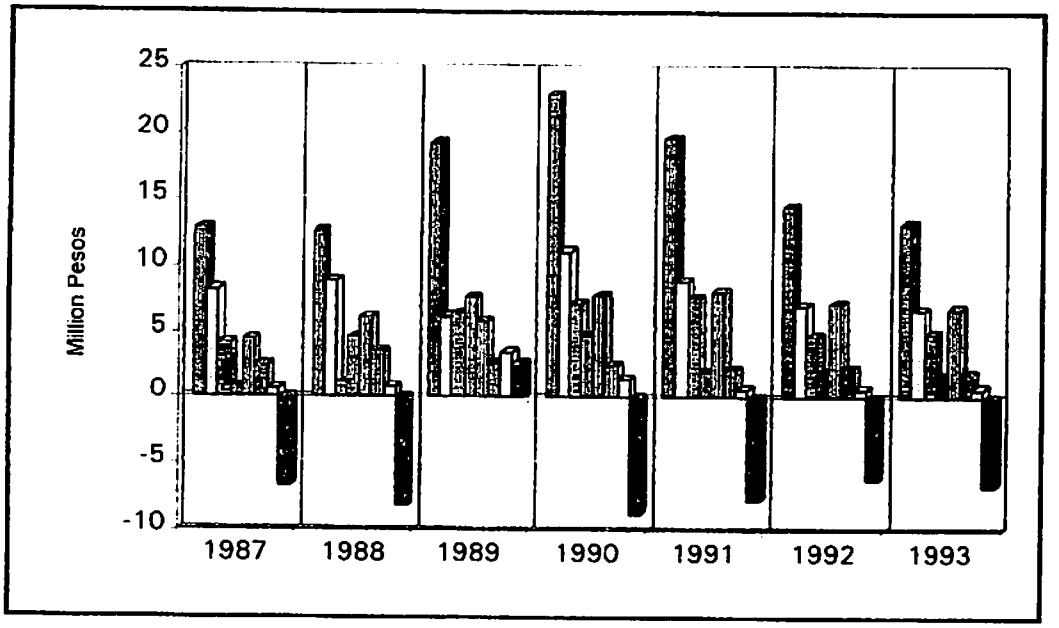
NPFD Fishing Operations Data



Banca Distributed	27.00	105.00	94.00	364.00	368.00	347.00	342.00	297.00	265.00
Operating Bancas	16.00	59.00	69.00	107.00	160.00	228.00	162.00	121.00	95.00
Fishing Trips/Month	2.79	2.25	2.62	4.70	7.00	7.00	7.00	7.00	7.00
Catch Rate/B/M/KG	651.17	367.00	452.00	457.00	210.55	205.56	230.09	291.41	525.90
Ave. Buying Price, P	11.63	12.23	11.06	11.74	10.91	13.05	20.28	21.50	20.03
Ave. Selling Price, P	11.78	19.88	19.89	18.20	32.43	34.06	43.64	44.61	41.75
Total Fish Catch, MT	140.00	250.00	430.00	450.00	500.00	510.00	370.00	270.00	246.00

DIAGRAM 4

NPFDP Financial Performance



PRODUCTION INCOME	12.871	12.604	19.29	22.994	19.66	14.49	13.216
FISH PURCHASES	8.192	8.88	6.218	11.088	8.848	7.104	6.746
PRODN/MKTG EXPENSES	4.129	1.124	6.476	7.188	7.696	4.716	4.91
GROSS PROFIT	0.66	4.62	7.602	4.708	2.017	2.071	1.661
PERSONAL SERVICES	4.471	6.072	5.769	7.82	8.086	7.178	6.816
MOE	2.395	3.483	2.597	2.534	2.141	2.295	1.921
RENTAL/INT. INCOME	0.707	0.826	3.463	1.429	0.623	0.669	0.718
NET INCOME	-6.609	-8.19	2.598	-8.718	-7.686	-6.148	-6.667

Socio-Economic Benefits

Project benefits were felt not only by direct beneficiaries but also by the immediate communities in the project area. The project enabled the government to directly assist the small-scale fisheries in a remote part of the country. This achievement could not be underestimated since this was the first government attempt to directly engage and support small-scale fishers in their operations. The other benefits derived from the NPFDP in this respect were:

1. **PFDA institutional development.** The government, particularly the executing agency, had a direct hands-on experience on fish capture, collection and commercial marketing. This resulted in a cadre of young professionals with a thorough awareness of the problems and demands of the above fields which could not have been acquired in normal bureaucratic positions. The impact of this experience on the PFDA and on the Department of Agriculture was definitely positive.

2. **Increase in fishers' income.** In a survey conducted by the ADB Project Evaluation Mission last April 1990, results confirmed that the participants' income increased from an average of P2,211 to P2,686 or an increase of 22% in their monthly household cash earnings since the start of their participation.

3. **Introduction of other fishing gears/upgrading of fishing technology.** The project gave the government an opportunity to modernize the fishing equipment of small-scale fishers and to distribute non-destructive fishing gears such as gillnets and bagnets. Mariculture activities were also introduced by the project to fishers in the area.

4. **Resource conservation.** In early 1986, the project entered into a Memorandum of Agreement with the Palawan Provincial Government, the Navy, the Bureau of Fisheries and Aquatic Resources, the Philippine Constabulary and the Coast Guard to undertake patrol operations against illegal fishers. This led to apprehension, prosecution, and conviction of a number of fishers.

5. **Organization of fishers' associations.** The NPFDP facilitated the formation of nine beneficiary associations with the end in view of formalizing these groups into cooperatives. These associations are engaged in various activities such as group representation with different government agencies, savings programs and operation of small "*sari-sari*" stores.

6. **Other benefits.** Project operations from 1985 to 1993 resulted in an infusion of more than P76.58 million in terms of fish bought and goods distributed in the project area. The government provided the fishers direct access to credit for their fishing equipment and supplies which no bank had undertaken in the past. Likewise, the NPFDP operations

provided direct employment to about 2,500 fishers. There are positive indicators that the project operations indirectly increased commercial activities in the area.

Problems and Issues

The NPFDP was a part of a wider government strategy to create a mixed economy with corporate features. It was a first step towards a public presence in Philippine fisheries for production, community development and regulation. Since it was the first project of its kind for the government, there was nothing to use as reference that would point out differences between theories/hypotheses and actual experience. Some problems were not experienced by any other public enterprise before but the project staff were able to surmount these obstacles. As discussed earlier, the PFDA operated the NPFDP under very difficult situations. The implementation period and start-up operations presented unique problems that were hurdled objectively by the staff. However, the project still continues to face operating constraints which are now not uncommon in the industry. The more pressing of these constraints are:

1. **Resource depletion.** Despite the tie-up with various government agencies to arrest illegal fishing in the area, which is the main cause of resource depletion, illegal practices still continue to proliferate. These lead to a widespread destruction of fish habitats which, in turn, causes resource depletion. The decreasing trends in the volume of fish caught in the project area is a clear manifestation. For a period of eight years, a decrease of 94% in average fish catch was registered or from a high 1,053 kg/month to a low 66 kgs/month.

2. **Lost fishing days due to bad weather conditions.** In 1991, about 52% of the total 250 normal fishing days of project cooperators in a year was recorded as lost fishing days due to typhoons and other bad weather disturbances. The percentage increased to 56% in 1993.

Year	Lost Fishing Days	%	Estimated Production Loss
1990	60	24%	93 MT
1991	130	52%	199 MT
1992	100	40%	67 MT
1993	141	56%	75 MT

The Experience of the Panindigan Multi-Purpose Cooperative, Inc.

Nelia Betaño
Panindigan Multi-Purpose Cooperative
San Vicente

Abstract

This paper discusses the experience of the Panindigan Multi-Purpose Cooperative, Inc. (PMPCI). Panindigan is a fishing village located in northern Palawan, specifically in the municipality of San Vicente. It is part of Barangay Poblacion, approximately 248 km from Puerto Princesa City. Fishing and a little farming are the main sources of income of its residents. Panindigan has around 2,000 fishers.

The PMPCI was organized in 1991 by the Office of the Provincial Agriculturist for fishing activities. Membership is limited to its area of operation as provided for by its by-laws. Its objective is to uplift the living condition of the members and non-members by engaging in new fishing technology in coordination with the local government, NGOs and other agencies which extend financial and technical support for income-generating projects.

Since 1991, the cooperative has engaged in the operation of a *sari-sari* store, whose capital came from members' shared capital. In coordination with other agencies, PMPCI availed itself of a swine dispersal program. It also constructed a *bagoong/patis* tank funded by the Department of Trade and Industry which is no longer functional due to lack of funds for its operation. The cooperative is also planning to engage in lobster culture if the support fund from the provincial government is approved.

One of the factors that may have brought about PMPCI's initial success is the cooperation of its members and the continuous support of the Office of the Provincial Agriculturist in the technical aspect. This office believes that through cooperatives, the living conditions of marginal fishers may be alleviated. Additional financial support for income-generating projects, however, is needed in *bagoong/patis* production along with additional skills training.

Background

My sharing is about the experience of the Panindigan Multi-purpose Cooperative, Inc. (PMPCI). Panindigan is a fishing village in San Vicente municipality, which forms part of northern Palawan. Its residents are heavily dependent on fishing and to a lesser extent, farming.

The existence of PMPCI dates back to 1991 when the Office of the Provincial Agriculturist organized the village residents for fishery-related activities. Membership is limited to its area of operation, as provided for by its by-laws.

Objectives of the PMPCI

The general objective of the PMPCI is to uplift the living condition of members and non-members in the area. The specific objectives are:

1. To encourage and uplift savings mobilization among the cooperative members for capital formation
2. To create funds in order to grant loans for productive and providential purposes to its members
3. To provide goods and services required by the members
4. To undertake agricultural and/or industrial production activities
5. To engage in the supply of production inputs to members/non-members as well as in marketing
6. To provide the following services: medical, communication, housing, labor, electric light and power, irrigation, market management, janitorial services and other services
7. To undertake other activities for the effective and efficient implementation of the provisions of the cooperative code.

To date, the PMPCI has undertaken four projects: (1) *sari-sari* store, (2) *patis/bagoong* tank, (3) swine production, and (4) bio-intensive gardening. The capital of the *sari-sari* store came from the shared capital of its members. During the lean season, fishing members can secure credit for the family's daily needs. The 20,000-liter P*atis/Bagoong* Tank was installed through a grant from the Department of Trade and Industry. The Swine Production Project was assisted by the Provincial Agriculturist Office. The cooperative started with two head of swine for dispersal, which have now multiplied to ten head. The Communal Bio-intensive Gardening Project serves as a showcase to the locality and provides an additional source of vegetable for the market. The Lobster Culture is still pending, subject to the approval of the project proposal by the Provincial Government for funding.

One of the factors that may have brought about the initial success of PMPCI is the cooperation of its members and the continuous support of the Office of the Provincial

Agriculturist in the technical aspect. This office believes that through cooperatives, the living conditions of marginal fishers may be alleviated.

Other observations are: (1) only 60% of the members are involved in other associations; (2) there is a low level of education and laziness that may be attributed to poor participation; and (3) three years is not enough to organize in an area whose residents have a low level of education. There is a financial problem in on-going income generating projects. No problem is encountered in illegal fishing if there is full support from the municipal government.

Financial support is needed by the cooperative for on-going projects like *Patis* and *Bagoong* Production and Lobster Cage Culture. Additional skills training on fishing gears and post-harvest technology is also needed.

