7 YEARS & 4 SEAS

OUR QUEST FOR SUSTAINABLE FISHERIES

USAID
FROM THE AMERICAN PEOPLE

a special end-of-project report to partners

on the implementation of the Fisheries Improved for Sustainable Harvest (FISH) Project in Coron Bay, Danajon Bank, Lanuza Bay and Tawi-Tawi Bay, Philippines, 2003-2010

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Contents

PART 1: The FISH Project Story

List of Tables & Figures iii

Acronyms & Abbreviations iv

Preface vi

To Our Partners vii

Project Highlights x

CHAPTER 1: The Slow Boat to Sustainable Fisheries *(FISH Project rationale & relevance)* 3

- The long quest for a solution 4
- Rise of integrated coastal management 5
- Emerging fishing regime 7
- Our sustainable fisheries objective 8

CHAPTER 2: Plan of Action *(Strategies for Project implementation)* 10

- Developing a strategic focus 10
- Spelling out our strategy 12

CHAPTER 3:-Local Implementation *(Promoting sustainable fisheries at the municipal & community level)* 17

- Finding our baseline 17
- Setting our plan in motion 20
- Tackling illegal fishing 24
- Banking on MPAs 31
- Confronting overfishing 33
- Fostering collaboration 39
- Catalyzing behavior change 44
- Milestones & outcomes 51

CHAPTER 4: National Implementation *(Promoting national fisheries reform)* 66

- Retrofitting fisheries policy 66
- Building up support for fisheries reform 76
- Milestones & outcomes 79

CHAPTER 5: The Sustainability Challenge *(Recommendations for program sustainability)* 86

- Remaining gaps 90
- Looking ahead 93
  - Institutional support systems 96

Scaling up management 98
A hopeful outlook 99
Works Cited 100
Appendices
1- Proposed template for the development of a municipal fisheries management benchmarking system in the Philippines 104
2- Municipal/City benchmarks for the 3 levels of CRM.....115
3- Project Staff 122

PART 2: In Focus

CORON BAY, CALAMIANES, PALAWAN: Keeping focus on fisheries management.....127
DANAJON BANK, BOHOL, LEYTE & SOUTHERN LEYTE: Brighter prospects for a severely degraded fishery resource.....147
LANUZA BAY, SURIGAO DEL SUR: Banking on a strategic alliance for sustainable fisheries.....183
TAWI-TAWI BAY, TAWI-TAWI: Building governance for sustainable fisheries.....207

List of Tables & Figures

Tables

2.1. Small fishers' views on coastal issues 11
2.2. FISH Project focal and expansion areas 12
2.3. Characteristics of the FISH Project approach adapted from CRMP.....13
3.1. Baseline assessment procedures used by the FISH Project.....18
3.1.1. Criteria for selection of MPAs.....18
3.2. Estimates of average demersal stock biomass from trawl survey in Danajon Bank compared to other fishing grounds in the Philippines.....19
3.3. Competencies gained by CRM units from FISH Project interventions (based on a capacity review conducted by the Project in 2009).....53
3.4. Capacity scores of FISH-assisted LGUs relative to coordinating and implementing 10 basic CRM functions based on a capacity review conducted by the Project in 2009 53
3.5. Capacity scores of FISH-assisted LGUs relative to access to external sources of support after FISH Project completion based on a capacity review conducted by the Project in 2009 58
4.1. Important Philippine policies relevant to EAF existing at the start of the FISH Project 68
4.2. Criteria used in the selection of priority policy actions to be supported by the FISH Project 70
4.3. Salient features of the Comprehensive National Fisheries Industry Development Plan 73
4.4. Salient features of draft National Plan of Action to Prevent, Deter and Eliminate Illegal, Unregulated and Unreported Fishing 74
4.5. Policy documents and studies supported by the FISH Project (as of end-2009) 80
4.6. Concepts and principles guiding the Comprehensive National Fisheries Industry Development Plan 82
4.7. Resolutions adopted at the 2nd Conference of Coastal Municipalities in the Philippines 84

Figures

1.1. Five-phase CRM process adopted for Philippine local government units 6
2.1. FISH Project operational framework.....14
3.1. FISH Project planning and implementation process in focal areas 21
3.2. Average LGU budget for CRM in the FISH Project sites, 2004-2010.....54

Acronyms & Abbreviations

AFMA	Agriculture and Fisheries Modernization Act
ANC	ABS-CBN News Channel
APREDEC	Advocacy for Policy Reform and Development of Caraga, Inc.
ARMM	Autonomous Region in Muslim Mindanao
ASEAN	Association of Southeast Asian Nations
BEMO	Bohol Environment Management Office
CCEF	Coastal Conservation and Education Foundation
CELEBOSOLE	Cebu-Leyte-Bohol-Southern Leyte alliance
CLEC	Coastal Law Enforcement Council
CNFIDP	Comprehensive National Fisheries Industry Development Plan
CPUE	catch per unit effort
CRM	coastal resource management
CRMP	Coastal Resource Management Project
CSO	civil society organizations
CTI	Coral Triangle Initiative
DA	Department of Agriculture
DA-BFAR	Department of Agriculture-Bureau of Fisheries and Aquatic Resources
DAO	Department Administrative Order
DENR	Department of Environment and Natural Resources
DILG	Department of the Interior and Local Government
DOJ	Department of Justice
DOTC	Department of Transportation and Communication
EAF	ecosystem approach to fisheries
EBFM	ecosystem-based fisheries management
ECSFM	Executive Course on Sustainable Fisheries Management
EEZ	exclusive economic zone
ELAC	Environmental Legal Assistance Center
EO	Executive Order
FAO	Fisheries Administrative Order
FARMC	fisheries and aquatic resources management council
FISH Project	Fisheries Improved for Sustainable Harvest Project
FMU	fisheries management unit
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit GmbH (German Society for Technical Cooperation)
ha	hectare
HB	House Bill
ICM	integrated coastal management
IEC	information, education and communication
IUU	illegal, unregulated and unreported fishing
kg	kilogram
km^2	square kilometer
LBDA	Lanuza Bay Development Alliance
LGC	Local Government Code
LGU	local government unit
LMP	League of Municipalities of the Philippines
M&E	monitoring and evaluation
MAFO	Municipal Agriculture and Fisheries Office
MARINA	Maritime Industry Authority
MCS	monitoring, control and surveillance
MDC	Mayors Development Center
MENRO	municipal environment and natural resources office

