



ENHANCING MANAGEMENT EFFECTIVENESS OF MARINE PROTECTED AREAS:

A GUIDEBOOK FOR MONITORING AND EVALUATION



*Turning 'paper sanctuaries'
into
'effective sanctuaries'...*

Bernardita P. Germano
Senona A. Cesar
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LIST OF ACRONYMS

BFAR	– Bureau of Fisheries and Aquatic Resources
BFARMC	– Barangay Fisheries and Aquatic Resources Management Council
CAO	– City Agriculture Office
CB-MPA	– Community Based Marine Protected Area
CFRMU	– Coastal and Fisheries Resources Management Unit
COT	– Crown of Thorns
CPUE	– Catch per Unit Effort
CV	– Community Volunteer
DENR	– Department of Environment and Natural Resources
DILG	– Department of Interior and Local Government
ELAC	– Environmental Legal Assistance Center
FS	– Fish Sanctuary
GA	– Government Agencies
GIS	– Geographic Information System
gtz	– Deutsche Gesellschaft für Technische Zusammenarbeit
ICM	– Integrated Coastal Management
ID	- identification
IEC	– Information Education Campaign
IUCN	– International Union for the Conservation of Nature
LGU	– Local Government Unit
	BLGU - Barangay Local Government Unit
	MLGU - Municipal Local Government Unit
	PLGU - Provincial Local Government Unit
LSU	– Leyte State University
M & E	– Monitoring and Evaluation
MAO	– Municipal Agriculture Office
MFLET	– Municipal Fisheries Law Enforcement Team
MOA	– Memorandum of Agreement
MPA	– Marine Protected Area
MSN	– MPA Support Network
NGO	– Non Government Organization
NOAA	– National Oceanic and Atmospheric Administration
OCAS	– Office of City Agricultural Services
OMAS	– Office of Municipal Agricultural Services
PAMANA KA SA PILIPINAS	- Pambansang Alyansa ng Maliliit na Mangingisda na Nangangalaga ng Karagatan at Sangtwaryo sa Pilipinas (National Alliance of community – based Marine Protected Areas in the Philippines)

PCAMRD	– Philippine Council for Aquatic and Marine Research and Development
PCFRMO	– Provincial Coastal and Fisheries Resources Management Office
PCRMO	– Provincial Coastal Resources Management Office
PENRMO	– Provincial Environment and Natural Resource Management Office
PhilMarSaSt	– Philippine Marine Sanctuary Strategy
Q	– Quarter
SB	– Sangguniang Bayan
SCREEN	– Center for Sustainable Coastal Resources and Environment
SCUBA	– Self-Contained Underwater Breathing Apparatus
SouLMaET	– Southern Leyte Monitoring and Evaluation Team or Southern Leyte Management Effectiveness Team
URI-CRC	– University of Rhode Island – Coastal Resources Center
WCPA	– World Commission on Protected Areas
WWF	– World Wide Fund for Nature

Preface

A major bottleneck in effective management of coastal resources in general, and MPAs (Marine Protected Areas) in particular, is the lack of a systematic, holistic and practical M & E (monitoring and evaluation) system. Since the Philippines has had over two decades experience in community-based coastal resource management, a number of M & E references and guidebooks are already available (Walters et al. 1998, Courtney et al. 2001, Uychiaoco et al. 2001). A number of international examples are also obtainable (UNESCO 2003, Wells and Mangubhai 2004, Locally-Managed Marine Area Network 2004, Hill and Wilkinson 2004). A more global and generic guidebook was thus developed by the IUCN/WCPA and the WWF (Pomeroy et al. 2004). This guidebook is a product of the testing and customization of the application of the IUCN WCPA-Marine/WWF MPA management effectiveness methodology under Philippine conditions. Pilot sites included four MPAs, two of which are situated in a city and the other two in a rural municipality in the Province of Southern Leyte. This guidebook strives to make the M & E process as relevant and practicable as possible by:

1. identifying core indicators that can be used across MPAs,
2. developing a provincial framework to assist LGUs, analyze MPAs across provinces and provide services,
3. developing ready questionnaires in Microsoft Word® for socio-economic and governance indicators,
4. developing templates in Microsoft Excel® for data processing, analysis and trend graphs generation.
5. developing different communication tools for results reporting, and
6. citing examples from pilot MPA sites.

May this work be a functional reference to agents and clients of coastal conservation and protection.

Acknowledgment

This guidebook is a collection of experiences and inputs from the different partners and communities who believe in the bigger goals of MPAs.

The authors gratefully acknowledge the precious time, effort and knowledge shared by members of the SouLMaET - Eva Abad, Armando Gaviola and Edwina Montederamos of the CFRMU, PENRMO; Narcisa Antipala, Cristiano Bual and Lilibeth Olor of the OMAS of Hinundayan; Amado Acasio, Presiana Torres, Domingo Legalig and Devorah Abuyog of the OCAS, Maasin City;

Remedios Lequin and Julius Alpino of BFAR; Myrna Ballera, Glenn Garciano, Arnulfo Viojan and Wilfredo Reytas of DENR; and Eliza Espinoza of Leyte State University. Special thanks are due to Eva Abad, Narcisa Antipala and Amado Acasio for several ideas contained in the introduction of this guidebook shared during the regional workshop in Indonesia.

The interest and hardwork of barangay officials and community volunteers from Ambao and Sabang in Hinundayan, and Sto. Rosario and Bilibol in Maasin City were quite inspiring. Brgy. Captains J. Tagoctoc of Ambao, C. Layola of Sto. Rosario, B. Bugais of Sabang and I. Zuñega of Bilibol showed able leadership with the support of eager men, women and youth in the different pilot MPA communities.

The commitment and vision of heads of the different partner agencies are also much appreciated: Governor Rosette Y. Lerias and Hon. Eva L. Tomol of the Provincial Government; Joel C. Molina and Damian G. Mercado, chief local executives of Hinundayan and Maasin City, respectively; and BFAR and DENR 8 Regional Directors Gil A. Adora and Leonardo R. Sibbaluca and their successors.

Trainings for the SoulMaET members on different aspects of M & E were provided by Salome Bulayog, Anlyn Mazo, Eliza Espinosa, Alejandro Caliente and Magdalene Cesar. Francisco Gabunada facilitated the Training-of-Trainers workshop. Assistance during project implementation was largely provided by Aludee Jane Andrade and later by David Cosmiano. Clerical assistance from Noel Alkuino is also appreciated. Efficient financial administration by the Visca Foundation for Agricultural Research and Development of LSU and Monica Maghini of URI facilitated the timely release of funds needed for project activities. Various forms of assistance were also provided by Sweet Brillantes, Melody Cabello and Ramon Miclat.

The project was conducted under the auspices of the Aquatic Ecosystems Division of the Institute of Tropical Ecology and the Department of Biological Sciences at LSU, and the Coastal Resources Center of URI.

The PCAMRD is also acknowledged for initiating collaboration between LSU and URI-CRC through a workshop on 'Institutional Frameworks for Community-Based Coastal Resources Management and Marine Conservation in the Eastern Visayas Region'. Brian Crawford of URI-CRC and President Paciencia P. Milan of LSU provided the necessary support to sustain the collaboration.

Financial support provided by the NOAA of the U.S. Federal Government made this project possible. Brian Crawford, Richard Pollnac, Stephen Olsen and Lesley Squillante of URI-CRC shared expert advice on different aspects of the project. The gtz through the advisor of the Environment for Rural Development Project of Southern Leyte, Tim Packeiser, granted travel support for key personnel from the pilot city/municipality to attend the regional workshop in Manado, Indonesia.