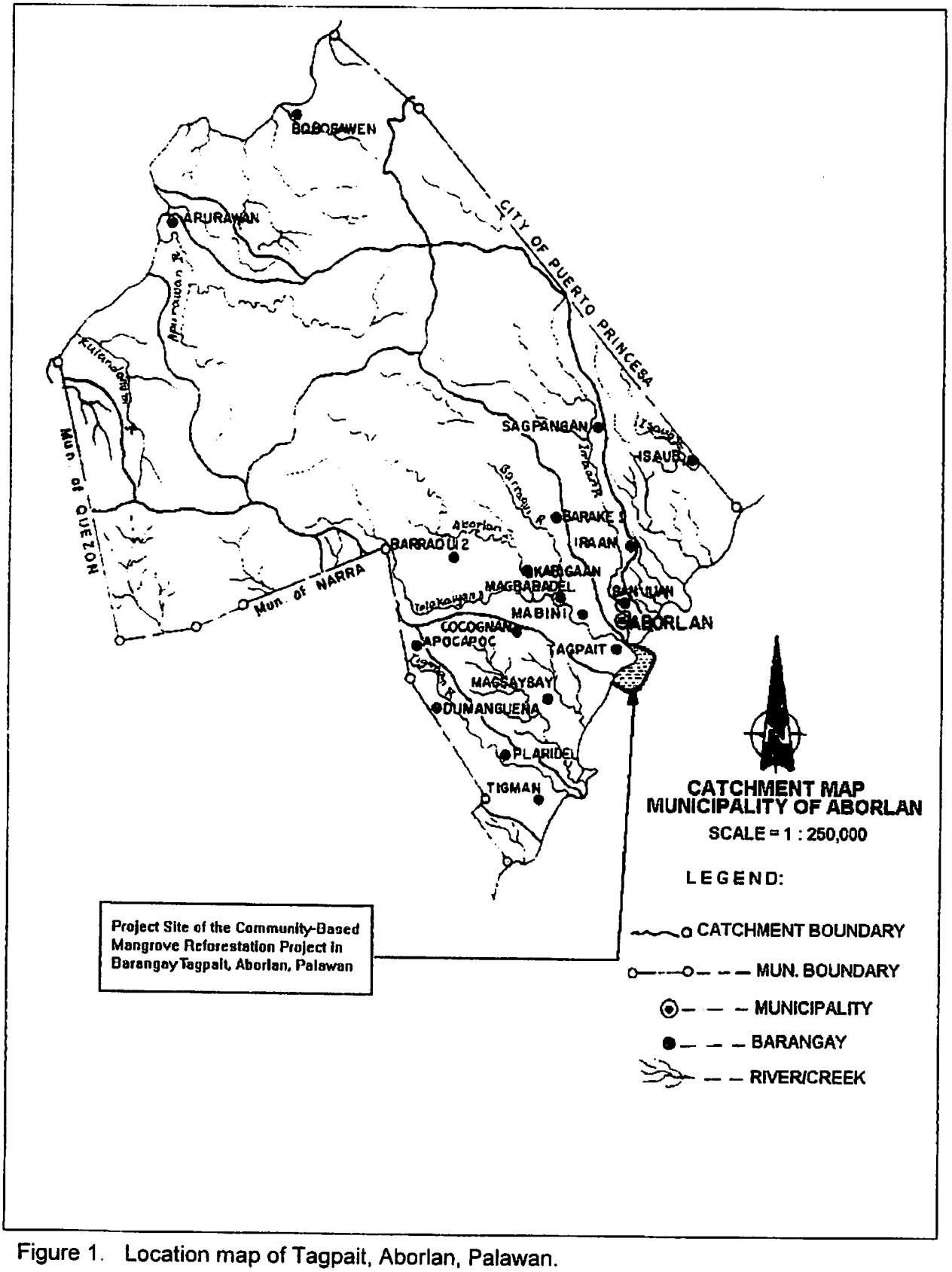


Figure 1. Location map of Tagpait, Aborlan, Palawan.

Seventy families, who reside permanently in barangay Tagpait and earn an income of not more than P20,000/year, were the project beneficiaries. These beneficiaries belonged to the following linguistic groups: (a) Palawan (54.3%); (b) Muslim (15.7%); (c) Visayan (12.9%); (d) Cuyunin (11.4%); (e) Tagbanua (2.9%); (f) Tagalog (1.4%); and (g) others (1.4%).

Project Components

Technical Assistance

The feasibility study on the mangrove development project was undertaken by a team of consultants over a five-month period, from April to September 1990. The team was composed of a forestry expert, a coastal zone management specialist, an institutional/extension specialist and a forestry economist. The consultants worked together with OISCA in establishing the training program and in preparing a detailed cost-benefit analysis of the project. The team leader prepared a refined implementation program.

OISCA undertook the pilot-testing activities with the assistance of the OTTAA as the field implementor. The project started in April 1990 and was completed in May 1992. A project steering committee was established at the DENR for the overall management, monitoring and evaluation of the TA. The steering committee designated DENR counterparts to work with consultants during the feasibility study and to assist in the subsequent field operation.

Community Organization

Two community organizers (COs) from OTTAA resided in the community during the implementation of the pilot project from April 1990 to May 1992. They conducted a rapid reconnaissance/socioeconomic survey and generated an environmental baseline profile in cooperation with the DENR staff and the beneficiaries. The COs assisted in forming the Tagpait Coastal Development Association (TACDA), the beneficiary association. They also conducted a community awareness and technical training for the beneficiaries, assisted in mangrove planting, worked out tenurial arrangements with DENR, and identified complementary income-earning activities. The local government of Aborlan was a collaborating agency in this program, extending strong moral support to the NGO implementing the project and to the TACDA members.

Subsequently, TACDA linked up with other government organizations such as the Philippine Coconut Authority. It is now a recipient of a 5-year free fertilizer program for non-

bearing coconut trees. TACDA was also a recipient of Day Care Centers from OISCA International and of continuing supplies for these centers. It became a member of the PNAC Cooperative and is registered with the Cooperative Development Authority (CDA) of the Philippines.

Tenure Arrangement

In June 1991, 70 certificates of mangrove stewardship contracts (CSCs) were awarded to the beneficiaries after they fully planted their 1-ha allocation per household. Under this tenurial system, each beneficiary has jurisdiction and authority over the demarcation, protection, management, disposition, reforestation occupancy and/or use of public forest resources, including mangrove areas. The contract is good for 25 years and renewable for another 25 years, if properly maintained, as stipulated in the agreement.

Management and Technical Procedures

The COs, with the assistance of the technical staff of the DENR, conducted a training program for all beneficiaries on mangrove planting and management. The beneficiaries were responsible for the collection and planting of mangrove propagules and the management of their mangrove areas. Motorboat, land transportation, fuel and operator were provided by the COs in hauling and transporting the propagules to the planting sites, along with wooden stakes for marking the boundaries.

Project Costs and Source of Funds

The ADB and OISCA contributed grant funds to this project, broken down as follows:

A.	Cost of transporting propagules from the place of origin to the project site	P45,164.49
B.	Turnover to the TACDA of funds for the *runsay* festival	P15,000.00
	Livelihood projects	P65,000.00
C.	Collection of propagules and planting on project site (provided by the beneficiaries)	(not costed)
	Total	125,164.49

Project Termination and Turnover

In May 1992, the project was completed and turned over to TACDA. Support was given during the phase out. Livelihood projects comprised the next activity of the association. OISCA awarded the earmarked budget for planting which the association did not use during the establishment of the mangrove plantation. A total of P80,000 was received by the treasurer of the association, of which P15,000.00 was spent for reviving the traditional festival, the *runsay*. The *runsay* is celebrated as a thanksgiving to the sea god for protecting the community from epidemics and pirates. The remaining P65,000 was allocated to the rice store (for cheaper and more accessible source of rice), motorboat (for fishing, patrolling, hauling of propagules and transport of visitors), swine dispersal and milkfish fry collection/concession. This activity continued during the weaning period, e.g., the time during which the responsibilities of the two community organizers were being turned over to the association. During this period, the organizers were also in the process of evaluating the community's capability to carry out project activities on its own.

Frequent visitation and monitoring of the OISCA staff and OTTAA members were done. The performance of the mangrove plantation encouraged OISCA to expand the project to a nearby barangay. A 3-ha plantation was established with the participation of the Parents-Teachers' Association (PTA) of Barangay Magsaysay. In addition, a 10-ha mangrove plantation involving the community members of Sitio Marikit of Barangay San Juan was also pursued. At present, a bigger 50-ha mangrove reforestation/afforestation project in Barangay Magsaysay is being proposed. All these activities sprung from the initial success of the pilot mangrove reforestation project.

Problems Encountered

(1) The main problem encountered was the low level of beneficiary participation. Only 30% of the beneficiaries were actively involved in the association. This was attributed to the low educational attainment of the beneficiaries.

(2) Two years was not enough for organization activities.

(3) The livelihood program was not sufficient to improve the economic condition of the site.

(4) Barnacles and other infestation caused the death of young plants. By attaching to the plant, the barnacles destroyed the newly planted propagules. Barnacle infestation occurred near the river or in areas where salinity is low.

(5) Stray animals such as goats, carabaos and pigs entered the plantation site during low tide and ate the leaves of the mangroves. Thus, the plants were either uprooted or the branches destroyed.

(6) Mangrove borers also attacked the propagules, causing stunted growth. Crabs, on the other hand, ate the soft parts of the propagules which led to the deformity or death of the young plants.

(7) The local population used the more mature mangroves as housing materials. Some areas were cleared for residential and fishpond purposes.

(8) Mangrove trees were cut and made into charcoal or used directly as firewood. Bark collection was also noted. Meanwhile, fishers near the shoreline also contributed to damaging the plantation.

(9) Strong current and wave movements and uprooted grasses that attach to newly-planted trees caused the branches to break, thereby retarding the growth of the mangroves.

(10) Shell collectors cut the young mangrove trees to clear the area.

Lessons/Recommendations

(1) Mobilize actual coastal area residents for establishing mangrove reforestation projects. They can manage 1-3 ha per family.

(2) Seek technical assistance from experts with experience and knowledge of proven technology on barnacle control.

(3) Fence mangrove areas to prevent the entry of stray animals.

(4) Establish a nursery to facilitate re-planting in infested areas where damaged propagules need to be replaced.

(5) Access more funding for livelihood programs and for expanding mangrove reforestation sites.

(6) Carry out community organizing for at least five years: two years for rigid organizing, two years for the weaning period and one year for monitoring/evaluation.

The Experience of Bantay Palawan in the Protection of the Marine Waters of Palawan

Malverson Lopez
Executive Officer
Bantay Palawan

Abstract

Increasing incidence of illegal activities, both in coastal and terrestrial resources of Palawan, compelled Provincial Governor Salvador P. Socrates to issue Executive Order No. 4 (18 January 1993) creating the task force *Bantay Palawan*. *Bantay Palawan* was subsequently launched on 13 March 1993 in El Nido, Palawan. It is aimed at apprehending perpetrators of resource-destructive activities.

Since 1993, *Bantay Palawan* personnel have made numerous apprehensions, the biggest number of which was in illegal logging. Massive illegal fishing through blasting, sodium cyanide, etc. is also rampant in the province. There were 31 reported cases of illegal fishing in 1993, 13 of which were filed in court.