MFARMC	municipal fisheries and aquatic resources management council
MOA	memorandum of agreement
MOREFISH	Movement for Responsible Fisheries
MOU	memorandum of understanding
MPA	marine protected area
NALECC	National Law Enforcement Coordinating Council
NAMRIA	National Mapping and Resource Information Authority
NAPC	National Anti-Poverty Commission
NFRDI	National Fisheries Research and Development Institute
NGA	national government agency
NGO	non-governmental organization
NHK	Japan International Broadcasting Inc.
NIPAS	National Integrated Protected Areas System
No.	Number
NPOA	National Plan of Action
NPOA-IUU	National Plan of Action to Prevent, Deter and Eliminate Illegal, Unregulated and Unreported Fishing
NSAP	National Stock Assessment Project
NTC	National Telecommunications Commission
P3DM	participatory 3-dimensional modeling
PAMB	Protected Area Management Board
PAWB	Protected Areas and Wildlife Bureau
PCG	Philippine Coast Guard
PCLET	Provincial Coastal Law Enforcement Team
PCRA	participatory coastal resource assessment
PCSD	Palawan Council for Sustainable Development
PEDO	Police Environment Desk Officer
PFARO	Provincial Fisheries and Aquatic Resources Office
PNP	Philippine National Police
PO	people's organization
PSF	Project Seahorse Foundation for Marine Conservation
RA	Republic Act
REECS	Resources, Environment and Economics Center for Studies, Inc.
SAF	Special Activities Fund
SCIPG	Supreme Council for Islamic Preaching and Guidance
SFMEP	Sub-committee on Fisheries and Marine Environmental Protection
SO	strategic objective
SOW	Statement of Work
SPSC	Surigao del Sur Polytechnic State College
sq km	square kilometer
SRA	Social Reform Agenda
t	ton
TAC	total allowable catch
TWG	technical working group
UN	United Nations
UN-FAO	United Nations Food and Agriculture Organization
UPVFI	University of the Philippines in the Visayas Foundation, Inc.
USAID	United States Agency for International Development

Preface

The 7-year Fisheries Improved for Sustainable Harvest (FISH) Project (2003-2010) provided technical assistance and training to coastal communities, local government units, non-governmental organizations and assisting national government agencies to promote sustainable fisheries in four critical marine ecosystems in the Philippines: the Calamianes Group of Islands in northern Palawan; Danajon Bank in Central Visayas; Mindanao's Sulu Archipelago with particular focus on Tawi-Tawi; and Mindanao's Pacific seaboard in Surigao del Sur.

It was funded by the United States Agency for International Development and implemented by the Government of the Philippines' Department of Agriculture-Bureau of Fisheries and Aquatic Resources, in collaboration with the Department of Environment and Natural Resources, Department of the Interior and Local Government, other national government agencies, local government units, non-governmental organizations, and people's organizations.

Project management and technical support was provided by Tetra Tech EM, Inc.

This report chronicles the FISH Project implementation, providing highlights of key challenges, successes and lessons learned over its 7 years of implementation, and recommendations for future initiatives toward sustainable fisheries in the Philippines. It is presented in two parts: Part I provides insights into the rationale and relevance of the Project (Chapter 1), the Project approach and how this developed (Chapter 2), implementation challenges and accomplishments at the local and national levels (Chapters 3 and 4), and remaining gaps and recommendations for future directions (Chapter 5). Part 2 features special reports from the four Project sites.

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23 September 2010

To Our Partners

After 7 years of implementation, amid challenges and victories, the Fisheries Improved for Sustainable Harvest (FISH) Project is now completed. As we bid farewell, we take stock of our achievements and the lessons we learned from our quest to promote good fisheries governance in the Philippines through national policy reform and capacity building in our focal areas in Calamianes, Palawan; Danajon Bank, Bohol; Lanuza Bay, Surigao del Sur; and Tawi-Tawi Bay, Tawi-Tawi. In looking back, we hope to provide a clearer view of the way forward that all those who must carry on the cause can follow – our partners in government, non-governmental organizations, the academe and all stakeholder communities, the countless courageous and committed individuals who believe and endeavor to prove that sustainable and responsible fisheries can happen in our country.

The debate about the state of our fishery resources is over. There is now no question that the seas surrounding the Philippine archipelago are to say the least a stressed ecosystem. The figures are compelling and can no longer be dismissed: The biomass of currently fished demersal stocks has declined to about 30% of its original levels in the 1940s (Silvestre and Pauly, 1986). Available data also indicate that small pelagics are biologically and economically overfished – effort level in the mid-1980s was already more than twice the level necessary to harvest maximum sustainable yield (Dalzell, et al, 1987).

Catch rates of commercial ring netters fell from a peak of about 11 metric tons/HP/year in 1950 to less than 1 metric ton/HP/year in 2001 (BINU Project, 2005), while average catch rates of municipal fishers declined steadily, according to one estimate, from 20kg/day in the 1970s to about 2kg in the 1990s (CRMP, 1998; Katon, et al, 1998). Meanwhile, from the mid-1960s to 1995 when marine fish harvest was at its highest in Central Visayas, annual average trophic level declined noticeably, indicating a significant level of "fishing down the food chain". (Green, et al, 2004)

Such declines are directly attributable not only to overfishing but also to the destruction of habitats due to a variety of reasons not limited to destructive fishing. A large portion of Philippine coral reefs – up to 95% by some estimates – has been subjected to serious degradation which has reduced their productivity (Yap and Gomez, 1985). Total mangrove cover has shrunk to a fraction of its size 50 years ago (White and Trinidad, 1998), while seagrass communities have come under severe pressure from the combined effects of natural calamities, aquaculture, deforestation, siltation and destructive fishing methods (Fortes, 1989).

The question for us when we started was not whether there was a fish crisis but how should we go about addressing the situation. The Philippine fisheries situation is not unique in that it reflects a global trend of fisheries decline and coastal habitat destruction. But it presents a uniquely daunting challenge because of what it means to a big, mostly impoverished, section of our society (it is, literally, a "gut" issue, and an issue of social equity), and because of what it represents to the rest of the world (the risk of losing what has been acknowledged as the richest tropical marine biodiversity in the world, the "center of the center of marine shore fish diversity"). (Carpenter and Springer, 2005)

Increasing awareness of the degradation of our marine resources has shifted the focus of government and other programs from fisheries development to coastal management. The latter half of the last century was marked by the rapid evolution of coastal management from being mainly centralized/top-down through community-based to most recently local government-driven. This coincided with key policy developments that devolved the responsibility for managing coastal areas and resources to the lowest level of government. It signified the growing recognition, borne out of experience, that while management is most effective when carried out close to the resources used, there remains a need for integration to address the many facets of our coastal environment problem.

When the design for the FISH Project was developed in 2003, the Philippines had already scored significant gains in coastal management. Public awareness of the coastal crisis was at an all-time high. There was a critical mass that supported the advocacy for coastal management and the adoption of integrated coastal management as a basic service by local government. With assistance from various sources, local governments had begun to slowly build their capabilities and allocate resources to address broad coastal issues related to habitat destruction and resource degradation, primarily through marine protected areas and law enforcement.

The FISH Project's mission was to build on this capacity-building effort. Banking on the spreading national acceptance of integrated coastal management as an essential development strategy, we sought to establish a policy environment and governance system based on coastal resource management conducive to the promotion of sustainable fishing practices particularly in municipal waters. Our success would be reckoned by how well the various fisheries stakeholders could identify with and become more capable of continuing the still daunting journey toward a single vision of sustainable and responsible fisheries.