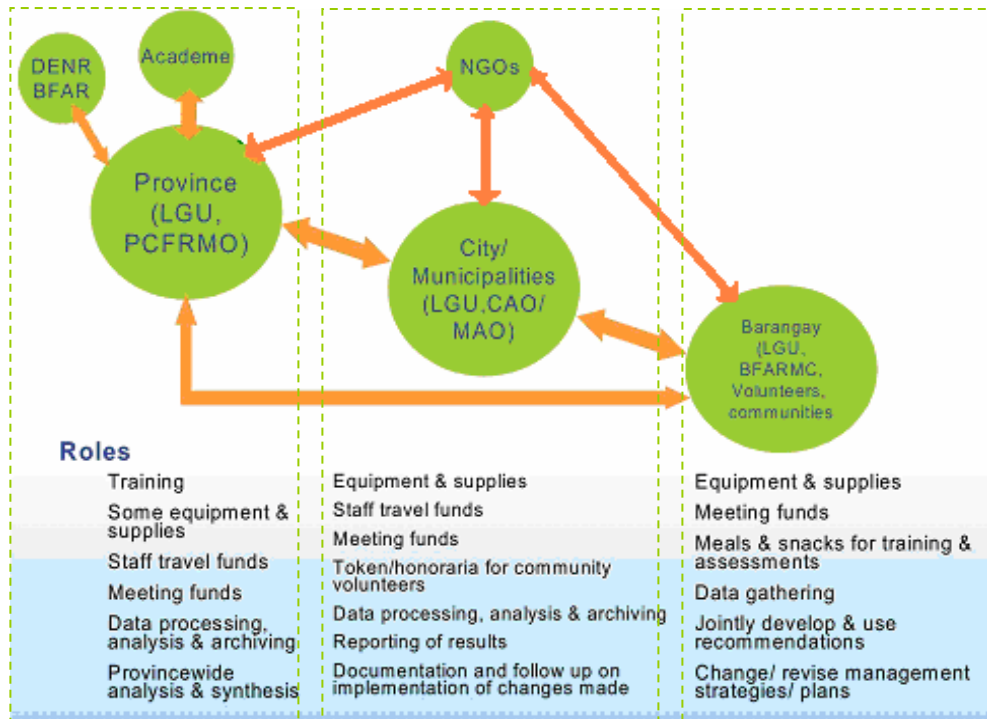
Any clarification on the contents of this guidebook can be addressed to the authors. Opinions expressed are solely theirs, thus omissions or corrections are also attributed to them and can be referred to them for due action.

THE AUTHORS

Introduction

WHAT IS THE PROVINCIAL MPA MONITORING AND EVALUATION FRAMEWORK?

The **PROVINCIAL MPA MONITORING AND EVALUATION FRAMEWORK** promotes the nested system of MPA governance linking provincial/regional, municipal and community-level MPA managers as shown below.

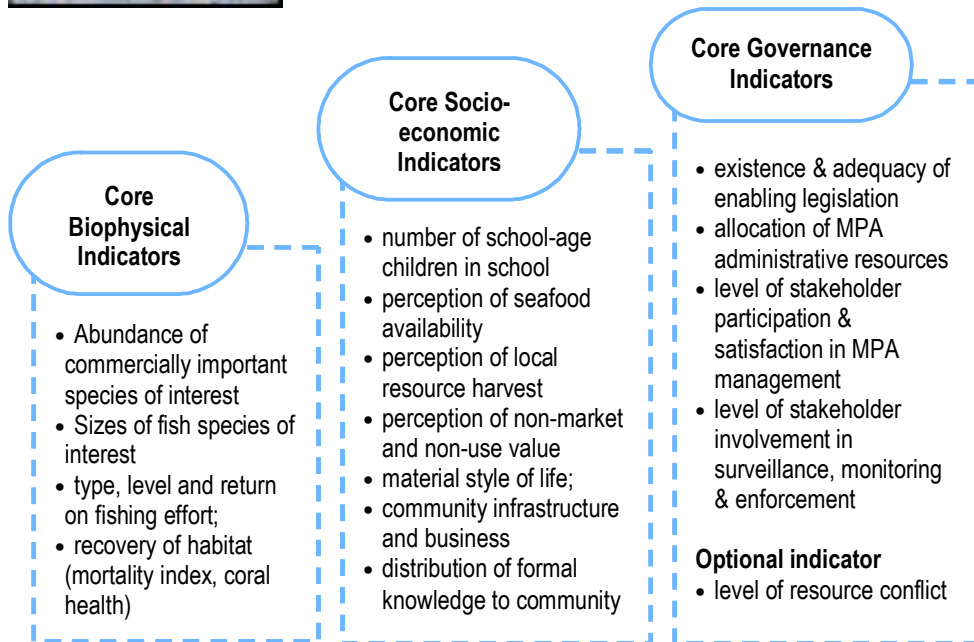


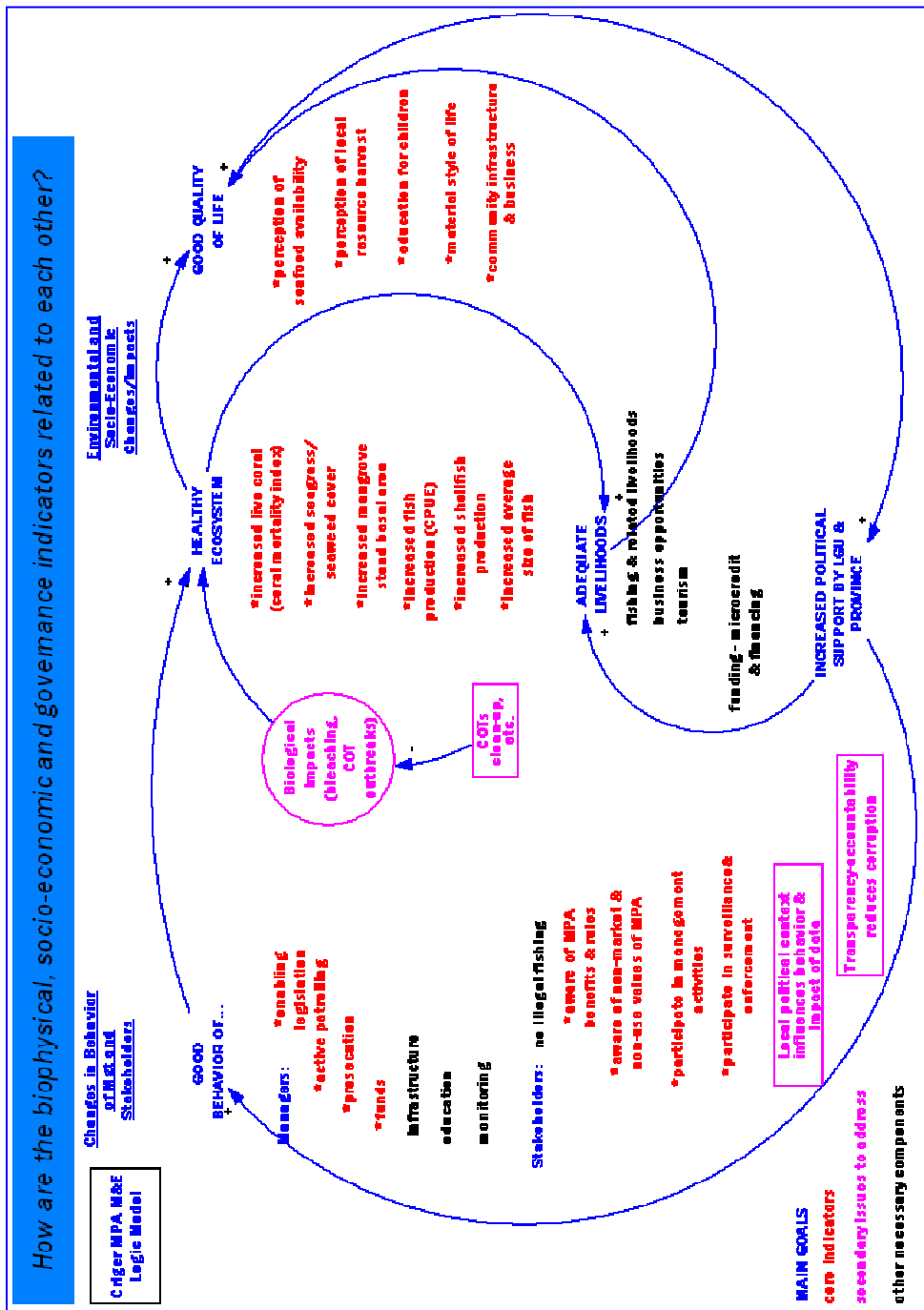
The system defines the roles and responsibilities of the different stakeholders in ensuring the conduct and sustainability of MPA evaluation and management adaptation towards better accomplishment of MPA goals and objectives. It includes training side-by-side a provincial core team composed of staff from the province, two pilot municipalities, regional offices of the

DENR and BFAR, and the academe on the management effectiveness methodology advocated by the IUCN guidebook. The trained team in turn conducts trainings and assessments in pilot MPA barangays/ communities, assists them in adapting MPA management based on assessment results and shares lessons for future scaling up. Subsequent trainings and assessments may then be conducted in other municipalities with MPAs in the province. After the initial assessment with the trained core team, assessments may be done independently by trained municipalities and communities once a year.



How do we assess accomplishment of MPA goals and objectives?