However, due to the shortage of funds, *Bantay Palawan* is finding it very difficult to continue its operations throughout the province. It cannot even afford to buy sophisticated sea vessels to pursue illegal fishing boats/vessels. With sufficient funding and support from other law enforcement agencies, the *Bantay Palawan* Program has a good chance of minimizing illegal fishing practices in the province.

Background

Bantay Palawan was created on 18 January 1993 through Executive Order No. 4 (S. 1993) by Governor Salvador P. Socrates. It was formally launched on 13 March of the same year in the municipality of El Nido. As a program, its vision is to promote sustainable development through the judicious use of natural resources, including forests and marine resources. Some strategies employed to achieve this vision include strict enforcement of laws and efficient legal processes. Recently, it has adopted the community-based approach to natural resources management and protection with substantial cooperation among NGOs, people's organizations (POs), civic groups and other government agencies.

Bantay Palawan aligns itself with the philosophies of Republic Act (RA) 7611, also known as the Strategic Environmental Plan (SEP) for Palawan for sustainable development which features ecological viability, social acceptability and integrated approach. By virtue of the 1991 Local Government Code (RA 7160), it will ensure the coordination of efforts of all government and non-government agencies towards environmental protection and management and the campaign against illegal logging, illegal fishing and all forms of violations degrading forests and the marine environment.

Project Profile

Project Description

Bantay Palawan is a campaign which focuses on environmental protection, management and enhancement, including the legal processes involved. It hopes to mobilize people to actively participate in this endeavor and provide alternative schemes which are not destructive to the environment.

Vision

Bantay Palawan as a program envisions having an environment of sustainable development through the judicious use, management and protection of natural resources, including forests and marine resources. The program's objectives are:

1. to stop illegal forestry, fisheries and other natural resource use activities in violation of the law;
2. to institute judicious management of the province's natural resources, specifically terrestrial, forest, and coastal and marine resources;
3. to generate community participation in the enforcement of conservation and protection laws in addition to regular law enforcement;
4. to provide alternative livelihood activities to the affected rural communities;
5. to provide legal support for environmental cases through due process of the law; and
6. to intensify educational campaigns to heighten environmental consciousness supportive of *Bantay Palawan*.

Strategies for Implementation

Bantay Palawan adopts the following strategies:

1. Strict enforcement of the law;
2. Efficient legal processes;
3. Monitoring and feedback system;
4. Training and education;
5. Morals, values and ideologies enhancement;
6. Participatory development;
7. Provision of alternative livelihood schemes;
8. Protection of biodiversity; and
9. Resources regeneration and rehabilitation.

Organizational Strategy

With a limited budget of P4.8 million in 1994, *Bantay Palawan* has maximized its resources by linking up with local and national agencies and law enforcement units led by the Western Command of the Armed Forces of the Philippines. Its staff risk their lives to pursue illegal loggers in the malaria-stricken hinterlands and chase illegal fishers in the high seas of Palawan.

The *Bantay Palawan* Program is basically a committee type of organization, composed of the following:

1. Law Enforcement Committee. It performs the following functions:
   a. conduct joint patrol operations in coordination with other agencies;
   b. investigate or assist in the investigation and gathering of evidences of all persons involved in the commission of any form of illegal fishing and logging;
   c. enforce and implement all existing fishery and forestry laws and apprehend all violators against natural resources;
   d. file all cases promptly in appropriate courts;
   e. provide security assistance to all state witnesses; and
   f. supervise the check point system in critical areas.

2. Prosecution and Adjudication Committee. It has the following functions:
   a. prosecute and dispose speedily all cases filed against violators of laws on fishing, logging and destruction of the environment and natural resources;
   b. provide legal assistance to apprehending party; and
   c. monitor the results of the cases filed.

3. The Community Development Committee organizes and provides alternative livelihood schemes in areas where there are rampant environmental devastation. It has the following functions:
   a. organize rural communities which are responsive to environmental protection and management;
   b. provide viable livelihood opportunities to the area;
   c. generate funds from other sources for sustainability; and
   d. assist in the quick response system.

4. Education and Training Committee. It has the following functions:
   a. conduct information-education campaign for environmental consciousness;
   b. package appropriate technologies for dissemination; and
   c. conduct an information drive on the performance of *Bantay Palawan.*

5. Monitoring and Evaluation Committee. It performs the following functions:
   a. gather information on any violations of the laws on environment;
   b. establish the Quick Feedback System, coordinate and operate with area-based network; and
   c. coordinate the present communication network of participating agencies.

6. Logistics and Finance Committee. It has the following functions:
   a. manage the financial resources of *Bantay Palawan*;
   b. ensure timely and adequate delivery of logistics and financial resources;
   c. provide technical assistance in the sourcing of funds to finance project proposals submitted by the different committees;
   d. formulate policy guidelines for evaluating and financing projects; and
   e. formulate policies on fund generation.

Project Accomplishments

The accomplishments of the *Bantay Palawan* Program are presented below:

1. Organized and trained community-based environmental protection personnel
2. Launched an information dissemination and education campaign on the preservation and conservation of the province's natural resources
3. Strengthened the partnership and cooperation between the provincial government and NGOs in the enforcement of natural resources laws
4. Established quick monitoring and response stations at strategic locations
5. Provided alternative livelihood schemes to community organizations affected by environmental destruction
6. Implemented resource regeneration and rehabilitation projects
7. Established pilot stations for nursery development and models for appropriate livelihood technologies (upland and coastal areas)

8. Operationalized an efficient system of apprehension and/or seizure of illegal activities on forest and marine resources within the boundaries of the law
9. Investigated and resolved alleged involvement of any person or group of persons in illegal logging, cutting of forest products and illegal fishing using dynamite and chemicals like cyanide and use of prohibited fishing methods
10. Endorsed to authorities confiscations or seizures for proper custody and assisted in the prosecution of apprehended violators
11. Organized/created mobile patrol groups in most critical areas of the target sites.

Conclusions and Recommendations

The experience of *Bantay Palawan* is concentrated in the southern municipalities of the province where there are rampant illegal activities due to their proximity to neighboring countries. Illegal activities are also prevalent in the municipalities of Quezon and Rizal facing the west coast of Palawan. Most of the violators are not from Palawan but from other provinces. They are in Palawan presumably because of the depleted resources in their own provinces. Violators use sophisticated technology which sometimes underscores the limited capabilities of *Bantay Palawan.* With regard to Northern Palawan, the *Bantay Palawan* has minimized cyanide fishing and other illegal fishing methods. However, the dedication and concern of its members are not enough to operationalize *Bantay Palawan.* Its limited budget of 4.8 million pesos needs to be increased. It has been suggested that a joint undertaking with neighboring countries should be initiated to come up with a diplomatic solution to the border problem. It was also suggested that foreign countries be informed that live fish from Palawan are caught by illegal means. This might deter buyers from getting their supply of tropical fish from Palawan. There was also a suggestion for the Municipal Agriculture and Fishery Council (MAFC) to assist *Bantay Palawan.* The economic situation of poor fishers is also being considered in relation to an amendment of the provincial ordinance banning live fish.

The Role of the Philippine Coast Guard in the Protection of the Marine Waters of Palawan

Robert Garcia
4th Coast Guard District
Puerto Princesa City

The mission of the Coast Guard is the promotion of maritime safety. One of our main functions is the protection of the maritime environment. It can be said that most problems in the fishery are related to an ineffective law enforcement system. We have come up with a proposal for an integrated approach towards law enforcement for fisheries and environmental protection. We have adopted a problem-solving technique which starts with problem identification and definition. Perhaps, you are all familiar with this problem analysis technique. In many areas where we have problems with regard to fisheries protection, normally we encounter the following symptoms. When fishers get low yield or harvest from the sea, this often results in higher price of fish landed in the market. We will come to the discussion of the causes why the fish harvest has been declining. We can trace it to improper fishing methods. We could cite as examples dynamite and cyanide fishing. But there are other wasteful means such as deep sea trawls and other kinds of drift nets. We are lucky we still do not have these methods in the Philippines since these are already internationally banned. Then we have the destruction of our marine environment through pollution and inappropriate uses.

I would like to cite the aggravated destruction of marine reserves at the Malampaya Sound Fisheries Sanctuary, the Tubbataha Reef National Marine Park and some parts of Cuyo island groups and some areas in Northern Palawan. The islands around Balabac are also suffering the same fate with the wanton use of cyanide in the area. Based on these causes, we have identified this problem of how to minimize destructive methods, and at the same time maximize the harvest through environment-friendly methods. Another issue is how to develop the natural capability of the seas to sustain the fishery requirements. As you would know, the fish requirements of Manila and Cebu are already being supplied by Palawan. Perhaps you will agree with me that most of the fishing fleets in the Philippines are already crowding in Palawan waters.

To solve these problems, we have come up with the following solutions: (1) intensified law enforcement; (2) introduction of environment-friendly livelihood program; (3) thorough marine environmental rehabilitation and protection system (same way with multi-level and multi-

mode education program for the people); and (4) marine environmental and fisheries research and development program. I will discuss in detail the following solutions. For law enforcement, we actually have sub-systems, among which is an intensified intelligence system. Presently, we are already employing a lot of coast watchers. These include coast guard auxiliaries, light house keepers and other civilian volunteers, plus fishers' associations (FAs) that joined our auxiliary squadrons. We envision, perhaps later on, the use of an electronically-based monitoring and control system which is presently being offered to the province of Palawan for adoption in the near future. This would entail, however, a large capital outlay. It would also require upgraded skills of technicians as well as businesses to support the maintenance of sophisticated censor aircraft and control system as well as communication systems.

We have the next sub-system, which is the interdiction patrol. As of now, in fact, almost all the law enforcement agencies operating here in Palawan are from the *Bantay Palawan*'s civilian arm. Aside from the Navy and the Coast Guard, the maritime police are all employed for sustained interdiction patrol operations. Most of the problems faced here would be the capital outlay to support the procurement of watercraft and the maintenance and the fuel to support the operation itself. But per our experience, these operations serve only as deterrents to illegal fishing. In most of our operations, you could rarely catch a dynamite fisher or a cyanide fisher in the act because they use different techniques. Take the case of the dynamite fishers. One boat will drop the charges and another boat will pick-up the string of blasted harvest. Normally, they are also sophisticated. They are using sophisticated communications that could easily report the presence of any patrol vessel operating nearby. The same is true for cyanide fishers. That is why in our modest capability, we have undertaken an indigenous boat construction program. We have utilized the local boat builders in Balabac and in Puerto Princesa. The only difference from the local boats used by fishers is that these patrol boats are powered by two engines and they can run faster than the illegal fishing boats. Together with the interdiction patrol, we look forward to the expeditious prosecution of cases of the apprehended illegal fishers. This has always been a problem because most of the illegal fishers have already earned so much from various activities, and hence, can afford to hire the best lawyers. With the limitations or restrictions imposed by our legal system, the local law enforcers are often frustrated when the cases brought before the court do not make any headway. In fact, with more than 150 cases we have filed in court, less than 30% actually ended with prosecutions or with the apprehended illegal fishers getting a conviction. Actually, we are better off compared

to other areas in the Philippines where they hardly have one case of conviction. It is only in Palawan where the incidence of illegal fishing is going down. In other areas, intelligence reports indicate that the incidence of illegal fishing is rising. In fact, we have two major cases that were recently filed in court. One was an apprehension in Balabac for using cyanide and another one was in Northern Palawan. We are having a difficult time in prosecuting the cases. Some are saying we are going against a brick wall. We are not deterred by this as long as we have the conviction that what we are doing is for the good of the Filipino people.