The rise of the Philippine peso against the US dollar mid-way through Project implementation presented a special challenge. The Project had a fixed funding denominated in US dollar; any depreciation of the US dollar against the

peso meant less overall funding for implementation in peso terms, and required reevaluation and adjustment of our plans and activities. On a number of occasions, we had to scale down our own expectations of what could be realistically achieved during the Project's life. We were fortunate that our partners especially in the local government were willing to take up the slack during those times when Project support for some activities had to be reduced in line with our frequently revised budget. Their commitment to the cause was encouraging, because while the Project could lay the groundwork, it is *them*, not the Project, who will have to confront the fish crisis for the long haul.

The FISH Project experience underscored only too well the difficulty of the journey that still lies ahead. But it also demonstrated that solutions are available and with enough political will can be implemented successfully. Inaction is no longer an acceptable option -- as uncertain as we are about the full extent of our fish crisis, we know without question that with our economic survival hanging in the balance, we can no longer put off cracking on overfishing and the many other unsustainable practices that continue to decimate our fishing grounds.

This report is a tribute to all our partners, especially the many champions among them who have made the safeguarding of our vital fishery resources their life's work. We hope it will also serve as a guiding light and map to a future where sustainable and responsible fisheries are the norm rather than the exception, the primary consideration rather than merely an afterthought.

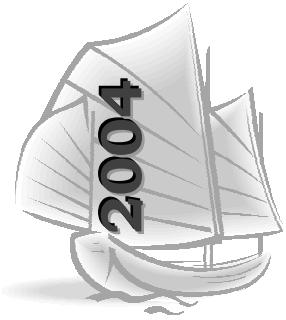
Project Highlights

Site visits to target areas; project resources and field coordinators mobilized

Project work plans, performance monitoring and baseline assessment technical guidance system developed

Memorandum of agreement between the DA-BFAR, DILG and USAID drafted

Project launched in Manila, with key partners in attendance



Courtesy calls and orientation meetings with national government agencies, local government executives, NGOs, and other assisting organizations to introduce the Project and identify key coastal management and fishery issues and concerns

Field offices established in 4 focal areas covering 16 Philippine municipalities in 4 provinces and 4 regions

Project web site launched at *http://oneocean.org*

Baseline assessments conducted

9 coastal and fisheries law enforcement units organized and strengthened (year's target: 2)

Memorandums of agreement signed with local government units in the Project's 4 focal areas, committing resources and budget to coastal resource management

Memorandum of agreement with the Provincial Government of Bohol signed to promote collaboration between the Province and FISH Project in promoting sustainable fisheries in Danajon Bank

15 training workshops conducted across the focal areas, including basic fisheries management, marine protected area establishment and management, and basic coastal law enforcement; year's target (12 workshops) exceeded

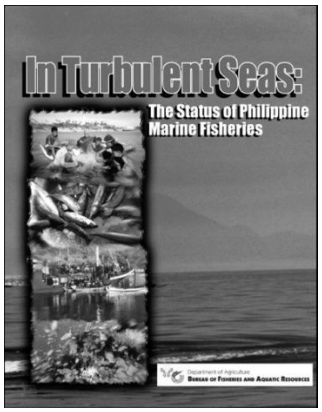
10 marine protected areas covering 475 hectares established or strengthened

"Mushawarah" (consultations) with Islamic religious leaders conducted to draw up an Islamic perspective on environmental protection through a *fatwa*

National policy issuances, including the 1998 Fisheries Code, reviewed, focusing on revisions or amendments consistent with international agreements and instruments to which the Philippines is a signatory

Policy study conducted to develop commercial and municipal fisheries registration and licensing frameworks for the Philippines

Process of development and formulation of the Comprehensive National Fisheries Industry Development Plan started



In Turbulent Seas: The Status of the Philippine Marine Fisheries launched, highlighted by the issuance of an expert consensus statement on the state of Philippine fisheries

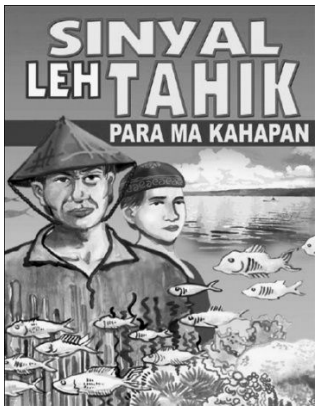
Media forums organized to spur support for fisheries management at the national level

Policy forums conducted to discuss the development of a licensing framework for commercial and municipal fishing, status of work on the National Stock Assessment Project, and the National Plan of Action on Illegal, Unregulated and Unreported Fishing

Philippine marine fisheries situation report presented to the 14th Conference of the League of Municipalities of the Philippines

Workshops and consultations conducted to formulate the implementing guidelines for Executive Order No. 305, which devolves the registration of municipal fishing boats to city and municipal governments

Four language versions (Cebuano, Sama, Tausug and Tagalog) of selected print materials produced



DA-BFAR and the National Fisheries Research and Development Institute assisted in the evaluation of National Stock Assessment Project reports from 15 regional components across the country

Agreements signed with the PNP, Philippine Coast Guard and the non-governmental organization Coastal Conservation and Education Foundation on specific concerns such as coastal law enforcement, marine protected areas and fisheries management

Database system developed to support fisheries profiling and overall Project administration and management

Project site briefs produced and disseminated

Information-education-communication workshops conducted in Project sites to determine key messages and activities

Baseline assessments completed; results presented to stakeholders

Fisheries profiling initiated

Coastal resource management plans drafted for 3 municipalities in Danajon Bank and 3 municipalities in Tawi-Tawi; planning process initiated in Calamianes Islands

Inter-local government collaboration arrangements initiated: in Danajon Bank, executive order signed creating a technical working group for inter-municipality fisheries management planning; in Lanuza Bay, operational framework of the Lanuza Bay Development Alliance and its inter-local government environmental management framework plan reviewed; in Calamianes, consensus among stakeholders developed on a Calamian-wide integrated coastal and fisheries management plan

Study conducted on policy options for the management of the live food fish industry in Calamianes

Early fisheries management actions initiated: in Danajon, closed season for siganid and regulation of collection of berried blue crabs proposed; in Lanuza Bay, an ordinance banning the use of compressor in fishing deliberated on

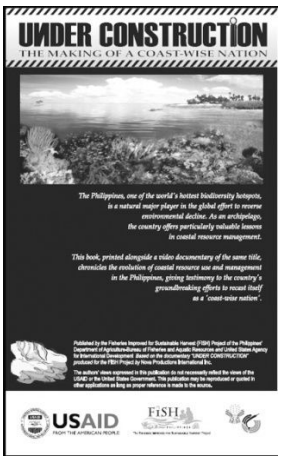
17 new marine protected areas assisted in Calamianes, Lanuza Bay and Tawi-Tawi; existing marine protected areas strengthened in Danajon Bank through the formulation of management plans, installation of buoys to mark boundaries, and the organization of special enforcement teams

4 new municipal coastal law enforcement units organized and strengthened, bringing the total number of teams to 13 (year's target: 13)

Reproductive health component mobilized, engaging 10 *barangays* in 4 municipalities