Does the system really work?



We have a problem on the seaweed/ seagrass identification but the methodologies are doable.

It is difficult to arrange and state the questions but questionnaires are translated in the dialect.



We lack capability in using the computer but we actually did it!

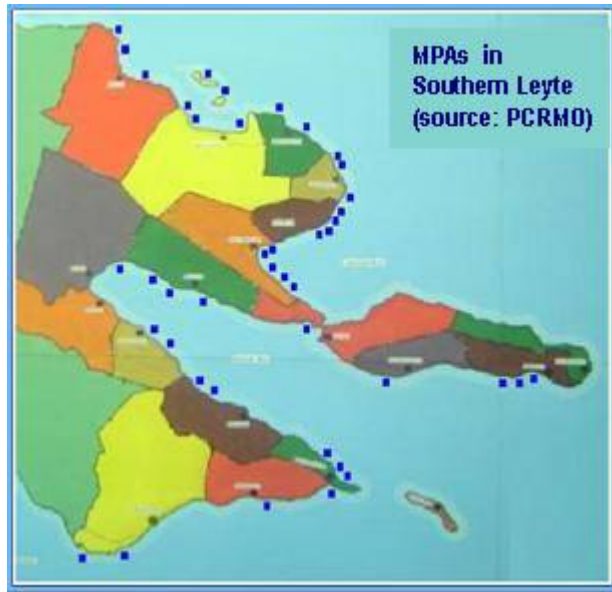
Management deficiencies are identified for improvement. Very useful in the future activities to be undertaken to improve the status of the 42 MPAs in Southern Leyte.



OVERVIEW OF THE PILOT PROVINCE

The Province of Southern Leyte is a third class province with 18 municipalities and one city, all of which are coastal. About 51% (256) of the barangays comprising the province are also coastal. The province has

a total of 42 MPAs found in 16 municipalities, the first of which (Tabugon MPA) was established in 1993 with the help of BFAR. The MPAs range in size from 1 - 32.5 hectares, with an aggregate area of 513 hectares. MPAs in Hinunangan have the biggest



aggregate area of 155 hectares inclusive of two islands. The goals and objectives of MPAs in the province are similar to those of other MPAs in the Philippines, namely: fishery enhancement, socio-economic upliftment and ecological development (Cunanan and Tabaranza 2005). The range of MPA management systems in the province is also a good representation of common MPA management systems in the country. For instance, two of the pilot MPAs show more of the top-down system with less participation from the communities, while one shows the bottom-up system with greater vigilance from community members. Problems and issues related to the MPAs are also similar to those found in other parts of the country - boundary disputes, poaching, weak law enforcement, lack of facilities for law enforcement, lack of awareness and support by community members, etc. Adoption of the nested system of MPA governance thus has great potential for achieving synergy of impacts at the provincial level and contributing to the realization of MPA goals of environmental protection and rehabilitation towards better fish catch for food security and better income for fishing families on a wider scale.

WHOM SHOULD I CONTACT TO START THE PROCESS?

For training of provincial core team:

The President, Leyte State University
Visca, Baybay, Leyte 6521-A
Tel. (053) 335 2600 or 2601
Email: opvisca@mozcom.com



and
The Provincial Governor
Province of Southern Leyte
Provincial Capitol, Maasin City
Tel. (053) 381 2389, 570 9017-18
(for involvement of the SouLMaET)



For further insights and information on experiences and lessons learned (provincial level):

The Head
Coastal and Fisheries Resources Management Unit
Provincial Environment and Natural Resource Management Office
Provincial Capitol, Maasin City
Tel. (053) 381 4164

For further insights and information on experiences and lessons learned (city level):

The City Agriculturist
Office of the City Agricultural Services
Maasin City
Tel. (053) 381 3929

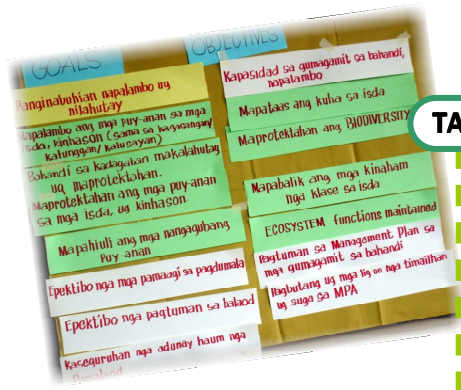
For further insights and information on experiences and lessons learned (municipality level):

The Municipal Agriculturist
Office of the Municipal Agricultural Services
Hinundavan, Southern Leyte

PURPOSE

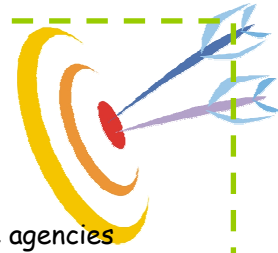
The main goal of this guidebook is to enhance the management effectiveness of MPAs towards attainment of environmental and socio-economic goals by:

1. guiding the MPA M&E process at municipal and barangay /village levels for scaling up
2. providing a basis for planning and implementation of a M & E program
3. encouraging LGUs to support MPA M & E
4. capacitating local communities in MPA M & E
5. promoting better natural resource stewardship among communities
6. enabling provinces to assess the general condition and management effectiveness of MPAs within their jurisdiction for strategic planning purposes
7. providing a venue for the establishment of a provincial MPA database
8. providing a framework for M & E of other development projects of LGUs



TARGET AUDIENCE

1. Communities
2. Barangay LGUs
3. Municipal LGUs
4. Provincial LGUs
5. Government line agencies
6. Academe
7. Non-government organizations



WHY MONITOR?



"The link between actions and outcomes is often not so obvious. Faced with the daily demands of their job, many managers are unable to regularly and formally step back and reflect on the cumulative results of their efforts. In the absence of such reflection, resources may be wasted and objectives may not be achieved."

"Evaluation of management effectiveness thus provides a formal way to learn from successes and failures and helps people understand why and how management practices are to be adapted."

Pomeroy et al. 2004

WHAT ARE THE BENEFITS?

FOR COMMUNITIES

1. increased resource base (technical and financial)
2. better coordination and teamwork among community members/primary beneficiaries and other stakeholders
3. better awareness and participation among stakeholders
4. MPA managers can be properly guided by valid/reliable data/information
5. improved habitat condition
6. increased fish catch leading to better income and better quality of life
7. prospects for more economic opportunities (e.g. tourism development)
8. proof of the impact of community-based efforts in conservation

FOR LOCAL GOVERNMENT UNITS

1. better capacity for M & E of MPAs and other development projects
2. more efficient and objective channeling of meager resources
3. better coordination among service providers
4. establishment of database for coastal planning and development
5. access to trainings and study tours/cross visits
6. better capacity among policy makers to formulate sound decisions and more relevant policies
7. promotion of importance of CRM as basis for investment prioritization
8. improved delivery of basic services in coastal and fisheries management
9. demonstration of LGU commitment to environmental accountability
10. better satisfaction of constituents of LGU services leading to greater political support
11. proof of accomplishment of LGU mandates and thrusts
12. better capacity to provide inputs to national legislation

GOVERNMENT LINE AGENCIES

1. enhanced capacity for monitoring and evaluation
2. better coordination with LGUs
3. more efficient delivery of basic services in coastal and fisheries management through better coordination
4. facilitation of data collection for regional coastal database
5. better capacity to provide inputs to national legislation

ACADEME

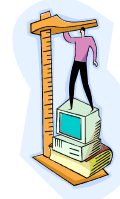
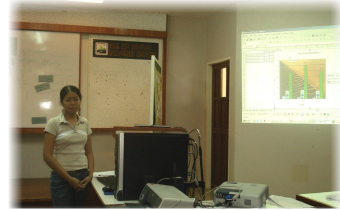
1. proof of impacts of projects to funders
2. better understanding of MPA management dynamics leading to more ideas/strategies to test in dealing with various issues and problems
3. acquisition of more knowledge and materials to enrich courses related to natural resource management

NON-GOVERNMENT ORGANIZATIONS

1. proof of impacts of projects to funders
2. better understanding of MPA management dynamics leading to more efficient project implementation and management

WHAT SERVICES WILL I GET?

1. orientation seminar
2. training on MPA M & E
 - concepts and process
 - criteria for choosing indicators
 - field assessment
 - basic computer literacy
 - data processing and analysis
 - preparation of communication tools
 - adaptive management
 - documentation of changes made
 - following up
3. access to MPA M & E equipment
4. access to provincial MPA M & E services through the SouLMaET



WHAT ARE MY RESPONSIBILITIES?