Our next system/approach is input denial. Here, we prevent the illegal fishers from acquiring materials that can be used for dynamite and cyanide. We do not know how effective this can be since ordinary fertilizers, say urea, can easily be converted into dynamite. Actually with P15.00, you can produce a bottle of dynamite and use it for illegal fishing. And we consider dynamite fishing as the cheapest means of fishing. As long as the spurious fishers can make a profit out of the practice, you will never put a stop to it. On the other hand, cyanide is also easily bought over the counter. Anyone can buy this chemical, since there is no law regulating the sale of this chemical in the local drug store. Cyanide is retailed by some businessmen in Palawan to fishers. Some fishers are also being supplied by big businessmen who are involved in the purchase of live fish.

The next approach that we are now using, which has shown remarkable achievement, is market denial. In this case, fish harvest being unloaded in the piers are being subjected to tests. If we can deprive the illegal fishers a good market for the illegally caught fish, then we can stop these spurious practices. But people can still go around regulations. As we have said, the shippers of fish complain if their products are subjected to a cyanide test. In fact, they have filed cases against the cyanide detection test laboratory. Actually, it is not meant that the burden of testing the fish should be suffered by the shippers alone. The intention is that the fishers should voluntarily subject their fish catch to the test as well as the traders, to ensure that cyanide-free fish is being shipped. If we can have a commitment from the shippers that all the fish that they will buy and ship out will be cyanide-free, or not caught by illegal means, then I do not think we will have any problem with testing the fishes each time they are shipped.

The other approach is through administrative sanctions. This is normally linked with our intelligence system whereby we maintain a listing of all the vessels involved in illegal activities ranging from piracy to illegal fishing. We apply administrative sanctions at the time they renew their vessel registration. We also apply the environment conservation standards formulated for

fishing gear formulated by DENR, DOST and DA. We support the formation of fishing cooperatives to better implement these policies so that we can have a more progressive approach towards developing the fishing industry. We advocate an integrated cooperative that would involve the members not only in catching and marketing fish, but also in rehabilitating the environment and in re-stocking.

We may say that the supply of fish stocks in Palawan waters is undepletable. But we would say that with the number of fishing boats operating in Palawan, as well as the improved methods of fishing, soon we will run out of fish, just like the other areas in the Philippines, if we will not be able to think of protecting the marine habitats as well as re-stocking the fish. We advocate the re-evaluation of fishing methods and the protection of the marine environment. A massive reforestation of the terrestrial areas, as well as attention to the marine areas, particularly in fish sanctuaries, is paramount. As early as last year, I have already proposed the establishment of an oil-spill response center because we felt that whatever fisheries development we will put in place will be devastated once we have an accident at the oil drilling site. We also have problems of garbage disposal and sewage treatment. Actually, this is quite deplorable for a modernizing city like Puerto Princesa. We can still note the presence of squatters along the shorelines. It is not only oil that pollutes the sea but also residential and industrial wastes. We advocate the multi-level/multi-mode education program which integrates marine environment protection in the curricula of different school levels. Marine environmental fisheries research and development can help develop ways and means of rehabilitating damaged coral reefs and come up with ways of improving fishing methods.

Operations and Experiences of the Palawan Marine Products Shippers Association, Inc.

Sabino R. Camacho
Palawan Marine Products Shippers Association, Inc. (PMPSAI)

Abstract

The paper aims to present the status of the fishing industry in Palawan as viewed by fish traders. Considered as one of the most abundant in the Philippines, Palawan's territorial waters attract both domestic-transient fisher as well as foreign fishing vessels. At present, there are four types of fishers: (a) independent; (b) dependent; (c) hired/percentile; and (d) fisher-shipper. Usually, fisher-shippers own the boat, provide cash advances, medical provisions and family support, and facilitate the shipment and sale of fish products to local and export markets.

Fishing activities in Palawan extend as far as the boundaries of China, Malaysia and Indonesia. However, fresh fish and other marine products land at the port of Puerto Princesa where they are packed and landed at the Palawan Marine Products Shippers Association, Inc. (PMPSAI) area, ready to be shipped to Manila. In 1993, the PMPSAI shipped a total of 52 t (weekly average) of marine products through shipping lines alone. Sixty-five percent of marine products consumed in Metro Manila is supplied by Palawan.

Ironically, Palawan has no fish port facilities, not even a decent fish landing and protected packing area in Puerto Princesa City. The PMPSAI-rented space for loading and packing operations is very unsanitary and unsafe. It is, therefore, recommended that immediate development, construction and/or cementing and building of drainage facilities of the area be initiated to ensure that fish and other marine products will always be fresh. It is also recommended that our government extend livelihood programs to the real fishers of the province and conduct seminar-workshops on how to improve the fishing industry in the province, especially livelihood projects for the housewives of fishers, medical care assistance, and insurance.

Background

The fishing industry of Palawan is considered the best and most abundant in the country. The province covers a wide area of territorial marine waters which attract both domestic and foreign investors to fisheries-based livelihood and commercial enterprises. The creation of *Bantay Dagat* and *Bantay Palawan* helped in the apprehension of illegal fishers and poaching fishing vessels in the waters of the province. These have minimized illegal fishing activities in the province.

This paper attempts to present a description of the fishing industry in Palawan from the viewpoint of fish traders. The geographical coverage includes the entire territorial waters of Palawan. The paper highlights the operation of the Palawan Marine Products Shippers

Association, Inc. (PMPSAI), the problems of fish traders and some recommendations on how to improve the current situation.

Organizational Profile

The PMPSAI was organized on 29 November 1989. Originally, it was composed of only 29 fresh fish shippers and fishers. Today, the PMPSAI membership has expanded to 95 active and non-active members. The sales of marine products sold in Manila and elsewhere are plowed back into Puerto Princesa as salaries to fishers and port workers, ice plants and gasoline stations.

The PMPSAI classifies fishers into four types. They are:

(1) The independent fisher: owns a boat (*banca*) and finances the expenditures incurred in fishing.

(2) The dependent fishermen: does not own a boat, but rides along with the independent fisher. He is popularly known as *pasahero.*

(3) The hired/percentile fisher: one whose income is based on his actual catch. The computation of this share is based on either a daily or per trip basis.

(4) The shipper/fisher: owns a boat like the dependent fisher. He also provides cash advances for the daily needs of his dependent fishers. He facilitates the shipment and negotiates the sales and receipts of the various fisheries products for both the local and export markets.

PMPSAI Fishing Methods

Kawil or *Kaskasan*

Kawil is the local term used for deep sea fishing and has long been employed by Filipino fishers. The boat is powered by a 16 hp engine with four fishers using hook-and-line.

Kaskasan uses a big boat with an engine (e.g., Fuso) greater than 16 hp. This is also called a mother boat with 15 or more smaller boats attached called *banquitos.* The number of fisher crew ranges from 15 to 20. From Puerto Princesa City, they go as far as the territorial boundaries of China, Malaysia, Indonesia and Vietnam looking for suitable fishing grounds. Some smaller scale *kaskasan* fish along the marine waters of Balabac, Tawi-Tawi, Mindoro and, sometimes, even as far as Zamboanga.

The *kaskasan* fishing operation has a total per-trip-budget of P40,000-50,000 for one or two weeks' stay in the open sea. The amount includes cash advances to fishers to be left to their families, ice (cubes and crushed), gasoline and crude oil, food, medicines and other supplies. Upon reaching their location, fishers fish from their *banquitos* spread around the mother boat. After catching enough fish, they immediately return to the motherboat and have their catch iced. Sometimes, on their route back to the city, they encounter some foreign fishing vessels which engage in live fish catching, including lobster. There were incidents when the *kaskasan* were accosted by the maritime authorities of the adjoining countries for nearly crossing the territorial boundaries.

Spear Gun Fishing

This method involves a 16 hp motor *banca* (boat) and a compressor unit. There are three crew members: a compressor and engine operator who manages air supply and directs the *banca* and two divers who maneuver from 15 to 20 m deep. The starting capital of this method is enough for two to three days of operation. Sharing of income is on a percentage basis.

Gill Nets, Fish Corral and Fish Traps

These methods are practiced throughout the province by small fishers who live along the shores. Such are common sights in the coastal barangays. The fish harvested through these methods are mostly delivered to the local market.

In 1993, the PMPSAI shipped out a weekly average of 52 t of both fresh and dried fish, including octopus. Records show that 65% of marine product consumption by Metro Manila is being supplied by the Palawan fishing industry.

Problems Encountered by PMPSAI

The marine habitat, particularly coral reefs, are being destroyed by some fishers, mostly non-Palaweños and non-Filipinos using explosives and cyanide. Other methods include *muro-ami* and the controversial *pa-aling*. The latter uses compressor bubbles to drive the fish into the nets. It is surprising why *pa-aling* was given the approval to operate by no less than the Department of Agriculture-Bureau of Fisheries and Aquatic Resources (DA-BFAR) inspite of the strong

opposition made by Palaweños. Many believe that this method not only destroys the marine habitats but also provides undue advantage to other commercial fishers.

PMPSAI is proud that Palawan is still the largest and most abundant fishing ground in the Philippines. However, PMPSAI laments that such prestige has no meaning at all because there is no fish port in the province. A fish port is needed for the landing, packing and safe storage of fish caught in its waters. This is very critical in preserving the quality of fresh fish products.

Since its foundation, the major problems of the PMPSAI are its landing, packing and storage facilities. It only rents space from the Philippine Ports Authority (PPA) within the operational area. This area is not yet cemented and has no drainage at all. Shippers are concerned about the sanitation and safety of the stored marine products. Although PPA management has recently leased the cemented area at the back of PPA warehouse no. 2, the empty fresh fish boxes remain at the old and uncemented site.

Aside from the fish port, another problem is shipping. The PMPSAI regularly encounters fear and discomfort on non-priority in the loading of fresh fish products. There were many shut-out incidents in the past years. The PMPSAI members feel that a monopoly exists. The absence of a shipping office has often been questioned.

Recommendation

PMPSAI's primary recommendation is the immediate construction and development of a fish port in Puerto Princesa City. This may best be done by first rehabilitating the present site, which is very suitable to landing, packing and storage of fresh fish and other marine products. A seminar-workshop regarding fish handling, storage, and other post-harvest techniques must also be undertaken by the government technicians. The assistance may also take the form of insurance, medical assistance, protection against illegal fishers and financial assistance through lower interest rates. Likewise, both marine products and sea transportation must be given priority as to their disposition. A conversion from an agency to a branch office of William Lines, Inc. and other shipping agencies in this province is also recommended to ease the problem of shut-out. The association is also appealing to local legislators to assist in public hearings, and/or proposed resolutions and ordinances.

PART 4
Concept Papers

A Proposed Project for the Establishment of a Marine Reserve in Turtle and Binunsalian Bays, Puerto Princesa City

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Abstract

Turtle Bay and Binunsalian Bay are important for income-generation and research. However, both bays are being destroyed due to overfishing and destructive fishing, which diminish their productivity.

To manage this marine environment, the reefs were declared as a marine sanctuary by the *Sangguniang Panglungsod* of Puerto Princesa City by virtue of City Ordinance No. 13-92. The Binunsalian Bay Foundation, Inc. (BBFI) was also established to help the government implement the ordinance. The Foundation prepared a proposal for a community-based project for establishing a marine reserve in this regard.

BBFI has, to date, completed some preparatory activities. Others activities, though, need technical assistance and funding. Funding seems difficult due to the foundation's infancy and lack of a track record.