Private sector engaged in fisheries management: 5 private sector partners awarded grants through the Special Activities Fund, namely Hayuma Foundation (Calamianes), Islahanon Andam Magdumala Nan Kinaiyahan (Lanuza Bay), Nagkahiusang Managatay Alang sa Kalambuan Nan Ayoke (Lanuza Bay), and Caglayag-Baybay-Embarcadero-Doyos-Saca Fisherfolks Multi-purpose Cooperative (Lanuza Bay)

Consultations conducted on proposal to establish an interpretive center in each of the focal areas; ordinance officially signifying local commitment to support the interpretive center adopted by the municipality of Talibon in Danajon Bank



Production of documentary *Under Construction: The Making of a Coast-wise Nation* completed; documentary released in DVD format and made available on the FISH Project web site at *http://oneocean.org*

Various information-education-communication materials produced to deliver the Project's key messages on specific themes such as marine protected areas, municipal fisheries licensing and registration, and overfishing

Training materials developed, covering basic fisheries resource management, municipal coastal resource management and planning, marine protected areas and coastal law enforcement


JOEY GATUS, 2005

32 training activities conducted (year's target: 20)

34 information-education-communication activities conducted across the Project focal areas (year's target: 22)

Technical working group convened to draft the Comprehensive National Fisheries Industry Development Plan; components of plan drafted and presented to concerned stakeholders; complete draft presented to DA-BFAR officials

National Plan of Action on Illegal, Unregulated and Unreported Fishing completed and disseminated to relevant agencies

Technical review of 7 National Stock Assessment Project reports completed (Caraga, Honda Bay, Region III (Zambales), Region VI (Visayan Sea), Butuan Bay, Panguil Bay, and Yllana Bay/Sulu Sea)

Policy studies on licensing frameworks for commercial and municipal fishing completed

Fisheries administrative orders drafted on registration and licensing of commercial and municipal capture fisheries

Final consultations conducted on study on alternative policy options for the management of the live food fish trade in Palawan

Partnerships established with various organizations: in Calamianes, with Palawan Council for Sustainable Development Staff, provincial government, and Saragpunta Foundation; in Lanuza Bay, with the North Mindanao Community Initiatives and Resources Management Project; and in Tawi-Tawi, with the Autonomous Region in Muslim Mindanao's Regional Economic and Development Planning Board, which issued a resolution endorsing the Project

FISH Project Consultative Group convened

Danajon Bank profile completed; technical and editorial review of the profiles of other focal areas started

Coastal resource management planning workshops conducted and municipal technical working groups for coastal resource management formed at municipal and inter-local government levels; 4 Danajon Bank municipal plans and 3 Tawi-Tawi municipal plans adopted by local legislation; *barangay* coastal resource management planning conducted in Calamianes to ensure that municipal coastal resource management plans were anchored on community-level inputs

Formulation of inter-local government fisheries management plans initiated in Calamianes, Danajon Bank and Lanuza Bay; draft plans completed in the 3 focal areas

Inter-local government team organized for catch-and-effort monitoring in Danajon Bank

Fishing effort restrictions measures advocated: Danajon Bank -- ordinances adopted declaring closed season for siganid and regulation of collection of berried blue crabs; Lanuza Bay -- preparatory activities conducted for a proposed closed season for siganid; Tawi-Tawi -- preparatory work initiated to implement community-based management of tropical abalone; Calamianes -- closed grouper season instituted by provincial ordinance

Implementation of fisheries registration and licensing system initiated

Integration of reproductive health in *barangay* development plans completed in 10 *barangays* in 4 focal areas; reproductive health and coastal resource management integrated in the youth sea camp program in Lanuza Bay

Partnership forged with Knowledge Channel and National Broadcasting Network to air over cable and free TV the FISH Project documentary *Under Construction*; audience reach expanded to Asia, USA and Canada through partnership with Living Asia Channel

Preparations for the operation of the Talibon interpretive center initiated; partnership forged with the DA-BFAR Regional Fisheries Training Center-Carmen, Cebu for the production of miniature fishing gear exhibits and the Foundation for Philippine Environment for the production of a relief model of Danajon Bank

Participatory 3D modeling workshop conducted to develop a relief map of Danajon Bank

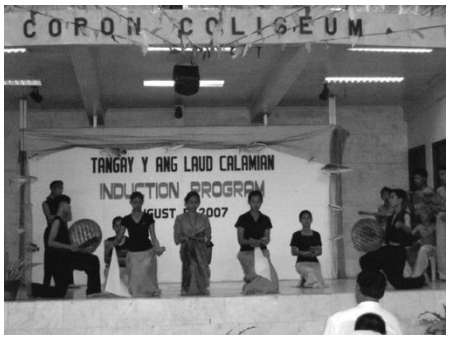
LESLIE TINAPAY, 2006

Corporate sponsorship secured for the large-format printing requirements of the Talibon interpretive center, the coverage of BFAR-7's Fish Conservation Week, and materials for mural painting activities in Danajon Bank

Information-education-communication support to focal areas intensified, promoting priority activities such as fisheries registration and licensing, marine protected areas, closed season for siganid, regulation of berried blue crabs, and overfishing

5 new NGOs and people's organizations engaged as Project partners: Environmental Legal Assistance Center, Palawan; Supreme Council for Islamic Preaching and Guidance; and Kasalamatan sin Raayat Lagasan Association, Tawi-Tawi; Advocates for Policy Reform and Development of Caraga and Capandan Multi-purpose Cooperative, Lanuza Bay

12 projects supported under the Special Activities Fund; 3 new grants awarded to the Advocates for Policy Reform and Development of Caraga and Capandan Multi-purpose Cooperative in Lanuza Bay, and Tawi-Tawi Marine Research and Development Foundation, Inc. in Tawi-Tawi; 4 grant agreements completed with the Environmental Legal Assistance Center (Danajon Bank), Hayuma Foundation (Calamianes), Project Seahorse Foundation (Danajon Bank) and Supreme Council for Islamic Preaching and Guidance (Tawi-Tawi)



Tangay 'Y ang Laud Calamianes (Friends of the Calamian Sea) movement organized in Calamianes

26 information-education-communication materials and activities completed (year's target: 12)

21 training courses (target: 16) conducted, with cross visits/study tours comprising a major activity, as well as community-level coastal law enforcement, organizational development/teambuilding for POs, registration and licensing, and species-specific management

FISH on the Net: Marine-themed Flash movies launched at *http://oneocean.org*

Training and capacity-building materials developed

Final draft of the Comprehensive National Fisheries Industry Development Plan submitted to DA-BFAR

Draft fisheries administrative orders on municipal and commercial fisheries licensing submitted to DA-BFAR

Draft priority amendments to 1998 Fisheries Code completed

National technical working group formed to draw up and recommend project implementation thrusts and directions

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Tangay 'Y ang Laud Calamianes (Friends of the Calamian Sea) launched, with US Ambassador Kristie Kenney as special guest

Weekly one-hour radio program in Lanuza Bay called "FISH Forum", broadcast live in Tandag and Cantilan in collaboration with the Advocates for Policy Reform and Development for Caraga, Inc.