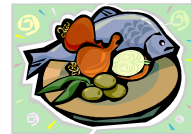
COMMUNITIES (barangay)

1. Provide manpower, facilities (boat, improvised snorkel and fins, venue and meeting facilities) and snacks/meals (negotiable) for trainings and assessments
2. Organize meetings and notify community members



MLGU

1. personnel
2. funds for staff travel, meetings and trainings
3. token/honoraria for community volunteers
4. funds for meals and snacks during scheduled activities (if needed)
5. supplies for questionnaires
6. transportation facilities if available (patrol boat, service vehicles)
7. assessment equipment (SCUBA gear, writing slates, pencils, transect line)
8. data processing and analysis (including supplies and equipment)
9. reporting of results
10. assistance in adaptive management
11. documentation of changes made
12. data archiving
13. sharing of experiences with other LGUs



PLGU

1. technical support
2. manpower through SouLMaET
3. data synthesis at provincial level
4. trainings
5. access to equipment (assessment equipment, SCUBA gear)
6. GIS mapping (if available)
7. funds for staff travel and meetings
8. consultancy and linkaging for financial and technical services of other agencies



HOW CAN I JOIN?

What to do?	Annual schedule
Attend a provincial orientation on MPA M&E (concepts; MPA M&E process, roles and responsibilities; criteria for prioritization, list of provincial prioritization of MPAs)	2 nd Q, subject to actual schedule set by the province
Submit a written expression of interest addressed to the Governor	After provincial orientation
Wait for decision on schedule of trainings and initial assessment	
Sign a MOA with province	
Drafting of workplan, timeframe and budget with province	4 th Q, around October
Implementation of plan	1 st Q of succeeding year

- Annual schedules are based on provincial schedules of budget hearings and releases which may differ in different provinces.
- Provinces that are interested to adopt the methods advocated in this guidebook, avail of training in establishing a provincial MPA M & E system, or gain further insights and information on problems encountered, lessons learned and benefits gained may refer to the contact addresses provided above.
- The training modules for the provincial core team and the community volunteers are provided in the accompanying compact disc.
- Questionnaires to be used and templates for data encoding, processing and analysis for biophysical, socio-economic and governance indicators are also included in the CD.
- Sample results from the first two pilot MPAs (Ambao, Hinundayan and Sto. Rosario, Maasin are also incorporated, along with the various report formats used for different audiences.
- An e-copy of the IUCN guidebook is also included in the CD.

RATIONALE

A key outcome of the 2002 World Summit on Sustainable Development was the commitment by member countries to establish a system of MPAs consistent with International Law and based on scientific information, including representative networks by 2012. This has resulted in the establishment of MPAs becoming a political imperative, with consequent proliferation of MPAs throughout the Philippines. A recent count by Haribon Foundation registered 558 established MPAs and another 87 MPAs proposed for establishment (Cunanan and Tabaranza 2005). However, Crawford et al. (2000) estimates that only about 20-25% (of over 500 Philippine MPAs) are achieving their goals while the rest are just "parks on paper". Coral reefs provide about 15% of the total Philippine fish catch (Murdy and Ferraris 1980), with the percentage contribution rising if we include seaweed and seagrass bed fisheries. Networks of MPAs within and among provinces already exist throughout the country (PAMANA KA SA PILIPINAS, Haribon Foundation 2003; PhilMarSaSt, MSN). However, synergy of impacts at the national level cannot be seen unless management effectiveness and strategic planning within provinces are enhanced. Adoption of the nested system of MPA governance thus has great potential for contributing to the realization of MPA goals of environmental protection and rehabilitation towards better fish catch for food security and better income for fishing families on a wider scale.

BACKGROUND OF THE INITIATIVE

This guidebook is an end-product of project collaboration among the University of Rhode Island - Coastal Resources Center (USA), the Leyte State University (Philippines) and the Center for Sustainable Coastal Resources and Environment (SCREEN) of Indonesia entitled "**Enhancing Management Effectiveness of MPAs: Regional Capacity Building in Indonesia and the Philippines**". The project, funded by the NOAA (National Oceanic and Atmospheric Administration) of the U.S. Federal Government, aims to improve management effectiveness of CB-MPAs (community-based marine protected areas) through technical assistance and training provided by

provincial governments using the IUCN WCPA-Marine/WWF MPA management effectiveness methodology. The project promotes the nested system of MPA governance (which can also be applied to governance for Integrated Coastal Management) linking provincial/regional, municipal and community-level MPA managers - including training them side-by-side on development of an adaptive MPA M & E system. The project also tested and customized the application of the IUCN WCPA-Marine/WWF MPA management effectiveness methodology under Philippine and Indonesian conditions. The project was piloted in four and two MPAs in the Philippines and in Indonesia, respectively. Two of the Philippine MPAs are situated in a city and the other two in a rural municipality in the Province of Southern Leyte. The cycle of project activities is summarized as shown below:



A composite team called the **SouLMaET (Southern Leyte Management Effectiveness Team)** consisting of staff from the province, two pilot municipalities, regional offices of the DENR and BFAR and the academe were trained on the management effectiveness methodology advocated by the IUCN guidebook. Trainings were given on the following aspects:

- Selecting and Prioritizing Indicators for CB-MPAs
- Designing a M&E Framework
- Planning Your evaluation
- Conducting and Communicating Your Evaluation
- Adaptive Management through Indicators
- Using Microsoft Excel (basic spreadsheet)
- Participatory Methodologies on
 - Coral Reef Resource Assessment
 - Fish Visual Census
 - Seagrass/ Seaweed Resource Assessment
 - Mangrove Assessment
- Data Gathering Tools for Project Monitoring and Impact Assessment
- Team Building

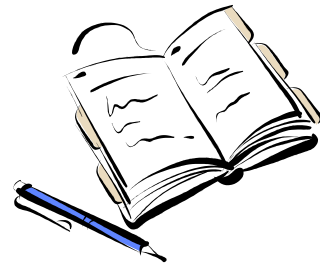
Application of the method was done in four pilot MPAs - the first two conducted with guidance from LSU, the second two conducted by the SouLMaET members alone to test their capability to do the entire process by themselves. Materials included in this guidebook are thus a composite of the experiences from the four learning sites.



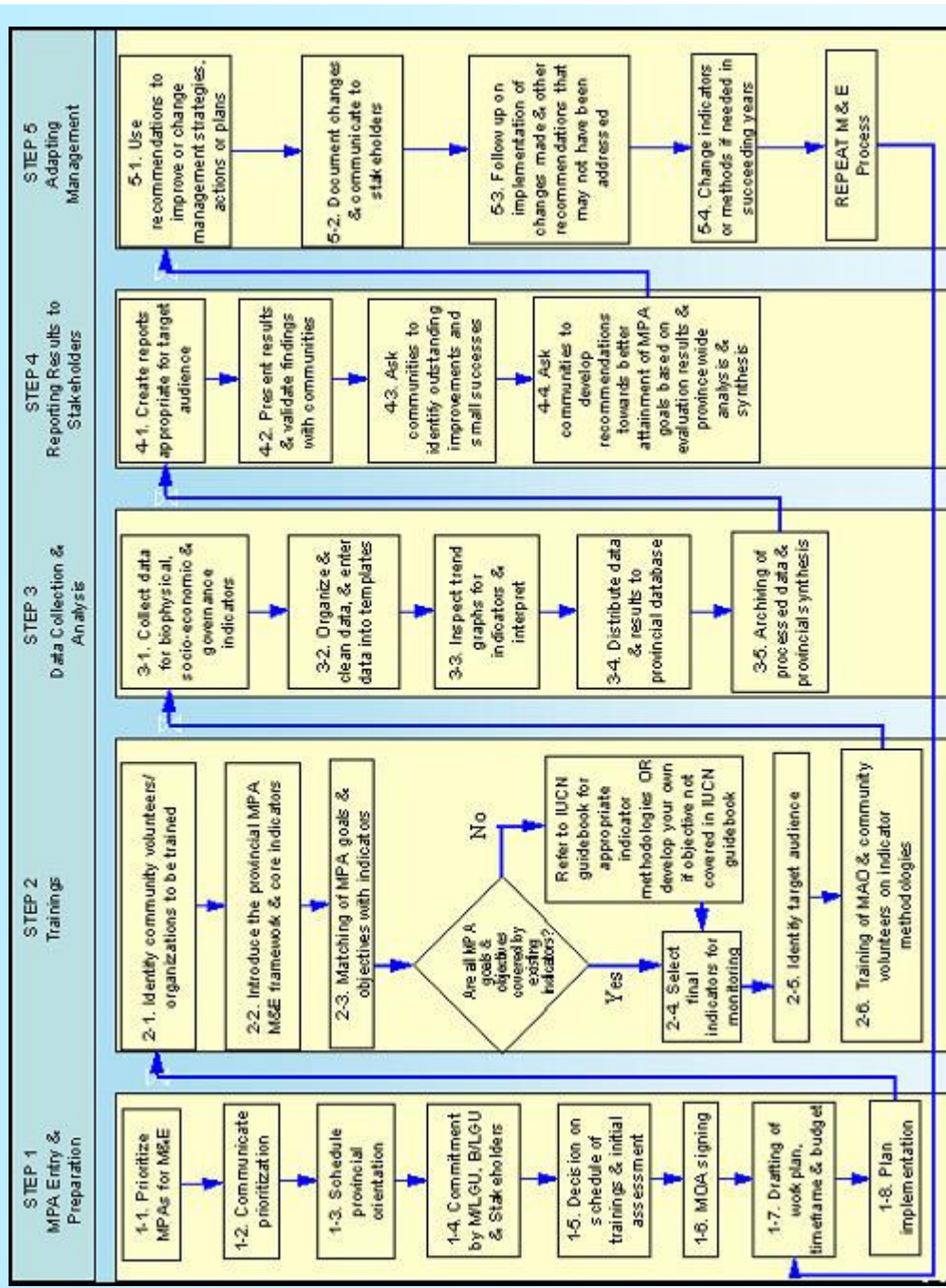
The Steps In Evaluating MPA Management Effectiveness