Background

Binunsalian and Turtle Bays are located south of Puerto Princesa City, adjacent to the two resettlement areas of barangays Luzviminda and *Mangingisda* (Figure 1). These barangays have a combined total population of 1,550 composed of 335 families. The average family size is four persons.

The project area is approximately 4 mi. southeast of Sulu Sea. The scenic coastal reef system and thick mangrove forests make the proposed project area a very rich fishing ground. Moreover, because of their magnificent coral reefs and unique flora and fauna, the bays have become two of the favorite destinations of divers around the world. These are gateways of dive tours to Tubbataha Marine Park during the months of March and June. Hence, they are an important source of foreign exchange for Puerto Princesa City.

Three groups of coastal fishers from the city proper and Sta. Lucia sub-colony (part of Iwahig Penal Farm) used to harvest fish, shells and mangroves all year round in the area. In 1986, subsistence fishers from Puerto Princesa began fishing in Binunsalian Bay. They could no longer harvest adequate fish in their traditional fishing ground in Puerto Princesa Bay

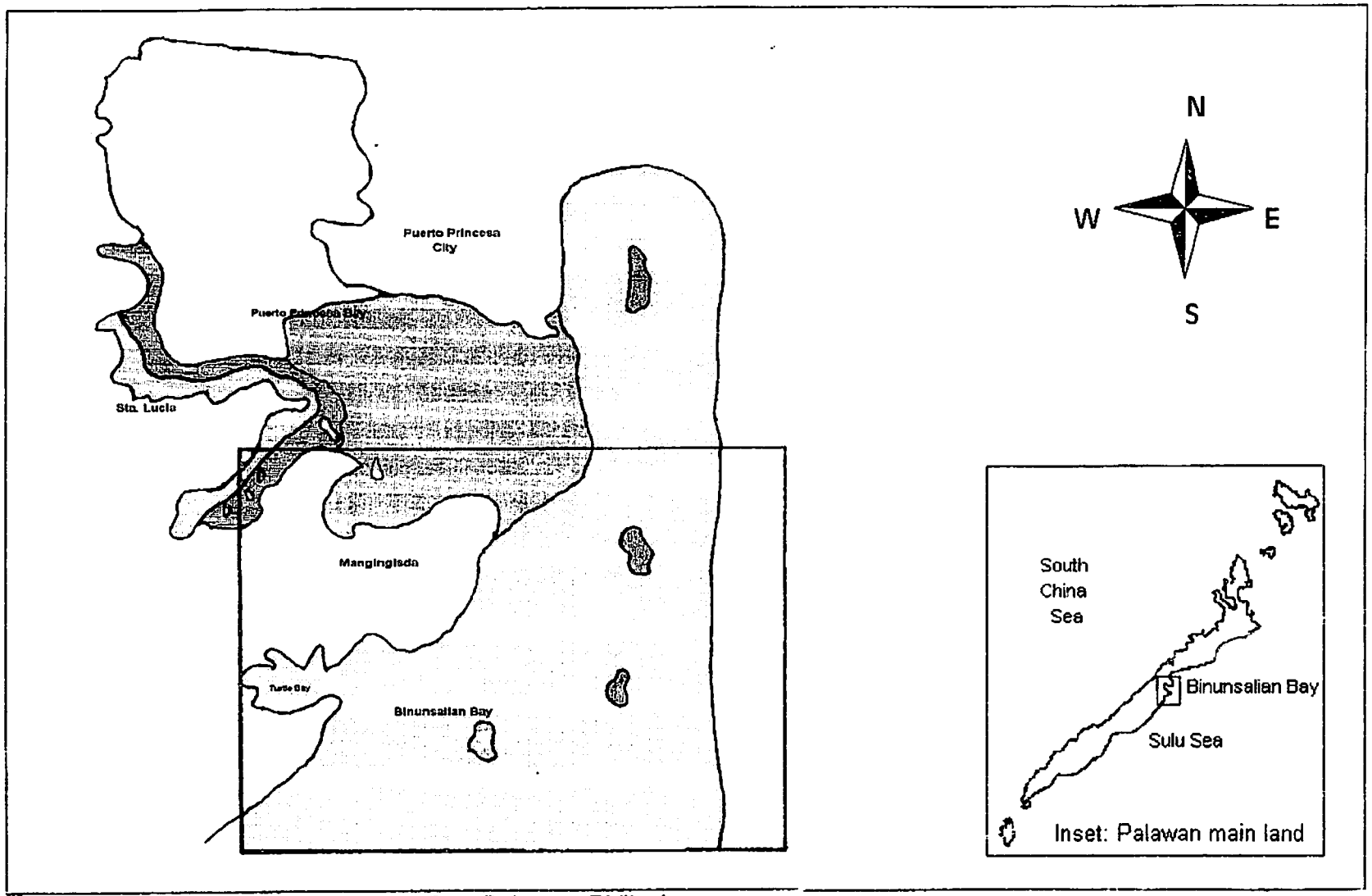

Figure 1. Location map of Binunsalian Bay, Palawan, Philippines.

as a result of the tremendous influx of migrant fishers. This situation is further aggravated by the unregulated use of explosives, cyanide and other obnoxious chemicals.

About the same year, migratory fishers from Cebu, Masbate, Cavite and Bohol arrived and settled in the area and began harvesting marine resources, particularly sea cucumber and shells. Illegal fishers in Puerto Princesa Bay followed suit using explosives and cyanide to collect live *lapu-lapu* and other fish for the aquarium industry and restaurant business in Manila. In the meantime, the newly resettled fisherfolks in Luzviminda and Mangingisda have started cutting mangroves for fuel and practised *kaingin* (slash-and-burn) farming on the hillside near the bay.

Thus, cyanide fishing and the use of explosives, as well as indiscriminate cutting of mangroves and practice of *kaingin*, posed environmental threats to the productivity and ecology of Binunsalian and Turtle Bays. The increase in the number of fishers and the use of illegal fishing methods aggravated the situation. These resulted in the loss of the attractiveness of the place as a tourist destination while poverty forced the people to exploit the existing living resources beyond their sustainable limits.

Binunsalian and Turtle Bays are rapidly deteriorating as more terrestrial waste is flushed into the sea. Upland forest destruction and improper agricultural techniques are dumping large amounts of silt into the marine environment. Because of these, a definite move to rehabilitate and protect the bays became an urgent need. Fortunately, in August 1992, a research team from the UP - Marine Science Institute (UP-MSI) requested the city government to declare Binunsalian and Turtle Bays as a sanctuary/marine park based on their research findings. On 18 November 1992, the request was granted through the passage of City Ordinance No. 13-92.

Although protection of the area is evidently needed, the function of the areas as fishing grounds should likewise be considered. Meticulous planning and careful consideration of ways where protection and sustainable utilization of resources can complement each other should be worked out. Hence, a project proposal was prepared in response to the protection of the two bays.

Target Beneficiaries

The direct beneficiaries of the proposed projects are the barangay and *purok* members of Barangay Luzviminda and Barangay Mangingisda. On the other hand, the indirect beneficiaries are: (1) the non-residents of Barangay Luzviminda and Barangay Mangingisda who fish within the sanctuary; (2) operators and staff of non-resident tourism establishments who use the proposed

sanctuary as a jump-off point to other tourist destinations (e.g., Tubbataha Reefs); and (3) future park employees.

Project Goals and Objectives

The goal of the project is to protect and rehabilitate the degraded coastal marine condition of Binunsalian and Turtle Bays with the active participation of the concerned communities and local government units (LGUs), non-government organizations (NGOs), and the Palawan Council for Sustainable Development Staff (PCSDS).

The specific objectives are: (1) to develop a framework plan for the coastal zone of the province, taking into account their sustainable and equitable use and focusing on the protection, conservation and rehabilitation of the marine and the terrestrial resources; (2) to protect the biodiversity of the coastal environment; (3) to develop, implement and institutionalize the community-based coastal resource management (CBRM) program; (4) to establish network and linkage with other research institutions and LGUs; (5) to secure local and international funds for project development and implementation; and (6) to assist other organizations involved in CBRM.

Project Components

The project has five components. They are listed in Table 1 and briefly described below:

1. Research and Monitoring

   Community/Resource Assessment. Community profiling through Rapid Rural System Appraisal (RRSA) will be done to assess the socioeconomic and physical environment of the areas. The resource assessment will serve as a basis for the formulation of the development plan. Coral reefs, seagrass beds, benthic communities, mangrove forests and related flora and fauna will be assessed to generate adequate data for effective planning and management.

2. Community Organizing and Development

   Community Mobilization. This will serve as a mechanism for mobilizing resources, labor, ideas and people for the promotion of community welfare and development and the protection and restoration of Binunsalian and Turtle Bays.

Table 1. Summary of Proposed Project Activities

I Research and Monitoring	II Community Organizing and Development	III Information and Education	IV Resource Management and Protection	V Institutional Linkage
Marine ecosystems research including seagrass, mangroves, coral reef, fishery resources	Core group building Training needs analysis	Dissemination of research results to local communities	Habitat protection	Department of Science and Technology
Hydrology, casonography, hydrogeology, marine geology and meteorology	Development of resource management capability	Community awareness projects using multi-media for resource management and conservation	Community-based policy and implementation workshop	Development of Environment and Natural Resources
Active coastal processes monitoring	Cooperative development, enterpreneureship training and value formation	Formal education program	Habitat rehabilitation	Office of the Governor
Municipal/sustenance fisheries research	Organizing special interest organization for fishermen, housewives and the youth	Formal education program non-formal education program	Policy recommendation for sustainable use, and conservation	Department of Tourism
Selected gear improvement and boats	Cooperative development, enterpreneurship training and value formation	Cross visits to other protected areas	Development and periodic review of management strategies based on construction	Local Government Units
Tourism activities, land and sea	Source of seed money for funding institutions for internal support, capital to finance alternative income projects up to self - sufficiency	Construction of a multi-purpose hall with library and audio-visual facilities	Monitoring of environmental impacts of agricultural farming, fishing and tourism	Law Enforcement Offices
Comparative studies with areas having active conservation programs	Marine and fishery livelihood projects	Operation of a municipal aquaculture center for fish stocks rehabilitation	Zonation of the sanctuary for a multi-use area	Academe (i.e., PNAC- RIFT, MSD)
	Institutionalized consultation with primary users of the area	Information campaign against illegal method of fishing and impact on the environment		
		Public information campaign for other users of the area	Planting of roaring buoys on sanctuary bouyancies and diving spots for diving operations	
Assessment of community resources management, capability to manage the sanctuary	Transfer of community resources management to the barangay		Assist the community resource management unit to become self-reliant	

Sector Development. Committees will be organized to act in an advisory capacity and to assist organizations to effectively coordinate with participating agencies.

Community Organizing. Committees will be finally organized as viable structures in undertaking the aforementioned activities.

3. Information and Evaluation

Community Education. This will cover all activities to increase awareness and development skills in the community. The community will become stewards of terrestrial and marine resources. Community dialogues and consultations will be conducted at the community level to ensure active participation between agencies and the people. These will also provide a forum for the community to articulate problems, needs and issues.

4. Resource Management and Protection

Delineation of the uses of the sanctuary. There is a need to determine the best use of each resource to maximize utilization-cum-protection. The application of the concept of Environmentally Critical Areas Network (ECAN) under the Strategic Environmental Plan (SEP) will be used to delineate the coastal zones into graded areas of protection such as core, buffer, restricted and multiple-use areas.