Advocacy jingle "Isda" aired over DZVT in Mindoro to serve the Calamianes constituency

Assistance to focal area municipalities continued to formulate and adopt coastal resource management plans, strengthen and monitor marine protected areas and marine protected area networks, install fisheries registration and licensing, provide law enforcement training, strengthen inter-local government cooperation, and support other Project-assisted activities

Technical assistance provided to formulate regulations toward species-specific management, such as community-based management of abalone and sea cucumber in Tawi-Tawi, and closed season for siganid in Danajon Bank and Lanuza Bay

Reproductive health component completed, turned over to concerned LGUs

6 new SAF-supported project proposals approved: Uba Fishermen's Association and Adlay Multi-purpose Cooperative (Lanuza Bay), Advocacy for Resource Management and Environmental Governance (Tawi-Tawi), Talibon Credit Cooperative (Danajon Bank), and Balisungan Minorities Multi-purpose Cooperative and Busuanga Employees Multipurpose Cooperative (Calamianes)

Roundtable discussion on the coastal resource management certification process facilitated with the Bohol Environment Management Office and DENR, following the focal area municipalities' expression of interest in applying for certification

Various strategic points explored for stronger inter-local government cooperation and the eventual expansion of activities in the Project target areas: the Danajon Marine Protected Area Network and the Cebu-Leyte-Bohol-Southern Leyte-Leyte proposed alliance in Danajon Bank, the Lanuza Bay Development Alliance and Provincial Fisheries and Aquatic Resources Office in Lanuza Bay, the Calamianes Marine Protected Area Network in Calamianes, and the Tawi-Tawi Bay Fish Sanctuary Alliance in Tawi-Tawi

Public service plugs on illegal fishing developed and broadcast over radio

ASUNCION SIA, 2008

Fatwa on marine environmental protection and management popularized

Advocacy activities pursued with members of the Catholic clergy in the Archdioceses of Cebu and Bohol

"Fishes Feed Us" blog, a project of the New York-based Art and Science Collaborations, Inc. which sought to bring to international attention the youth's perspective on the state of fisheries and the marine environment, developed and posted at *http://oneocean.org*

6 (out of 11) Flash movies in the *FISH on the Net* series completed and disseminated through *http://oneocean.org*

Vernacular versions of information materials on marine sanctuaries, coral reefs, mangroves and seagrasses developed and disseminated

Workshops conducted with 15 regional National Stock Assessment Project teams on statistics, data treatment, re-analysis of surplus production and population modeling results, and partitioning and grouping of fishing grounds to establish fisheries management units

DA-BFAR and other relevant agencies assisted in developing and promoting appropriate policy instruments in support of the Comprehensive National Fisheries Industry Development Plan; relevant NGOs assisted in developing policy reform papers and conducting advocacy campaigns on the plan

National-level work initiated in preparation for the zoning of fishing areas in Project sites

Talibon interpretive center inaugurated, featuring "Save Danajon Bank" exhibits; workshops conducted to build local government capacity to manage the center

ASUNCION SIA, 2007

DA-BFAR-Fisheries Resources Management Division programs and projects refined consistent with the ecosystem approach to fisheries to support local governments' fisheries management initiatives

Ties with the League of Municipalities of the Philippines enhanced through a memorandum of agreement specifying some replication strategies

Training with DA-BFAR-Autonomous Region in Muslim Mindanao National Stock Assessment Project personnel on the collection and treatment of catch-and-effort data, estimation of population parameters, and application of stock assessment models for providing fisheries management intervention options

FISH Project initiatives and best practices presented at the Marine Protected Area Congress

Presentation materials on basic fisheries resource management developed for the NGOs for Fisheries Reform in connection with the initiative to mainstream fisheries management

Training materials on catch-and-effort monitoring prepared for key provincial and regional partners

41 information-education-communication materials and activities completed (year's target: 32)

29 training activities conducted (year's target: 16), covering marine protected area monitoring and planning, coastal law enforcement, marine protected area networks, registration and licensing, organizational development and teambuilding, and species-specific management

Preparatory work undertaken in parts of Leyte and Southern Leyte bounding Danajon Bank to lay groundwork for Project expansion

Monitoring and evaluation workshops conducted to measure progress of interventions against coastal resource management benchmarks and the Project results framework

Comprehensive municipal fisheries ordinances approved by 2 focal municipalities in Calamianes

Facilitated preparatory location filming by NHK (Japan International Broadcasting, Inc.) of the Asia-Pacific Broadcasting Union's *Voyage to the Future* Project

Anvil Award of Excellence given to FISH Project documentary *Under Construction*

ASUNCION SIA, 2008

Permission granted to Cambodian Fisheries Office for the translation of *Go Easy on the Sea* to Khmer

Draft of National Plan of Action on sharks and rays completed

Inter-local government memorandum of agreement signed adopting the Calamianes Integrated Fisheries Management Plan

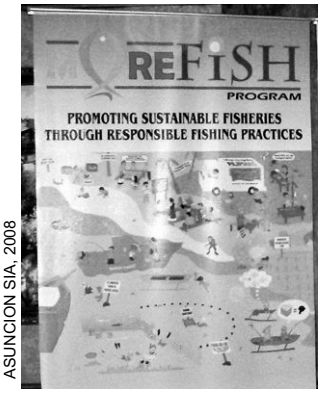
Memorandum of understanding signed in Surigao del Sur establishing the Provincial Coastal Law Enforcement Coordinating Council

Closed siganid season ordinance adopted in Calamianes

Efforts to promote inter-local government cooperation and Project expansion intensified: a fisheries summit was held in Calamianes and attended by officials from the Calamianes municipalities and Palawan provincial government; in Lanuza Bay, capacity building targeted the Provincial Fisheries and Aquatic Resources Office as a technical assistance provider in coastal resource management to Lanuza Bay municipalities; in Danajon Bank, the Project participated in consultation meetings that led to the signing of the Cebu-Leyte-Bohol-Southern Leyte memorandum of agreement.

Police Regional Office of Region 4B mobilized to establish physical presence in Calamianes and issue specific orders to the local PNP to enforce coastal and fisheries laws alongside the local government units

Special video messages on the protection of Danajon Bank produced, featuring influential leaders such as Cardinal Vidal; Vatican Radio permission sought and granted to use an excerpt from Pope Benedict XVI's speech on environmental stewardship



ASUNCION SIA, 2008

Partnership forged with the League of Municipalities of the Philippines to promote advocacy for MOREFISH (Movement for Responsible Fisheries)

National scheme for the establishment of fisheries management units adopted by DA-BFAR through a fishery office order

Monitoring, control and surveillance section of DA-BFAR tapped to train fish examiners in Calamianes as part of the effort to strengthen DA-BFAR-Fisheries Resources Management Division as the national resource center for fisheries management and Project outputs

Writing workshops conducted to finalize content points of training manuals

Consultations with fisheries and local government officials in Caraga and Negros Occidental held to promote Project lessons and best practices

FISH on the Net series consisting of 11 Flash movies completed and made available at *http://oneocean.org*

Documentation of Project success stories, best practices, lessons and challenges started