The MPA M & E process is divided into 5 major steps, namely: MPA Entry and Preparation, Trainings, Data Collection and Analysis, Reporting Results to Stakeholders, and Adapting Management. The method assumes the existence of capability at the provincial level. The flow of the MPA M & E process is shown on the next page:



The Steps in Evaluating MPA Management Effectiveness



Step 1. MPA Entry and Preparation

1-1. Prioritize MPAs for M & E

As most provinces are expected to have several MPAs within its jurisdiction and all MPAs probably cannot be evaluated within the same year, MPAs need to be prioritized based on socio-economic and biophysical criteria. Criteria and corresponding points should be determined by the Provincial government with inputs from regional BFAR and DENR offices. Lead role will be performed by the provincial office in charge of coastal and fisheries resources management (PCFRMO). Suggested criteria and points for prioritization are as follows:

▪ Strategic location and size		20%
Potential to affect other MPAs and areas	10	
Proximity to major fishing grounds	10	
▪ Abundance and diversity of resources		20%
▪ Potential economic contribution to province		20%
Fisheries	10	
Tourism	10	
▪ Importance to threatened species		10%
▪ Interest and commitment of		20%
LGU officials	5	
Communities	5	
OMAS/OCAS	5	
NGOs	5	
▪ Lack of baseline data		5%
▪ Accessibility and safety		5%
		100%

If an LGU is interested and committed but doesn't have the needed resources, the province should consider providing assistance especially if the MPA has high scores for strategic location and potential economic contribution. DENR and BFAR may also consider providing assistance.



1-2. Communicate prioritization

To ensure participation, the results of prioritization should be communicated to local chief executives of constituent MPAs and their reactions solicited. If a local CRM network exists, reactions of members should also be solicited and criteria/points distribution revised if needed.

1-3. Schedule provincial orientation

After criteria for prioritization are finalized, a provincial orientation should be conducted to introduce the Provincial MPA M & E Framework, the overall management effectiveness process, as well as the benefits for and responsibilities/roles of participants. During this orientation, expressions of interest may already be solicited from constituent MPAs.

1-4. Commitment by MLGU, BLGU & Stakeholders

For yet undetermined reasons, some MPAs high on the provincial prioritization list may not have the MPA high on their list of priorities. Thus, a written expression of interest to the Governor by the Municipal Mayor is necessary. Prior consultation with and concurrence by BLGUs and MPA management committees are needed to enlist their support at the outset.

1-5. Decision on schedule of trainings & initial assessment

The PCFRMOs determine the number of MPAs they can attend to in one year given the other activities and responsibilities their offices have to accomplish annually. Once enough municipalities have expressed their interest, the provincial office may then schedule trainings and initial assessments for the committed MPAs.

1-6. MOA signing

To formalize the partnership, clarify roles and responsibilities, and hopefully safeguard the program against political turnover, a MOA will be signed by the heads of the respective partner agencies - the Governor, the municipal/city mayors, DENR, BFAR and NGOs that may be operating in committed MPAs.



1-7. Drafting of workplan, timeframe & budget

Schedules and logistics for the different activities should be planned for in coordination with the PCFRMO, MAO and barangay officials with MPA management committees. The availability of members of the trained core team (SouLMaET for Southern Leyte) should also be considered in the planning as they will be needed in the initial round of assessments. Scheduling of assessments should also take into consideration periods of calm weather in different MPAs as rough sea conditions could hamper biophysical assessment resulting in wasted resources.

The province and if possible, the municipalities should invest in monitoring equipment. This is to facilitate scaling up as initial equipment inavailability could potentially delay scaling up and negate any momentum gained.

The minimum list of MPA monitoring equipment should have:

1. 2 pcs. 1x1m quadrat
2. 4 sets mask and snorkel
3. 5 pcs. writing slates
4. 1 pc. 100 m transect line (nylon, calibrated every 5 m)
5. 4 pcs. 50 m transect line (nylon, calibrated every 5 m)
6. Laminated identification guides
 - 2 Fish (MPA target species only) and Coral ID guides
 - 2 Fish (MPA target species only) and Seaweed/ Seagrass ID guides



1-8. Plan implementation

During implementation of the MPA M & E plan, close coordination by the MAO with the communities and the PCFRMO is needed. Extraction and sharing of lessons (challenges and facilitating conditions) should be done after each set of steps. This lesson sharing will make implementation of M & E more efficient in succeeding years as well as help build capability among MPA stakeholders thereby also enhancing management effectiveness.

Step 2. Trainings

2-1. Identify community volunteers/ organizations to be trained

Trainings are to be conducted by the trained core group in the province (SouLMaET for Southern Leyte), with the PCFRMO taking the lead. Trainers should assume a weaning attitude during the entire process and emphasize the need for independence of MAOs and communities in succeeding evaluations. Community volunteers to be trained should be permanent residents of the barangay with no plans of moving elsewhere. For the socio-economic indicators, barangay health workers who are used to undertaking censuses of households could be tapped. Fishers could also be tapped to do fish visual census. Two community volunteers each are needed for monitoring of socio-economic and governance indicators. For biophysical indicators, 6 community volunteers are needed if the MPA includes seagrass/seaweed beds and mangroves aside from coral reefs.



2-2. Introduce the provincial MPA M & E framework & core indicators

Trainings should begin with an introduction to the provincial MPA M&E framework to inform communities of their part in the bigger picture. The core biophysical, socio-economic and governance indicators developed by the NOAA project should also be presented together with the rationale and methods for obtaining data. The questionnaires and templates for data processing and analysis should also be discussed.

2-3. Matching of MPA goals & objectives with indicators



A critical task in MPA M & E is ensuring that indicators gathered can be used to inform the stakeholders whether the goals and objectives of MPA establishment are progressively being realized or not so that modifications and improvements can be made to enhance management effectiveness. Although this project established core indicators that can be used across MPAs, it is nevertheless very important that communities be made to identify their own indicators based on their goals and objectives so that there is ownership of the outcomes. The indicators that will be identified by the communities will most likely include the ones that were identified by the pilot sites as MPA establishment in the country has common objectives of fishery enhancement, socio-economic upliftment and ecological development (Cunanan and Tabaranza 2005). The interview questionnaires and templates for the indicators that have been developed ensure that the process does not stop at the planning stage and can be sustained over the years. Thus, province and municipal/city staff trained on MPA M & E should allow some degree of flexibility by entertaining new indicators that may surface. The IUCN Guidebook (may be downloaded at <http://effectiveMPA.noaa.gov>) may be consulted for some of these new indicators. Otherwise, a simple method of gathering data may be developed. For difficult indicators needing technical assistance, the help of the academe may be sought. A summary of the MPA objectives of the pilot sites *vis-a-vis* the indicators is shown in the tables

below. The tables show that the 4 pilot MPAs have common objectives which are also shared by other MPAs in the country. The matching indicators are thus also similar which indicates their general applicability.