5. Institutional Linkage

Establishment of a legal framework. Proper legislation shall be promulgated in coordination with the City Council (*Sangguniang Panlungsod*) to support the ECAN and its implementing agencies and secure exclusive rights for the fishers to utilize fishery resources.

Organization and Management

The Binunsalian Bay Foundation, Inc. (BBFI) will be the lead agency in the implementation of the project. The activities of the BBFI are summarized in Appendix I.

Active participation of the target communities, the City of Puerto Princesa, particularly the *Bantay Puerto Princesa,* and PNP personnel will be encouraged to ensure strict enforcement of the law. The Foundation will submit monthly progress reports to the city government.

The Foundation is under no illusion that it has all the answers to tackle these problems without outside help. Managing an ecosystem is a very formidable task. One is faced with a tremendous amount of environmental data. The research/studies, the education and re-education of the people, and the actual management of marine parks/fishery projects should all be considered. BBFI realizes the need for material and financial support from all sectors.

The estimated amount needed for the project is P2,439,684, broken down as follows:

A.	Personnel Services		P541,800.00
	Salaries	P451,500.00	
	Fringe benefits (20%)	90,300.00	
B.	Maintenance and Operating Expenses (MOE)		P1,490,970.00
	Traveling expenses	P18,050.00	
	Other services		
	Contract	516,000.00	
	Training	20,000.00	
	Workshop	120,000.00	
	Meetings	78,000.00	
	Reproduction cost	3,000.00	
	Supplies and materials	34,000.00	
	Equipment	541,000.00	
	Rentals	135,000.00	
	Maintenance	7,920.00	
	Communication services	12,000.00	
	Light, water and illumination	6,000.00	
C.	Contingency (20% of A & B)		406,554.00
	GRAND TOTAL		P2,439,324.00

APPENDIX 1. SUMMARY OF ACTIVITIES OF BINUNSALIAN BAY FOUNDATION, INC., 1992-1994.

DATE	I CONCERNS/ COMMUNICATIONS	II ACTION OF THE CONCERNS	III OTHER RESPONSES OF CONCERNS	IV COMMUNICATION RESULTS	V RESOLVE (BSR)
Oct. 1992	MSI letter to the city mayor	1. Accepted and supported	1. Endorsed to the *Sangguniang Panglungsod*	Resolved by *Sangguniang Panglungsod* by virtue of Ord 13-92	Design a program
			2. Coastal illegal fishing and kaingin system	-----	Support
July 1993	BBFI submit program to the city mayor	1. Accepted and supported the program	1. Endorse the program to the Local Government Units	Supportive	Linkage through MOA
16 Sept. 1993		2. Endorsed program to DENR Region IV	------	------	------
6 Dec. 1993		3. Mayor recommended the foundation to NGO-DESK, DENR	------	------	Follow-up
18 July 1994		4. Endorsed program to Sen. H. Alvarez	Sen. Alvarez endorsed the program to DENR-CEP	BBFI handcarried endorsement	Follow-up
2 Aug. 1993	BBFI Letter to PCSDS Executive Director for support	Endorsed the BBFI Project Proposal to DENR Sec. Alcala	------	------	------
2 Aug. 1993	BBFI Letter to the Provincial Governor S. Socrates for support	------	------	------	------
7 July 1993	BBFI Letter to MOA c/o Mrs. Concepcion for comments and assistance	1. To address communication to MSI Director	Give positive comments on the program i.e., the sustainability of the program manpower and funding	------	Find solution/ research/ linkage
Oct. 27, 1993	BBFI letter to WWF for funding assistance	------	------	------	------
15 Nov. 1993	BBFI letter to NGO Network for membership	For deliberation			Follow-up

APPENDIX 1. SUMMARY OF ACTIVITIES OF BINUNSALIAN BAY FOUNDATION, INC., 1992-1994.

DATE	I CONCERNS/ COMMUNICATIONS	II ACTION OF THE CONCERNS	III OTHER RESPONSES OF CONCERNS	IV COMMUNICATION RESULTS	V RESOLVE (BSR)
10 Feb. 1994	BBFI letter to PNAC-IMS for technical assistance	------	-------	-------	Follow-up / Linkage
13 Feb. 1994	BBFI letter to FPE	Dialogue with FPE personnel in Puerto Princesa	FPE has no commitment to Palawan except Tubataha National Marine Park	No other comments	
15 Feb. 1994	BBFI furnished the city government an Abstract of the Foundation submitted to ICLARM	-------	------	Received	
21 June 1994	BBFI letter to Manila Turtle Foundation asking technical assistance	-------	-------	Lack of manpower	Linkage
21 June 1994	BBFI letter to MSI for technical assistance	-------	-------	Lack of manpower	Linkage
1 July 1994	BBFI conducted RRAS at Bgy. Mangingisda	The Bgy Captain consulted the council and endorsed the BBFI interviewers to the community	Introduced key family respondents RRA was done	1. Negative 2. Follow-up livelihood program conducted by DOST/Negative response	to re-design questionnaires Community dialogue
10 May 1994	BBFI letter to ICLARM for technical assistance	ICLARM to BBFI does not perform such survey	ICLARM invites BBFI to a workshop seminar for co-management of fisheries and other coastal resources in Palawan	BBFI submitted requirements to ICLARM	Coordinates to present proposal and experiences
August 1994 Manila	BBFI dialogue with NGO and other concerns for a desired fund-raising campaign in Manila for Binunsalian Marine Reserve	Support the concept of fund-raising campaign through manpower and technical assistance	BBFI has to meet so much requirements	Postponed	To work out requirements

The Establishment of a Management Fishing Cooperative in Palawan

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Puerto Princesa, Palawan

Abstract

This proposal rationalizes the creation of management fishing cooperatives (MFCs) all over Palawan. As a concept, the MFC will be the umbrella organization of all fishing organizations within an established area where there are cooperatives with at least 15 members. The primary aim of forming an MFC is to support smaller fishing cooperatives in their operations by providing direction, management and administrative inputs as well as technical assistance. Specifically, it is envisioned to carry out the following important functions: (1) identify and organize fishing areas/villages into a fishing cooperative; (2) supervise and assist in the preparation of documents necessary in the organization of a fishing cooperative; (3) assist in loan documentation for the acquisition of boats and fishing equipment; (4) supervise the construction of boats and provide fishing equipment needed; (5) provide an effective marketing arm for the produce (catch), with the interest and welfare of the members in mind; (6) provide goods and services and other requirements of the members, and (7) undertake other activities for the effective and efficient management of the fishing cooperatives.

The formation of cooperatives in different fishing villages promotes social dignity and livelihood development among members. They are also encouraged to save their environment from which they derive their livelihood. Thus, the protection of natural resources becomes their priority and paves the way for sustainable economic development. The establishment of management fishing cooperatives is thus very timely and critical to the viable operation and development of fishing cooperatives in Palawan.

Rationale

This is a concept paper about the establishment of a Management Fishing Cooperative (MFC) in Palawan. The proposal is consistent with the 1987 Constitution, particularly Article XII, Section 15 to promote the viability and growth of cooperatives as an instrument for social justice and economic development. Article 2, paragraph 2 of Republic Act No. 6938 also supports this initiative through which the government shall ensure the provision of technical guidance, financial assistance and other support services to enable the cooperatives to develop into viable and responsible economic enterprises.

The failure of many existing cooperatives is due to the absence of direction, mismanagement and lack of technical assistance. Other problems, based on experience, are listed below:

1. Existence of too many members where some become "free-riders" and liabilities to the organization;

A. Operation

1. The MFC shall identify the barangays/fishing villages and organize a fishing cooperative with a minimum of 15 members.
2. The cooperative shall endeavor to have a sizable portion of the retail trade and/or services and influence the traffic and prices of the goods (catch) towards establishing prices beneficial to its members. In this regard, the MFC shall serve as a direct link between the fishing cooperative and the consumers to minimize the factors of merchandising and bring down the price of commodities to a realistic level.
3. The MFC, based on the need of its members and on sound economic consideration, shall acquire, lease, maintain and operate a pool of machinery and equipment, warehouse and other facilities.

B. Administration and Support

1. Organize, supervise and coordinate training activities/seminars of prospective members.
2. Follow-up registration/documentation of the cooperative.
3. Extend assistance in complying with loan requirements.
4. Procure production inputs and supplies, consumer goods, machinery, other equipment and their spare parts in bulk from the best sources possible through a cooperative purchasing system to achieve economy and efficiency and make these goods available regularly at reasonable prices.
5. Provide an area for the produce (catch) as well as needed services, having in mind the interest and welfare of the members and the cooperative.
6. Provide other services needed by the members.

Membership

Membership in the cooperative is open and voluntary to all persons who are of legal age with a capacity to contract and who are interested in joining the Management Fishing Cooperative. The application for membership shall be in writing on a form provided for the purpose. The MFC will consist of fifteen or more interested persons who will be the members/officers and board of directors.

Rights of a member:

1. Participate in deliberations during membership meetings.
2. Vote on all matters brought before such meetings.
3. Seek any elective position.
4. Avail himself of the services of the cooperative.

Sharing System

A. Example

1. One motorboat with fifteen (15) persons will catch 20 kg. per person - 300 kilos.
2. Fifty percent (50%) of the catch will be bought from them at P15.00/kilo (cost at sea) P2,250.00.
3. The remaining 50% of the catch will finance the following expenses: P2,250.00.
   - 20% Operating Expenses _____ P900.00
   - 10% Family Support _____ P450.00
   - 10% Monthly Amortization _____ P450.00
   - 10% MPC Fee _____ P450.00
4. The MPC will classify and market the catch (fish) with the following mark-up:
   - a. Local Market _____ 20%
   - b. Metro Manila _____ 50%
   - c. Export _____ 150%
5. Percentage distribution in the market:
   - a. Local Market _____ 20%
   - b. Metro Manila _____ 50%
   - c. Export _____ 30%

Example of price mark-up and market distribution of 300 kilos at P15.00/kilo.

30% local market - 90k x 15.00/k = 1,350 x 20% + 270 = 1,620

50% Metro Manila -150k x 15.00/k = 2,250 x 50% + 1,125 = 3,375

20% Export - 60 k x 15.00/k = 900 x 150% + 1,350 = 2,250

=====

7,245

B. **Distribution of Share**

1. 150 k x P15.00 cost at sea - - - - - - -2,250.00
   divided by 15 members - P150.00 each member.
2. The remaining 150 k to subsidize the following expenses:
   20% Operating Expenses = P900.00 divided by 15 members each member to spend P60.00
   10% monthly amortization = P400.00
   10% Family Support = P450.00 divided by 15 members each member of the family to receive P30.00 a day
   10% MFC share = P450.00
3. As expected, the 300 kilos will be classified according to distribution to different outlets, and the gross sale is 7,245.00.

GROSS SALE - - - - - - - - - - - - - -	P7,245.00
LESS:	
a. Purchase price at sea	P4,500.00
b. Operating Expenses 30%	2,173.50
	P6,673.50
NET INCOME - - - - - - - - - - - - - -	571.50
Patronage refund 30% - - - - - - - -	171.55
MFC - - - - - - - - - - - - - - - - - -	P400.05

Conclusion and Recommendation

The formation of fishing cooperatives in different fishing villages promotes social dignity and economic development. The cooperative members are likewise encouraged to protect and love their environment from which they get their livelihood. In so doing, the protection of natural resources becomes their priority for their own sustainable development. The development of management fishing cooperatives is timely in order to set the direction for viable economic development.