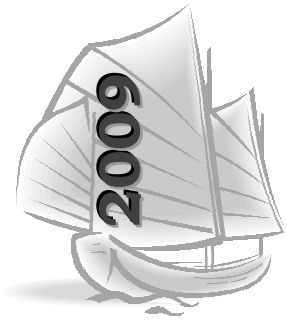
Surigao del Norte provincial government assisted in municipal water delineation

Training of DA-BFAR in the Autonomous Region in Muslim Mindanao National Stock Assessment Project completed, covering catch-and-effort monitoring, estimation of population parameters and application of stock assessment models in identifying fisheries management options

39 information-education-communication materials and activities completed (year's target: 22): total number of materials and activities from 2004 is 159, exceeding the end-of-Project target of 135

Use of community theater as educational outreach activity piloted through the Talibon Fisheries and Coastal Resource Management Interpretive Center

29 trainings conducted (year's target: 8); Project total from 2004 is 147 trainings, exceeding the end-of-Project target of 80



Interventions reviewed to improve sustainability beyond the Project life and promote replication of Project lessons and practices outside the target areas

Project lessons and experiences shared with 52 local governments through a strategic partnership with the League of Municipalities of the Philippines and Mayors Development Center

Management of 32 local government-based coastal law enforcement programs strengthened

Management of 32 Project-assisted marine protected areas covering a total area of 1,913 hectares reviewed and enhanced

Collaboration arrangements established with Mayors Development Center and League of Municipalities of the Philippines for the conduct of the Executive Course for Sustainable Municipal Fisheries; a total of 88 participants in two batches attended the course, representing 31 municipalities

Policy study on a framework for the application of ecosystem-based fisheries management in the Philippines completed

Study commissioned to determine how local government units can access funding for coastal and fisheries management programs from the General Appropriations Act and other sources

DA-BFAR in the Autonomous Region of Muslim Mindanao assisted in developing a governance framework

ASUNCION SIA, 2008

2nd Conference of Coastal Municipalities (2CCM) conducted, attended by more than 600 mayors, local government technical staff, and representatives from NGOs and donor agencies; 14 resolutions on policy and sectoral actions generated, addressing issues related to biodiversity, food security and climate change

Coral Triangle Initiative Exchange Program undertaken with six Coral Triangle countries, providing opportunities to 25 participants from Indonesia, Malaysia, Papua New Guinea, Philippines, Solomon Islands and Timor Leste to observe field applications of coastal resource management concepts, models, lessons and approaches

Provincial government offices strengthened as coastal resource management service providers, including the Bohol Environment Management Office, Leyte Provincial Agriculturist's Office, Southern Leyte's Provincial Environment and Natural Resource Management Office, Palawan's Provincial Office for Coastal Resource Management and Tawi-Tawi's Natural Resources Management Program

Marine spatial planning workshops and field validation of draft zoning plans conducted

Municipal waters in the expansion area of Leyte delineated

12-day fish examiners training conducted, with all 31 participants passing the rigid post-training evaluation

5 new marine protected areas established in Tawi-Tawi, covering a total of 113 hectares

Local monitoring training teams organized and trained in participatory marine protected area monitoring

Resolution endorsing the national fisheries management unit scheme adopted by the League of Municipalities of the Philippines' National Directorate

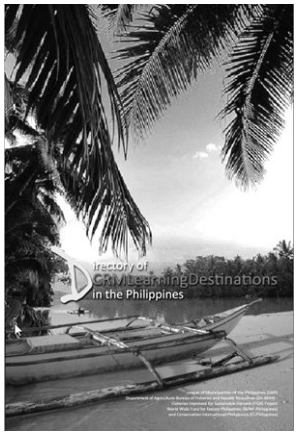
Project lessons and experiences presented to an international audience through various forums, symposia, publications and the Project web site at *http://oneocean.org*

Exit assessment workshops conducted

Ecological evangelization activity called *Duaw Sto. Niño* conducted in selected island communities in Danajon Bank, Bohol

Technical assistance continued to assist partners, particularly the United States Department of the Interior's Environmental Law Enforcement Working Group and the Coral Triangle Initiative

Use of Special Activities Fund as mechanism for fisheries management assessed



2nd edition of the *Directory of CRM Learning Destinations*, a compilation of coastal resource management programs and best practices of nearly 100 cities and municipalities, produced and disseminated

FISH-ANC video documentary *Hinagpis Ng Dagat* (Sigh of the Sea) filmed in 4 Project sites

Sourcebook on Managing Municipal Fisheries in the Philippines: Context, Framework, Concepts and Principles developed

Tawi-Tawi fisheries exhibits featuring information panels on the importance of fisheries management and miniature models of indigenous boats and houses developed in partnership with the Vice Governor's office, DA-BFAR and the Fisheries and Marine Biology Divisions of the Mindanao State University

Provincial Seaweeds Congress of Bohol assisted; study tour of Bohol's Provincial Seaweeds Development Council to Tawi-Tawi and Zamboanga organized in preparation for the development of the Bohol Provincial Development Council's Master Plan

Community tourism center established in Coron, Palawan as entry point to the Siete Pecados Marine Park

United States Department of the Interior-Philippine Biodiversity Conservation assisted in the conduct of environmental law enforcement training

Environmental Legal Assistance Center-Palawan commissioned to undertake an in-depth study on the potential of administrative adjudication in resolving fishery cases at the municipal level

Consultations with local government units conducted to discuss policy study on the formation of administrative adjudication boards to hear and adjudicate fishery cases

Catch-and-effort monitoring continued in Danajon Bank to determine impacts of fish corrals in Talibon and stationery lift nets in Ubay, Bohol

Formation of the Environmental Coalition of Church and Civil Society initiated to expand the constituency for sustainable fisheries

Assistance provided to support overall planning and implementation of various environmental education activities during Cebu's 2010 *Sinulog* festivities.

Municipality of Bien Unido assisted in the conduct of underwater assessments and exploratory dives to establish a marine park and "eco-friendly" dive site in Danajon Bank

Integration of important aspects of fisheries promoted in the government's overall risk vulnerability assessments and climate change mitigation and adaptation measures through participation in various forums and symposiums on climate change

Documentation of proceedings of the 2nd Conference of Coastal Municipalities completed

Fisheries registration database management training for local government partners completed

FISH-ANC video documentary *Hinagpis ng Dagat* (Sigh of the Sea) completed and broadcast over ANC.