MPA Objectives

Sto. Rosario	Billibol	Ambao	Sabang
Increased number of fish and shellfish	Increase the fish catch outside the sanctuary	Increase fish catch;	Increase fish catch;
Increased spawning of fish		Protect the area as breeding ground of fishes by not disturbing them and allowing other resources to recover/ regenerate to increase fisheries production	Protect the area as breeding ground of fishes by not disturbing them and allowing other resources to recover/ regenerate to increase fisheries production
Proper Monitoring	To provide effective monitoring and protection of the MPA	Safeguard and maintain the project (MPA) for sustainability	Safeguard and maintain the project (MPA) for sustainability
Preserve the corals/ mangrove spawning areas	To conserve and rehabilitate the marine resources in the MPA	To rehabilitate damaged corals or fish habits for future generation	To rehabilitate damaged corals or fish habitats for future generation
Improved livelihood or increased income for family	Increase fishermen's income		
		Develop ecotourism	

Matching Indicators

(Numbers in parentheses refer to indicator category and number as designated in the IUCN Guidebook . B, S and G stand for biophysical, socio-economic and governance indicators, respectively.)

BIOPHYSICAL	SOCIO-ECONOMIC	GOVERNANCE
Focal Species abundance (B1) (fish, shellfish, corals, seagrass, mangroves)	School-age children in school	Level of resource conflict (G1)
Focal species (fish) population structure (B2)	Perception of seafood availability (S4)	Existence & adequacy of enabling legislation (G5)
Type, level and return on fishing effort (B7)	Perception of local resource harvest (S5)	Allocation of MPA administrative resources (G6)
Recovery of habitat (mortality index, coral health) (B9)	Perception of non-market and non-use value (S6)	Level of stakeholder participation & satisfaction in MPA management (G12)
	Material style of life (S7)	Level of stakeholder involvement in surveillance, monitoring & enforcement (G13)
	Community infrastructure and business (S11)	
	Distribution of formal knowledge to community (S14)	

2-4. Select final indicators for monitoring

If the matching of indicators with MPA objectives yields the same indicators as above, the same questionnaires and templates developed by the NOAA project may be used (included in the accompanying CD). If additional indicators are needed, this may be appended where appropriate in the existing questionnaires and templates as additional worksheets. Target fish species may also vary in different MPAs. In such cases, the names of the target species in the existing templates may be replaced and data processed as usual.

2-5. Identify target audience

Identification of the target audience to receive evaluation reports is necessary since effective communication tools may vary for different audiences. For the Province of Southern Leyte, the identified audience and the preferred methods of communicating results are shown below:

Audience	How important are they to MPA success?	What is their preferred method of communicating results?	What action do you want them to take with the results?
1. community (fisherfolks)	high	Barangay assemblies, IEC materials (bulletin board, radio)	more participation in the management of MPA; identify/engage in other income opportunities
2. barangay LGU	high	Barangay assemblies, simplified records	improved participation more support to management
3. adjacent barangays	high	IEC materials, assemblies (radio, print media)	compliance to MPA rules replicate/adopt MPA
4. NGOs	low	IEC materials, assemblies (radio, print media)	more support for MPA replicate/adopt MPA
5. municipal LGU officials/ employees	high	Assemblies, IEC materials (bulletin board, radio), simplified written reports	more support for MPA
6. provincial LGU	moderate	technical report	share information (advocacy) coordination
7. line agencies (DENR, BFAR, DILG)	moderate	written report (simplified, with photos) technical report	share information with other areas; provide training (based on MPA needs)
8. academe	low	written report (simplified, with photos) technical report	share information with other areas; provide training (based on MPA needs)

2-6. Training of MAO & community volunteers on indicator methodologies

Trainings to be given to the MAO and community volunteers consist of lectures, powerpoint presentations and demonstrations on the principles and methods of gathering of field data for socio-economic, governance and biophysical indicators. Explanations on how data are to be processed and analyzed, how outputs are to be packaged for reporting, and subsequent activities (presentation to and validation of results by the communities, and adaptive management exercises) will be given.

Step 3. Data Collection & Analysis

3-1. Collect data for biophysical, socio-economic & governance indicators

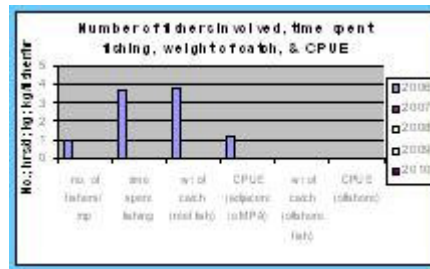
Collection of field data for the different indicators will be done by the communities and MAOs, initially with guidance from the trained provincial core team (SouLMaET). NGOs (if involved) and the academe may assist if needed.

3-2. Organize & clean data, & enter data into templates

This task is to be done by MAOs, initially with guidance from the trained core team. NGOs (if involved) and the academe may also assist if needed. Processing and encoding of data may be done at the municipal/city agriculturists' office. The MAO staff are taught how to organize and encode the data using the templates developed for the purpose. All encoded data need to be reviewed by the MAO staff with guidance from the trained core team. For the socio-economic (S7, S14) and governance (G1) indicators that need manual and visual inspection and processing prior to analysis, further instructions need to be given.

3-3. Inspect trend graphs for indicators & interpret

Results of the analysis could readily be seen as trend graphs which are automatically generated by the templates. Data should be verified for soundness and to see if results are realistic compared to existing or expected results. For instance, a CPUE of 10 kg/fisher/hour is obviously too



high given the present conditions of MPAs in Southern Leyte. This level of CPUE is still a recovery target which may still take years to achieve.

The graphed results should be briefly summarized as a short narrative along with the automatically generated graphs. These should serve as the basis for making reports appropriate for the identified audiences.

3-4. Distribute data & results to provincial database

Electronic copies of the filled templates with the brief narrative of results should then be submitted by the MAO to the PCFRMO to form part of the provincial database. The DENR and BFAR may also ask for electronic copies of the data for the regional database.

3-5. Archiving of processed data & provincial synthesis

Processed data submitted by municipalities should be entered into a provincial database. The provincial database should also have a summary of data from all MPAs within the province. If GIS facilities are available, MPA data could be used to produce thematic maps which can be used for enhancing MPA management effectiveness to achieve provincial socio-economic and environmental goals. Inputs may also be needed from DENR and BFAR for harmonization with regional and national goals.

Step 4. Reporting Results to Stakeholders

4-1. Create reports appropriate for target audience

Sample report formats for communities used in the pilot assessments include a table of indicator summaries with corresponding recommendations; a table consisting of three columns for findings, analysis and recommendations; and posters. Powerpoint presentations with short movies were also very useful for the communities provided they are made in the dialect and summed up in a simplified manner. A more comprehensive and in-depth State of the MPA Report is perceived to be useful to politicians and for government reports. Media reports for both the print and broadcast media are also advocated for wider dissemination. This task is to be led by the MAO but assistance from the PCFRMO may be solicited. Moreover, posters posted in the barangay were also found useful for reference during planning and for educating other members of the community.

Sample Report
Format 1:

SUMMARY and RECOMMENDATIONS
(Ambao, Hinundayan, Southern Leyte)

Indicators	Summary	Recommendations
BIOPHYSICAL Abundance of commercially important species	-The populations of the indicator species (surgeon fish, damselfish, and parrot fish) were higher inside than outside the MPA. -Compliance to the no-fishing policy inside the MPA is reflected in the presence of the target species inside the MPA only. . .	Inclusion of more target fishes should be considered. Local knowledge of the seasonality of these fishes should also be put into consideration during the period of assessment. Time of conduct should be consistent thru the years to avoid additional variables affecting the abundance. . .