PART 5
Perspective Papers

The second is the institutional aspect. In some cases, the project will go on as an isolated effort from one organization. To simplify things during the first year it is all right. But come the second or third year, we found it very important to reach out, especially to the local government units. Under the local government code, multiple agencies, like DENR, DA, other foundations and other NGOs, necessitate a multi-partite way of doing work. It is very difficult in many cases because it requires diplomacy. It requires getting another person to be at the foreground just to get the participation of that person or that group. Part of institutional sustainability are the settlement issues related to tenure, access, ownership, stewardship, and control of resources. In many cases, for example, where we have funded mangrove reforestation, they have not become sustainable later on because the issue of who owns the mangrove has not been settled with the DENR. Now, in many projects, we require first the stewardship contract from the DENR before we give the funds for mangrove rehabilitation. In a sense, it also draws DENR to be a partner. It becomes part funder of the activity because of that requirement.

The third set is what we call economic and financial sustainability. There is really a need for conservation-cum-livelihood. The community is there because they are using the resource for livelihood. So it is very difficult to just make it a conservation-oriented project. It has to be conservation-cum-livelihood. There has to be a management of credit in the markets. In fact, here in Palawan, we found out that even if you give to the local people the rattan concession, for example, they usually end up with more debts after 2 years than before. Because they have no control over credit in the market, they end up exploited by the traders. They cannot create added value from the products that they get from the resource. An innovative fee structure is needed. For example, in El Nido they could easily ask the resort owners because there is already a requirement in the Environmental Compliance Certificate (ECC) of US $2.50 per tourist per day which could be placed into a trust fund which can be revolved to finance the environmental protection activities in that area.

One of the very important learnings we have had over the past several years is the need for process documentation. In many cases, co-management types of activities are very new. They have never been tried before. It seems that for every area, you have a unique approach or unique dynamics. We have to learn and one can learn by going into process documentation. We are now making participant observation part of the process documentation where experts come in regularly over the year and evaluate with the community what has happened so far.

up the process? Maybe, instead of a community getting into co-management in 5 years, we end up doing it in 2 years or in 3 years. Now, the problem is that in many of these co-management efforts, especially in areas which had been left out for many years, you need to put an external stimulus into the community. You really actively intervene. In fact, our finding is that some of the most successful projects are those projects with very strong leaders, almost dictators, carrying the community along in the first 2 to 3 years. Now, it may imply that it is not a democratic process but a dictatorship process that actually made something successful. Actually, that is for initial phases because you really have to intervene in an area which has been left out so long from the mainstream development processes. Now, the problem is, how do you provide that very strong external stimulus to really make a difference, to create an entry into the community but at the same time have a planned phase-out? Our finding is that you plan the phase-out right in the very first year. In fact, now in the FPE we ask our proponents to show us the phase-out plan in the first year when they are still trying to start the project. You do not want to get the community into dependency status. The other question is how do you go beyond pilot sites. We have noticed that there have been many NGO projects which have been pilot sites for the last 20 years. The problems will not be valued if the NGOs will not get out of the community.

The next issue is sustainability. It is very important that the project becomes sustainable as quickly as possible because for a funding agency that means we can move in to other areas. Right now, we are putting a cut-off at 3 years; your project must be sustainable after 3 years. We are, however, reviewing that now because very few of the projects that we are funding have become sustainable after 3 years. There is clamor to extend it to 5 years but that would be a drain on resources. Now, there are basically 3 parameters for sustainability that we found to be very important. One is the ecological basis of sustainability. We have asked the proponent of some projects to revise their projects because they have based their activities on very little scientific findings. For example, sanctuary development. The easiest way that proponents sometimes do it is they just create a triangle on the map covering the spot of coral reef within the bay. But in many cases, that's wrong because your sanctuary should include mangrove areas. In fact, they even have to include adjacent watershed areas or riverine systems which can affect the coral reef areas. One has to really study very well what is the unit which can be sustained as an ecological unit over time.

Taking a look at the complex dynamics that is involved in the project is difficult. So, it is a monitoring and evaluation mechanism that is preventive, corrective and objective. It also encourages informed analytical participation. It encourages the community members to review what they have done so far and then criticize themselves, and also criticize the funding agency and the implementors. So that in the end, we understand very well the process everyone is going through. In the past, we put into our project funding only a budget for auditing, but now there is a fixed budget for process documentation in all projects funded by the FPE.

My last two main points are the needed link to policy-makers. We hope that the product of process documentation and the fact that you get very strong participation from the members of the community will be a good link to policy-making. Changes are needed in a lot of the policies we have right now. It is good that we have enough laws and regulations. The problem is that some of these laws are outdated already in terms of the approach and even the size of penalties. The laws on penalties, in particular, need revision. It is not necessary to actually go to Congress to change many of them. There are alternative ways of doing it, such as by administrative order or by municipal or provincial resolutions. Here in Palawan, it may be by action of the Palawan Council for Sustainable Development (PCSD), which according to the DOJ, seems to be the DENR in Palawan. So many of these learnings must develop into new and more appropriate policies. It also involves the creation of a political constituency. People who can march on the street, and really can shout down the powers that be, who may be the ones that are actually destroying the environment. Advocacy is a very strong component. We are now funding advocacy and environmental defense. We are now funding a program, where lawyers can get money to be able to defend environmentalists in trouble, or to put a case against people who are destroying the environment. In fact in Palawan, if you find "big time" violators, such a fund may be availed of to pursue court cases. This sends a message that one cannot break the law and get away with impunity. The violators have to spend and fight somebody big, to be able to get away with their illegal activities.

The last of my points is bringing in scientific research. Let me be frank, I think a lot of the projects that we have started are very weak in terms of the scientific basis. The scientific study should become the foundation for the plans and activities related to that project or even the scientific monitoring of the results of that project. For example, some people would say that based on interviews, the fish harvest has gone up. However, has anybody really tried monitoring fish catch by species or by numbers? We have to bring in scientific research for

baseline assessment so that we know whether we are making a headway. My experience in the bureaucracy is that when you are trying to sell a new idea, the skeptics will say "prove it, show me, validate that your idea is good." You can only do that if you have a good scientific basis and foundation. In addition to the scientific basis is the use of indigenous experts; these are people who have "been there." They are experts except that they use common names, which can be translated into scientific names. There is also training for what we now call para-biologist thesis where local people become "scientist/biologist." We are going to fund several sets of training, one in Luzon, one in Visayas and one in Mindanao, on para-biology. We have asked experts to develop a manual for monitoring for use by farmers and fisherfolks.

Now, a last note. The community, in community-managed projects, must not be seen as an experimental unit. Some communities complain that the researchers can always have their publications even if their projects fail. So there is the problem of the moral ethics behind it. If we do enter communities, we better make sure that we have a real commitment to follow through to its successful end. I guess others will add some more to these few points, but from the FPE, these have been some of the important learnings and considerations for evaluation of the projects that come to us.

Initiatives of the Coastal Environmental Program in Coastal Resource Management

Virgilio Palaganas
Department of Environment and Natural Resources
Quezon City

The Coastal Environment Program (CEP) is a new program established by Secretary Alcala which is based on his experience with Community-Based Management (CBM) of Sumilon and Apo Reef in the Visayas. It was established in July of 1993. The goals of the program, and I would say that the methodology in achieving coastal resource management (CRM), are very similar to the Fisheries Sector Program. The goal is to provide equitable access to, and utilization of resources, and the substantive involvement of local communities and stakeholders in protecting and managing the coastal environment. Aside from this, other objectives include: (1) the maintenance, productivity and sustainability of the coastal environment; (2) the protection, conservation and rejuvenation of the endangered species found in the coastal zone; and (3) the conduct of research to mitigate threats to our coastal environment.

The concern for the CEP of the DENR is probably limited to what we call as the "coastal zone." We talk of coastal zone by referring to the definition by the National Environment and Protection Council (NEPC). Geographically, it is one kilometer from the high tide mark landward and 100 fathoms depth or 15 kilometers whichever is farther, seaward. Within one kilometer distance landward from the high tide mark occur the complex interactions of all the humans, the land-based and the sea-based resources.

Basically, the CEP is the umbrella program of the DENR with regard to the conservation of our coastal resources and environment. CRM is treated in a holistic approach wherein we tackle all the problems from the marine up to the watersheds or the head waters. It involves the terrestrial ecosystems down to the coastal environments. Under this program, we invite the active participation of all the local communities and the stakeholders in the coastal area in planning and management for the protection of these resources. The key, or probably the first and foremost component of the program, is community organizing. This is followed by information campaign, resource inventory, conservation and management of coastal areas, conservation of endangered species, monitoring and evaluation of coastal pollution, research, and training. The program management of the CEP is lodged within the Office of the Secretary

of DENR, assisted by the CEP steering committee. They develop the policies and guidelines for the proper management of our coastal resources. These guidelines are implemented by the office of the Undersecretary for Field Operations which is assisted by a National Coordinator. At the regional level, the CEP activities are undertaken by the Regional Executive Director, the Regional CEP Coordinator, and the Provincial Coordinators and Community Coordinators.

Since April of 1993, CEP has had limited accomplishments although we have identified 13 CEP model sites, one for each region in the country. We have surveyed and assessed approximately 100,000 hectares of coastal and marine areas. We have facilitated the declaration by Presidential Proclamation of three CEP model sites as protected seascapes. The reason for the declaration of these areas as special management areas is to provide permanency. Siliman University had worked for a long time in Sumilon Island, yet all the efforts collapsed with just a change in political leadership through the re-election of the former mayor. In this way, probably, by declaring a protected area, this activity falls under the National Integrated Protected Area System (NIPAS) Act. Hopefully, it will provide permanency to all our efforts to conserve these resources. We have trained DENR personnel on scuba diving and coastal resource assessment and monitoring. The reason why we are starting to train our people on this aspect is that when the Bureau of Fisheries and Aquatic Resources (BFAR) was still a part of the DENR, all the marine biologists and fishery graduates were housed in BFAR. Thus, when BFAR was transferred to the Department of Agriculture, the DENR lost many technical personnel. Up to now, there are very few people involved in CRM. We are starting to train our local people and our regional people again. In the same token, we have started to train the local government officials, local communities and the NGOs on fishery laws and we are grateful that the BFAR has been very cooperative in assisting us in this endeavor. As part of our community organizing, we have identified potential livelihood activities that the local people could undertake. These activities have been identified by people themselves during the process of community organizing. We are continuously conducting our information campaign and our community organizing activities. We have also formalized 13 memoranda of agreement (MOA) with local government units, regional government agencies, non-government agencies, and people's organizations in the implementation of the CEP.

Our CEP model sites are found in various regions. In Region I, the site is in Telbang, Alaminos, Pangasinan. The site is part of the Lingayen Gulf. In Region II, we have Palaui

Island in Sta. Ana, Cagayan which was recently declared as a protected seascape. In Region III, we have Masinloc Oyon Bay in Zambales, which includes San Salvador Island, a study site by the Haribon Foundation. In Region IV, we have two sites: mainland Region IV-A and island Region IV-B. The mainland site is in Pagbilao Bay, so probably with the talk of illegal fishers coming from Pagbilao, we could probably help prevent the destruction of Palawan waters. For the Region IV Island, we have Ulugan Bay in the west coast of Puerto Princesa City. In Region VII, we have Mahanay Island in Bohol. In Region VI, we have Taclong Island in Guimaras. In Region VIII, we have Guiwans in Eastern Samar. In Region IX, we have Sibutad in Zamboanga del Norte. In Region X, we have Baliangao in Misamis Occidental. In Region XI, we have Pujada Bay in Mati, Davao and in Region XII, we have Lebac, Sultan Kudarat.