2-month comparative study conducted on the use of motorized push nets and trawl fishing in the catching of pink shrimps or *angsuhan* in Surigao del Sur

Organization and conduct of the 2nd Tawi-Tawi Environment and Economic Summit assisted

Fishing area zoning designations, mapping and consultation with LGUs and stakeholders in all Project sites completed

Integrated Fisheries Framework Plans for all Project sites completed

Tawi-Tawi Information Center inaugurated, featuring an exhibit that showcases the importance of Tawi-Tawi's coastal and fishery resources to the natural resource program of the Office of the Vice Governor

Panglima Sugala information center inaugurated, featuring an exhibit entitled "Panglima Sugala, Moving Ahead in Coastal and Fisheries Management"

Technical assistance in the conduct of the Coral Triangle Initiative Business Summit provided to DENR and World Wide Fund for Nature-Philippines

FISH Project lessons presented at various workshops and meetings convened by Coral Reef Triangle Initiative-Philippines

Interface meetings between League of Municipalities of the Philippines and DA-BFAR conducted to work out disconnects and strengthen collaborative initiatives

Research on Vessel Monitoring System instituted in DA-BFAR to support implementation of the National Plan of Action on Illegal, Unregulated and Unreported Fishing

Policy support provided to the NGOs for Fisheries Reform on the issue of mangrove reversion, climate change and the proposed closure of Manila Bay to fishing in compliance with a Supreme Court *mandamus*

Compilation of *USAID Telling Our Story* series completed

FISH Project Technical Working Group meeting conducted to update partners on Project results, outcomes and continuing challenges

2nd edition of the *Coral Reef Monitoring for Management* published in partnership with USAID-DENR Environmental Governance Project

Photo comics featuring stories of 6 local advocates of coastal law enforcement and marine protected areas published in three language versions: *Sea Guardians* (English), *Tanod Dagat* (Tagalog) and *Bantay Dagat* (Cebuano)

Sourcebook on Managing Municipal Marine Capture Fisheries in the Philippines: Context, Framework, Concepts and Principles completed and disseminated

Project documentation completed; end-of-Project report released and shared with partners

Field operations completed; Project assets and responsibilities transferred to partner local government units and DA-BFAR regional and provincial offices

PART 1

The FISH Project Story

The Slow Boat to Sustainable Fisheries
Project rationale & relevance, page 3

Plan of Action
Strategies for Project implementation, page 10

Local implementation
Promoting sustainable fisheries at the municipal & community level, page 17

National implementation
Promoting national fisheries reform, page 66

The Sustainability Challenge
Recommendations for program sustainability, page 86

CHAPTER 1

The Slow Boat to Sustainable Fisheries

FISH Project rationale & relevance

The Fisheries Improved for Sustainable Harvest (FISH) Project began in 2003 amid growing acknowledgment that Philippine fisheries were in decline and that the decline was growing at an increasingly alarming rate. On 15 May 2003, a few months before the Project started, leading marine and fishery scientists in the Philippines reached the following consensus on the state of Philippine fisheries: (DA-BFAR, 2004)

> *Having reviewed the status of [the country's fishery resources] based on the best available scientific evidence we have arrived at the following conclusions:*
>
> - *The marine fishery resources of the country are severely depleted. In the case of demersals, for example, biomass levels are today only 10-30% of the levels in the late 1940s. For small pelagics, by the 1980s the average catch rate was only one-sixth of the rate in the 1950s. In reef fisheries, the present catch rates are among the lowest in the world.*
> - *Coastal habitats that are critical for supporting fisheries are severely degraded. Less than one-third of mangrove areas remain of the original 450,000 ha in 1918, and 95% of the remaining mangroves are secondary growth of much lower quality. An estimated half of seagrass beds have been lost or severely degraded during the past 50 years. Over 70% of the coral reefs in the country are in a poor state, while less than 5% are in excellent condition.*
> - *On the average, about 25-30% of total catch is lost due to improper post-harvest practices. Inefficient marketing results in further economic losses.*
> - *Commercial and municipal fishers remain locked in intense competition despite laws designed to separate their fishing grounds. Conflicts between and within these sectors are severe and continue to escalate.*
> - *Poverty is a ubiquitous feature of coastal communities. As high as 80% of small fishers live below the poverty threshold.*
> - *At both national and local levels, our systems for fisheries management are characterized by: (i) inadequate policies; (ii) weak interagency coordination and weak law enforcement; and (iii) inadequate human resources and capacity, infrastructure and equipment.*
>
> *Sustaining the host of benefits obtained from the country's fishery and coastal resources requires urgent and concerted action by responsible authorities and the wider community of stakeholders at the national, regional and local levels… We appeal to responsible authorities and agencies to take stock of the problems and urgently put in place the necessary programs of action for the benefit of current and future generations of Filipinos. Recognizing that progress in sustaining the benefits from our coastal resources will take time and sustained collaborative efforts, we appeal to the wider community of stakeholders for unity in meeting the challenges ahead.*

The long quest for a solution

The 2003 consensus statement was the first of its kind, but it was not the first bleak assessment of where Philippine fisheries might be headed without management. In fact, long before that consensus statement came out, there had been official recognition from government of the need for fisheries management. The three major fishery laws enacted in the Philippines in the last century – Act No. 4003 (Fisheries Law of 1932), Presidential Decree 704 (1975) and Republic Act 8550 (Fisheries Code of 1998) – each set down rules and limits on fishing, presumably in response to problem areas evident during its time, each one invariably covering more, and more complex, fishery issues than the one before it. But translating policy to action has always been a struggle.

Despite policy pronouncements in favor of conservation and warnings from several fishery scientists about overfishing, the solution generally applied by government (and indeed recommended by some fishery experts) was to encourage increased fishing effort and efficiency.

For much of the 20th century, the fisheries issue was seen largely as a production challenge, i.e., how to catch more fish to meet a growing demand for the commodity. New fishing gear and methods were developed that initially improved fishery production to unprecedented highs. As the resource base went into steady decline, however, it became more and more difficult even to maintain the same amount of catch by increasing the level of effort. Still, the prevailing view was that increasing fishery production was only a matter of improving access to the resource. Despite policy pronouncements in favor of conservation and warnings from several fishery scientists about overfishing, the solution generally applied by government (and indeed recommended by some fishery experts) was to encourage increased fishing effort and efficiency.

When, in the late 1960s, fishery scientists warned of overfishing in Manila Bay (Silvestre and Pauly, 1989), the response was to explore new fishing grounds and invest in more efficient gear. Between 1967 and 1987, the number of commercial fishing vessels (3GT and above) stayed more or less in the range of 2,200 and 2,600, but there was a noticeable shift to larger vessels and the increasing use of trawls, ring nets and, until it was outlawed, *muro-ami.* (DA-BFAR, unpublished; Dalzell, et al, 1987)

In the 1970s, when various socio-economic studies revealed sharply declining incomes among small-scale fishers due to decreasing fish catch (Smith *et al*, 1980), the government reacted by sponsoring loan schemes aimed at motorizing the small fishers' boats and improving their gear (Pauly, 2004).

In the 1980s, fishery scientists showed evidence that exploited demersal and small pelagic stocks were biologically and economically overfished (Barut, et al, 2004), yet the number of municipal fishing vessels nearly doubled from 388,188 in 1980 to 777,666 in 2002, and that of commercial fishing vessels jumped four-fold from 3,411 to 10,605 (NSO, 2003). Provisions were included in the 1998 Fisheries Code to specifically address overfishing, but stakeholders continued to argue over the scientists' assessment that the country's fish stocks were indeed "overfished."

Rise of integrated coastal management

Fortunately, it was mostly on the issue of overfishing that stakeholders were less than accepting of the scientists' assessment. On the whole, they were relatively receptive to prohibitions on destructive fishing, "destructive" being taken mainly in the context of the more visibly negative impacts of certain fishing practices on marine habitats. This allowed a new resource management discipline to advance in the last four decades.