Sample Report
Format 2:

ASSESSMENT OF BILIBOL FISH SANCTUARY

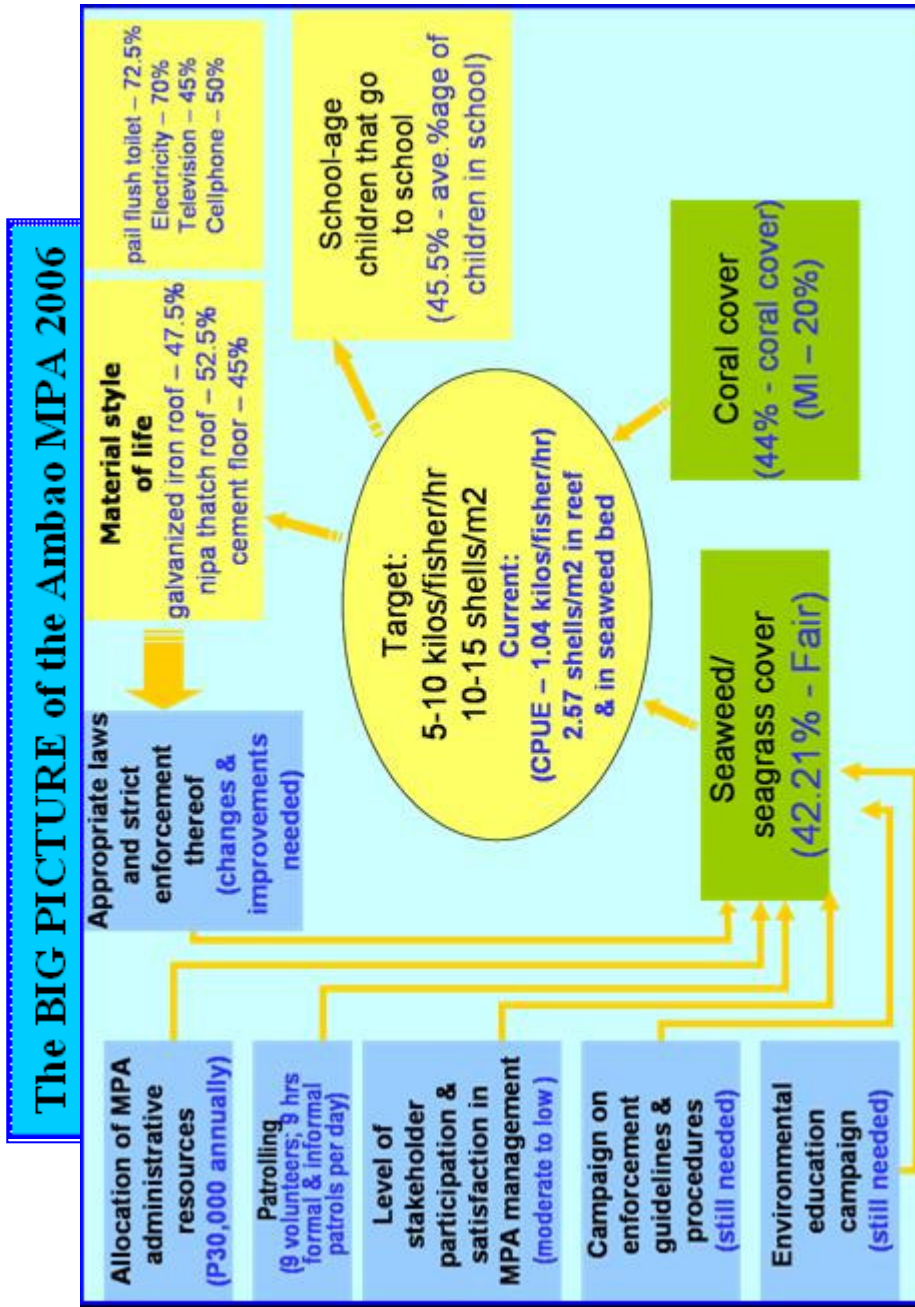
Findings (Nasuta)	Analysis (Kahulugan)	Recommendations (Mga Sugyot)
BIOPHYSICAL RESULTS Coral Reef <i>(Inside the sanctuary)</i> <ul style="list-style-type: none"> • Live Coral cover - 37.50% • Hard - 26% • Soft - 11.50% • Dead Coral - 2.50% • Mortality Index- 6.25% . .	<ul style="list-style-type: none"> • The coral cover inside and outside the sanctuary is FAIR. • Coral cover is lower inside than outside the sanctuary . .	<ul style="list-style-type: none"> • Improve the management of the sanctuary • Patrolling should be done night and day to prevent illegal fishing that destroys the corals. . . .

Sample Report Format 3: (Poster Presentation)


NAKAB-UT BA NATO ANG MGA TUMONG SA ATONG STO. ROSARIO FISH SANCTUARY?
Kahimtang sa Pagdumala — Kahimtang sa Rekurso — Kahimtang sa Kinabuhi

This poster looks overloaded with information but has been found to be useful for posting in the barangay where it can be used to inform community members who seldom or don't attend meetings or for planning purposes.

Sample Report Format 4:



Sample Report Format 5:



The
State of the
Ambao Fish
Sanctuary Report
2006

In the mid-part of 1999, personnel from the Office of the Provincial Agriculturist of Southern Leyte came to visit the Office of the Municipal Agriculture Services (OMAS) informing them that BFAR Tacloban was establishing Marine Protected Areas (MPAs) region wide, and that Hinundayan was identified with two possible sites for Fish Sanctuaries. The idea was presented to the Local Chief Executive and some SB members particularly the Committee on Agriculture and Fisheries. After due deliberation, the municipal officials accepted the program as it could greatly help in rehabilitating the

local fishery resources. The local officials have noted that fish catch of local fishermen has been decreasing due to damaged marine ecosystems resulting from the use of destructive and illegal fishing methods. The proposal seemed to provide a ray of hope for rehabilitation.

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4-2. Present results & validate findings with communities

Presentation of results should be followed by validation by the communities. This is also a good time to ask the communities what would be realistic targets for fish and shellfish catch based on historical information from the area.

4-3. Ask communities to identify outstanding improvements and small successes

Validation should be followed by a workshop in which the communities are asked to enumerate the outstanding improvements and small successes they can recall from the presentations towards achievement of their MPA goals. These outstanding improvements and small successes need to be highlighted to serve as an incentive to active community members and a come-on to indifferent ones.

4-4. Ask communities to develop recommendations towards better attainment of MPA goals based on evaluation results & province wide analysis & synthesis

Looking at the big picture of their MPA status, communities are subsequently asked to analyze and articulate what changes, further actions and recommendations they still need to do in order to achieve their goals. In this task, the barangay/communities perform the lead role with guidance and documentation by the MAO and the PCFRMO.

Step 5. Adapting Management

5-1. Use recommendations to improve or change management strategies, actions or plans

The changes, further actions and recommendations made by the communities from the previous step will serve as the basis for an adaptive management meeting by the management committee. Guidance will be provided by the MAO and PCFRMO but effort should be exerted to elicit ideas for enhancing MPA management effectiveness from the communities. Sample adaptations *vis-à-vis* community recommendations from a pilot site (Ambao, Hinundayan) are shown below:

ADAPTATIONS *vis-à-vis* RECOMMENDATIONS

Recommendations	Adaptations/Changes made
<p>1. Discussion on how to more systematically manage records for the MPA.</p>	<p>Records system was established starting first month of year 2007. Separate log books for:</p> <ul style="list-style-type: none"> • Patrol/Surveillance Records • Apprehensions/Sanctions Records • Accounting Record (Simple Recording of MPA Budget, Income & Expenses) • MPA Activities
<p>2. Encourage the community to participate more in the MPA activities and support the MPA.</p>	<p>Re-organization of a Fish Sanctuary(FS) Management Committee</p> <p>The Barangay Council with the barangay employees (Barangay Tanod, Bantay , Dagat, Barangay Health Workers, Brgy. Secretary & Treasurer during their special meeting on January 10, 2007 updated the FS Management Plan and identified representatives to compose the FS Management Committee.</p> <p>The Fish Sanctuary Management Committee shall be composed of the following:</p> <ol style="list-style-type: none"> 1. The Barangay Chairman 2. Kagawad Chairman Committee on Agriculture & Fisheries

	<ol style="list-style-type: none"> 3. MFLET Members (1-BFARMC Chairman; 2-Brgy. Tanod) from the barangay or Members of the Peace & Order Committee (2) 4. Bantay Dagat 5. Purok Leaders (5) 6. OMAS Representative (1) <p>Mandate for the creation of Fish Sanctuary Management Committee shall be provided for in the Barangay Ordinance on Fish Sanctuary which is now in the process of being amended to suit present situations and adopt recommendations resulting from the assessment. However, while the ordinance is still being reviewed, the Barangay Chairman shall issue an Executive Order creating such Management Committee.</p>
<ol style="list-style-type: none"> 3. More IEC campaign for the community. 	<p>Amendment of Fish Sanctuary Ordinance</p>
<ol style="list-style-type: none"> 4. More discussions on how to deal with armed poachers from Surigao. 	<p>The Barangay Council reviewed the FS Ordinance in November 2006 thru its Committee on Legislations. An amendment workshop was scheduled on February 12, 2007.</p>
<ol style="list-style-type: none"> 5. Review of violation cases and seek legal assistance from ELAC (coordinate with province) to resolve poor understanding of barangay managers on why only municipal laws are enforced but not the barangay ordinances when violators are turned over to the municipality. 	<p>The Office of the Municipal Agriculture Services (OMAS) has incorporated in the budget for 2007 allocations for:</p> <ol style="list-style-type: none"> 1. Assessment materials/paraphernalia like wet suit, slate board, etc. 2. 2nd Round Assessment – which includes food catering, fuel, etc. 3. Honoraria for community volunteers 4. Trainings 5. Procurement of marker buoys

5-2. Document changes & communicate to stakeholders

Whatever changes and revisions are made to the existing management plan should be documented by the MAO for future follow up. These changes should also be communicated to the stakeholders by the management committee as soon as possible. The PCFRMO should also document changes in provincial database. A sample revised MPA management plan from one of the pilot sites is shown below.