APPENDIX I

Forum on Co-Management of Marine Fisheries and Other Coastal Resources in Palawan, Philippines: Concepts and Experiences

12-13 September 1994
Puerto Princesa City, Palawan, Philippines

PROGRAM

Organized by the
International Center for Living Aquatic Resources Management
(ICLARM)

in collaboration with the
Palawan Council for Sustainable Development Staff (PCSDS)

BACKGROUND/RATIONALE

The marine waters of Palawan are considered the richest fishing grounds in the Philippines. The largest and most intact assemblage of marine habitats, particularly coral reefs and mangroves, are found in the province. The fisheries of Palawan alone supply about 60% of the fish consumption in the National Capital Region. However, these resources are under threat from various illegal and other destructive fishing practices. Also, there is widespread poverty among municipal and other small-scale fishers.

Palawan has often been cited as having successful cases of co-management and/or community-based management of marine fisheries but there is very little scientific documentation to substantiate such claim. Thus, the forum seeks to clarify these issues and explore appropriate research, planning and management interventions for sustainable utilization of the resources.

WORKSHOP OBJECTIVES

1. To discuss with resource managers and decisionmakers the experiences and concepts in co-management and/or community-based management of marine fisheries and other coastal resources in Palawan.

2. To extract some lessons and generalizations from the above experiences using the institutional analysis framework.

3. To facilitate the identification of research and information gaps in developing the appropriate fisheries and coastal resources management system in Palawan.

ORGANIZERS

The forum is organized by the International Center for Living Aquatic Resources Management (ICLARM) with funding from the Danish International Development Agency (DANIDA) in collaboration with the Palawan Council for Sustainable Development Staff (PCSDS). The forum is part of the local level research in the Philippines under the Fisheries Co-Management Project of ICLARM and the resource planning and research activities of the PCSDS.

HOST

Palawan Council for Sustainable Development Staff (PCSDS)
Office of the Governor

VENUE

Multi-purpose Hall
Provincial Capital Complex
Puerto Princesa City

Appendices

PROGRAM OF ACTIVITIES

Monday, 12 September 1994

Master of Ceremonies: Mr. Ricardo M. Sandalo
Director, Technical Services Department, PCSDS

Registration

Opening Ceremony

National Anthem

Opening Remarks
Dir. Arthur R. Ventura
Executive Director
Palawan Council for Sustainable Development Staff (PCSDS)

Message
The Honorable Salvador P. Socrates
Governor of Palawan and
Chairman, Palawan Council for Sustainable Development (PCSD)

Keynote Address
Dr. Robert S. Pomeroy
Project Leader and Research Scientist
International Center for Living Aquatic
Resources Management (ICLARM)

Introduction of Participants

Overview of the Fisheries Co-Management Project and Its Relevance to Fisheries and Coastal Resources Management in Palawan
Dr. Robert S. Pomeroy
ICLARM

Objectives and Mechanics of the Forum
Michael D. Pido
Research Associate, ICLARM

Session I : Experiences in Puerto Princesa City

Session Coordinator: *Ms. Virginia B. Catain*
Project Manager 1, PCSDS

The Experience of the Ulugan Bay Foundation, Inc. in Community-Based Coastal Resources Management
Ms. Divinia P. Sibal
Program Officer
Ulugan Bay Foundation, Inc.

Open Forum

Proposed Project for Turtle Bay and Binunsalian Bay, Puerto Princesa City
Mr. Ernesto T. Sta. Cruz
President
Binunsalian Bay Foundation, Inc.

Open Forum

Operations and Experiences of the Palawan Marine Products Shippers Association, Inc.
Mr. Sabino R. Camacho
Vice-President
Palawan Marine Products Shippers Association, Inc.

Open Forum

Summary and General Discussion

Lunch

Session II : **Experiences in Northern Palawan**

Session Coordinator: *Ms. Adelina B. Benavente*
Head, Project Development Division, PCSDS

El Nido Marine Reserve Management: An Experience
Ms. Nilda Baling
Project Manager
El Nido Marine Reserve Project, DENR

Open Forum

Community-Based Resource Management: The San Vicente Experience
Mayor Antonio C. Alvarez
Municipality of San Vicente

Open Forum

The Experience of the Panindigan Multi-Purpose Cooperative
Ms. Nelia Betaño
Panindigan Multi-Purpose Cooperative, Inc., San Vicente

Open Forum

Cyanide Detection Test Laboratory
Mr. Samuel Umandap
Tubbataha Foundation

Summary and General Discussion

Tuesday, 13 September 1994

Session III : Experiences in Southern Palawan and Other Province-Wide Concerns

Session Coordinator: *Ms. Rosalinda Bacosa*
Project Manager I, PCSDS

Bantay Palawan
Col. Malverson Lopez (Ret.)
Executive Officer
Bantay Palawan

Open Forum

Community-Based Mangrove Reforestation Project
Barangay Tagpait, Aborlan, Palawan
Mr. Kenji Takahara, OISCA Director and Mr. Ernesto Dator,
OTTAA Community Organizer

Open Forum

Effects of Habitat Enhancement on the Sustainability of Fish Cage Culture in Puerto Princesa Bay
Ms. *Lota Alcantara*
Palawan

Open Forum

Management Fishing Cooperative
Navy Capt. Ruben Reyes
Western Command

Open Forum

Summary and General Discussion

Session IV : Other Concerns

Session Coordinator: *Ms. Josephine S. Matulac*
Director, Special Projects, PCSDS

Law Enforcement in Fisheries and Other Coastal Resources in Palawan
Capt. Robert Garcia
Commander, 4th Coast Guard District

Police Supt. Nestor Serrano
PNP Maritime Command

Open Forum

Perspective and Commentaries

Initiatives of Donor/Funding Institutions in Fisheries and Coastal Resources Management

Dr. Delfin J. Ganapin, Jr.
Executive Director
Foundation for the Philippine Environment (FPE)

Mr. Robert G. Bernardo
Research Assistant
Regional Center for Graduate Study and Research in Agriculture (SEARCA)

Dr. Efren Flores
Chief, Aquaculture Department
South East Asian Center for Fisheries Development (SEAFDEC)

Fisheries Sector Program
Mr. Benjamin S. Francisco
Division Chief
Fisheries Sector Program

Coastal Environment Program
Mr. Virgilio Palaganas
Special Assistant to the Secretary
Department of Environment and Natural Resources

Open Forum

Synthesis of Session Outputs
Mr. Renato F. Agbayani
Philippine Country Leader, and
Associate Scientist, SEAFDEC

Closing Remarks
Dr. Robert S. Pomeroy
ICLARM

Gov. Salvador P. Socrates
Governor of Palawan and PCSD Chairman

Distribution of Certificates

APPENDIX II

LIST OF PARTICIPANTS

I. Authors/Paper Presentors

A. Puerto Princesa City

1 Ms. Divinia P. Sibal
Program Officer
Ulugan Bay Foundation, Inc.

2. Mr. Ernesto T. Sta. Cruz
President
Binunsalian Bay Foundation, Inc. (BBFI)

3. Mr. Sabino Camacho
Vice-President
Palawan Marine Products Shippers Association, Inc. (PMPSAI)

B. Northern Palawan

1. Ms. Nilda Baling
Project Manager
El Nido Marine Reserve Project, DENR

2. Hon. Antonio C. Alvarez
Mayor
Municipality of San Vicente

3. Ms. Nelia Betaño
Panindigan Multi-Purpose Cooperative, Inc.
Municipality of San Vicente

C. Southern Palawan and Other Province-Wide Concerns

1. Col. Malverson Lopez (Ret.)
Executive Officer
Bantay Palawan

2. Mr. Ernesto Dator
Community Organizer
OISCA Technical Trainee Alumni Association (OTTAA)

3. Ms. Ria Sariego
Dean, Institute of Marine Science
PNAC

4. Mr. Lota Alcantara
   Instructor
   PNAC

5. Navy Capt. Ruben Reyes
   Chief-of-Staff
   Western Command

6. Capt. Robert Garcia
   Commander, 4th Coast Guard District

7. Police Supt. Nestor Serrano
   PNP Maritime Command

II. Participants and Guests

A. Local Elective Officials

1. Hon. Salvador P. Socrates
   Governor of Palawan

2. Hon. Antonio C. Alvarez
   Mayor, Municipality of San Vicente

3. Hon. Benjamin Dawson
   Mayor, Municipality of Dumaran

4. Hon. Evelyn Rodriquez
   Mayor, Municipality of Taytay

5. Hon. Agustin de los Reyes
   Mayor, Municipality of Cuyo

B. Heads/Representatives of Agencies

1. Mr. Nelson P. Devanadera
   Provincial Planning and Development Coordinator
   Provincial Planning and Development Office (PPDO)

2. Mr. Carlos G. Macolor
   Aquaculturist II
   Fisheries Regulatory Unit
   Department of Agriculture (DA)

3. Mr. Ismael Jerry C. Fermo
   Training Center Superintendent II
   DA-Agricultural Training Institute

4. Lt. Commander Leopoldo M. Urbano
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   4th Coast Guard District

5 Forester Bonifacio Macabihag
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6. Mr. Emerico Cabanday, Jr.
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7. Mr. Judy Velasco
Sr. Forest Management Specialist
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8. Ms. Delia Sualog
Science Research Specialist/Chief, ERDS
PENRO

9. Ms. Mia Arlene Vasquez
PPDO

10. Mr. Angel Padon
City Planning and Development Coordinator
Puerto Princesa City

11. Mr. Peter Maristela
Community Affairs Officer II
Provincial Government of Palawan

12. Mr. Emilio Reynoso
Chair, Presidential Committee - Oil Spill

13. Prof. Emma Suplido
Palawan State College

14. Ms. Eliazar Sumicad
Liaison Officer, NSC

15. Lt. Ley Ordenes
Administrative Director
4th Coast Guard District

16. Mr. Rodolfo Fernandez
Administrative Officer
Bantay Palawan

17. Ms. Myrna Casilagan
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City ENRO

18. Mr. Romeo Cabungcal
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Office of the Provincial Aquaculturist

19. Mr. Cesar Bargoyo
    Environment Management Specialist
    City ENRO

20. Lt. Commander Leopoldo Urbano
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21. Lt. Rosendo Mantes
    Philippine Navy
    Western Command

22. Chief Inspector Rodolfo Babera
    Deputy District Director
    PNP - Maritime Command

23. Mr. Rene Parreno
    Training Specialist II
    DA-Agricultural Training Institute

24. Mr. Virgilio Palaganas
    Special Assistant to the Secretary
    DENR

25. Mr. Alfredo Oguis
    Adviser/Special Assistant to the Mayor
    Municipality of San Vicente

26. Mr. Benjamin Francisco
    Division Chief
    Fisheries Sector Program

27. Mr. Ceferino Botones
    Chief, CRM Division
    Fisheries Sector Program

C. Non-Government Organization

1. Atty. Joselito Alisuag
   President
   Haribon - Palawan, Puerto Princesa City

2. Mr. Inocencio Magallanes
   Administrative Officer
   Haribon - Palawan

3. Mr. Daniel Torres
   Program Officer
   Marine Turtle Foundation, Quezon City

4. Mr. Manuel Capinig
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