**Revised FISH SANCTUARY MANAGEMENT PLAN (Ambao & Sabang)
Year 2007**

PROBLEMS	OBJECTIVES	STRATEGIES	PERSON/AGENCY RESPONSIBLE (Lead/Support)	BUDGETARY REQUIREMENT
I. LACK OF SUPPORT				
Lack of support from Barangay Council in one FS	Strong & sustained policy-making.	Capability building program for concerned barangay council on fishery laws & regulations.	OMAS, CFRMU	P 3,000.00
Lack of support from the community	Strong & sustained implementation of Fish Sanctuary Laws	Involvement of PCs in the implementation. IEC on Fish Sanctuary & CFRM.	Management Committee, OMAS	P 5,000.00
Low incentives of Bantay Dagat	Adequate incentives/honorarium for Bantay Dagat (BDs)	Counter parting scheme between Barangay & Municipal LGUs.	Brgy. Councils, OMAS, SB, Budget Officer, LCE	P 6,000.00 (MLGU) P10,000.00 (B/LGU)
No Fish Sanctuary Management Committee	More committed Bantay Dagat or strong enforcement of FFS Ordinance	Executive Order by the Barangay Chairman creating the FS Management Committee	OMAS, Brgy. Councils	P70,000.00
No guard house	Create active FS management committee to plan, oversee & supervise FS activities & staff	Capacitate committee members thru capability building program, meetings & information-education programs.		
Frequent loss of marker buoys	Outpost of Bantay Dagat in monitoring/surveillance of FS	Construction of 1 concrete guard house per FS barangay	Mgt. Committee, Brgy. Councils, LGU, GTZ	P300,000.00
	Acquire durable markers placed in two(2) corners of FS	Procure stronger cable for four (4) plastic buoys/containers	Mgt. Committee, OMAS	P15,000.00
II. LAW ENFORCEMENT				
No designated police as point officer to assist Bantay Dagat in Fishery Laws Enforcement	To have a designated police officer fully supportive in fishery laws enforcement.	Lobby with the Chief of Police, make resolution-request for police designation on CFRM	MFARMC, OMAS, SB	-
FS encroachment (fishing and passageway)	Full enforcement of FS ordinance & other fishery laws	Community involvement in enforcement Proper coordination with BDs, PNP & MFLET, LGU	Mgt. Committee, Brgy. Council, Pos, PNP, MFLET, LGU	P10,000.00
Inapplicable, ineffective and insufficiency of some provisions of Fish Sanctuary Ordinance	To improve and adapt an effective FS Ordinance (incorporating adaptive measures based on suggested recommendations after the assessment)	BFARMC/Brgy. Council workshops to repeal, amend, propose and approve FS ordinance, public hearings, submission to SB, enforcement & monitoring/evaluation of FS ordinance	Committee on Legislations, B/MFARMC, Brgy. Council, OMAS, SB	P 5,000.00
Patrol records, apprehensions/settlement & accounting records on MPA are not organized	To establish records system on FS matters to obtain more accurate data.	Establish separate records on patrols, apprehensions & settlements, simple accounting (budget, income/expenses)	OMAS, Brgy. Council	P 600.00
III. COMMUNITY AWARENESS				
Lack of community awareness/advocacy (municipal wide)	More effective and increased awareness of the community.	IEC thru general assemblies, meetings, video showing, media, provision of information materials.	OMAS, NGOs, Academe, CFRMU))) P 30,000.00
Lack of cooperation among people	More participation of people in CFRM	Involve purok leaders in FS management as role models of their members	Mgt. Committee, Brgy. Council, OMAS)))
Lack of tourism development techniques	Well established community-based environment-friendly eco-tourism program for livelihood	Seek technical advises/assistance	OMAS, CFRMU, GTZ) P20,000.00)
IV. FACILITIES/EQUIPMENTS				
No searchlights, handheld radios, GPS, camera & binoculars for effective law enforcement.	Acquire searchlights, handheld radios, GPS, camera, binoculars	Fund sourcing/ Project Proposal to funding institutions/agencies Procurement Coordinate municipal government for the use of available search lights, life jackets, etc.	OMAS, LGU, Brgy. Council, Mgt. Committee, GTZ	P75,000.00
V. MONITORING/ EVALUATION				
No funding for the conduct of regular assessment	To sustain regular conduct of monitoring and evaluation in order to see impacts and effectiveness of MPA program.	Close coordination with the M/LGU to provide funding for the M/E	Mgt. Committee, Brgy. Council, OMAS))) P50,000.00
	Conduct of regular assessment in two (2) FS barangays: Ambao - April 2007 Sabang - September 2007	Coordinate SouLMaET and community volunteers.	OMAS, Mgt. Committee, SouLMaET))) for 2 barangays)
Note: Italicized entries = Changes Made for Adaptive Management				
Updated by the Barangay Council:			Submitted by:	
JACINTO P. TAG OCTOC Barangay Chairman- Ambao	BARTOLOME BU GAIS Barangay Chairman- Sabang	NARCISA L. ANTIPALA MAO/MA-Designate		
APPROVED:				
JOEL C. MOLINA Municipal Mayor				

5-3. Follow up on implementation of changes made & other recommendations that may not have been addressed

The MAO should keep track of management changes and see to it that all recommendations are somehow addressed. In the adaptive management process, some of the recommendations may only be broadly or may not be addressed at all due to limitations of the management committee. In such cases, it should be the task of the MAO to guide (but not dictate!) the management committee.



5-4. Change indicators or methods if needed in succeeding years

In the course of annual evaluations, some activities may need to be changed or new problems may arise. This may call for scrapping or addition of some indicators. If the MAO has not developed the flexibility in working with Microsoft Excel when this need arises, assistance from the PCFRMO or from the academe may be sought.



It actually worked!!!

ESSENTIAL ELEMENTS IN ESTABLISHING, INSTITUTIONALIZING AND SUSTAINING A PROVINCIAL SYSTEM OF MPA M & E

1. External support/catalysts (technical and financial).
2. Buy-in of LGUs at provincial, city/municipal and barangay levels.
3. Buy-in of government agencies involved with MPAs (DENR and BFAR).
4. Accessibility of experts through legal partnership instruments (MOAs, etc.).
5. Training of a multi-agency core group on the MPA M&E framework, process and core indicators.
6. Strengthening of the provincial core group through further trainings (ICM, conflict resolution, database management, etc.).
7. A core set of indicators to allow for province wide analysis. These core indicators can be complemented by additional optional indicators as requested and valued by the community.
8. Simplification of the M&E process by developing templates for data encoding and analysis and trend graphs that facilitate visual presentation and reporting of results.
9. Clear definition of responsibilities and cost-sharing mechanisms under the nested system of MPA governance (province, city/municipality, barangay).
10. Incorporation of MPA M & E in an amendment to the local ordinance creating the MPA.
11. Incorporation of MPA M & E in the regular CRM activities of the nested system, with regular funding support.
12. Objective set of criteria for prioritizing assistance to other MPAs in the province.
13. Transparency and community ownership in all aspects of MPA project implementation.
14. Recognition of achievements of trained composite team (SouLMaET) and community volunteers.
15. Strengthening of networking, collaboration and fund-sourcing for specific needs.
16. Analysis of socio-economic and politico-cultural processes and impacts affecting MPAs and the broader environment.
17. Mobilization of support from media and the private sector (eg. local companies).

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A teal-colored graphic with a white notch at the top, resembling a CD-ROM jewel case. The text "accompanying CD-ROM" is centered within the teal area.

accompanying
CD-ROM

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