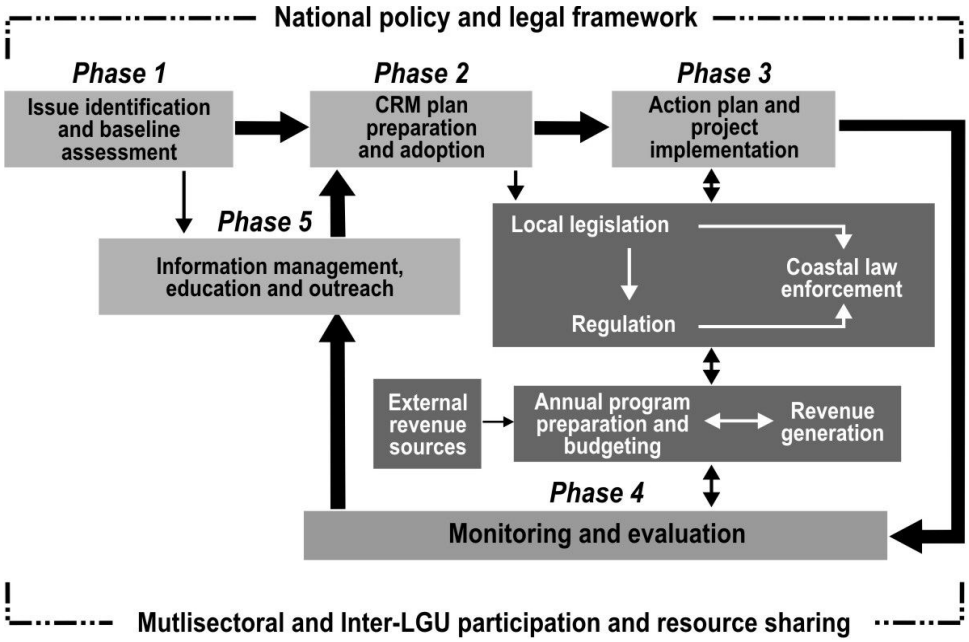
Coastal resource management (CRM) in the Philippines has developed rapidly since it was first introduced in the late 1970s as a community-based effort to mitigate the impacts of human activities on the coastal zone. Defined as "a participatory process of planning, implementing and monitoring sustainable uses of coastal resources through collective action and sound decision-making" (DENR, et al, 2001), the concept has been expanded into an integrated coastal management (ICM) framework comprising "those activities that achieve sustainable use and management of economically and ecologically valuable resources in coastal areas that consider interaction among and within resource systems as well as interaction between humans and their environment." (White and Lopez, 1991)

The earliest CRM programs in the Philippines began in the late 1970s, led by marine biologists who were focused on studying the major marine habitats, namely coral reefs, mangroves and seagrass beds. Confronted by questions of sustainability and the complex socioeconomic issues impacting coastal resources, these programs soon engaged social scientists in the management process. In the 1980s, the Marcos dictatorship had ended, civil society was ready to embrace the environment as their new cause, and fishing communities, through their people's organizations (POs), became the focus of capacity-building efforts in CRM. These developments were encouraged by the Philippine government through a number of externally assisted projects, including the Marine Conservation and Development Program (USAID/Asia Foundation), Central Visayas Regional Project (World Bank) and the ASEAN/US

(Association of Southeast Asian Nations/United States) Coastal Resource Management Project (ASEAN/USAID), which employed community-based, participatory approaches in one form or another.

By this time, there was growing acceptance that resource management, for a long time carried out by national government, would be more effective if devolved to the lowest level of government (CRMP, 2000). The decentralization of government power through RA 7160 (Local Government Code of 1991, or LGC 1991) provided the impetus for capacity-building initiatives and the institutionalization of the CRM planning process in the local government unit (LGU) (Fig 1.1), and consequently the spread of CRM across a wide cross-section of coastal stakeholders beyond the fishing community.

Fig. 1.1. Five-phase CRM process adopted for Philippine local government units (DENR, et al, 2001)



In 2002, a benchmarking system for CRM developed by the USAID/Department of Environment and Natural Resources (DENR) Coastal Resource Management Project (CRMP) was adopted as the basis for the CRM Certification Program for LGUs implemented by the DENR. Using participatory approaches, this system allows the national government, LGUs and key stakeholders to evaluate performance and plan future investments to improve the implementation of CRM measures across the country.

In 2006, Malacañang issued Executive Order (EO) 533 adopting ICM as a "national strategy to ensure the sustainable development of the country's coastal and marine environment and resources and establishing supporting mechanisms for its implementation." It tasked the DENR to develop a National ICM Program that includes "principles, strategies and action plans identified

after balancing national development priorities with local concerns, define[s] national ICM targets and develop[s] a national ICM coordinating mechanism."

Emerging fishing regime

EO 533 is a major milestone for ICM, one that underscores that the process must be developed further to achieve its goal of sustainable development.

The scope of ICM is without question broad, but because Philippine coastal communities are mostly fishing communities, the overriding objective of ICM in the Philippines has for the most part been the long-term sustainability of the fishery resource base. The practice of ICM in the Philippines is, also without question, multi-disciplinary – a typical ICM program here would employ marine biologists, social scientists, anthropologists, economists and communication experts.

ICM has gained acceptance among LGUs and fishers because of its participatory and inclusive approach to decision-making; it is easier for the LGUs and fishers to act on a problem that they have already acknowledged exists, based on information they accept as true.

ICM has gained acceptance among LGUs and fishers because of its participatory and inclusive approach to decision-making; it is easier for the LGUs and fishers to act on a problem that they have already acknowledged exists, based on information they accept as true. The involvement of stakeholders with interest outside fisheries has also brought pressure to bear on those engaged in destructive fishing, allowing for the establishment of new norms or standards of "acceptable behavior."

Conceptually, the growing acceptance for ICM within and outside fishing communities has contributed to a shift in the emphasis of fisheries management from "maximal sustainable and independent use of each resource in the ecosystem by its own set of opportunistic stakeholders to optimal responsible use of the whole ecological web and aquatic habitat by an interacting network of sets of legitimate stakeholders" (Caddy and Regier, 2002). Worldwide, fishery experts are coming to terms with the reality that the sectoral approach to fisheries management rarely succeeds; because fish is unarguably a shared resource, fisheries management must involve extensive user/stakeholder participation to be effective.

International initiatives in the 1990s reflected this new mindset, providing "the conceptual framework for the emergence of a new global regime on fish and fishing" (Caddy and Regier, 2002). These include the 1992 UN Conference on Environment and Development (Earth Summit), which drafted Agenda 21, the international blueprint for sustainable development in the 21st century, with chapters on biodiversity and its sustainability, the oceans and climate change; the UN Conference on Straddling and Highly Migratory Fish Stocks; and the UN Food and Agriculture Organization's (UN-FAO) Code of Conduct for Responsible Fisheries of 1995.

The new regime encourages management approaches that consider the requirements of the resource at ecosystem level, inevitably moving the discussion beyond fisheries science across other natural and social sciences, including policy, politics, governance, justice, ethics, economics, humanities, religion, anthropology, development studies, gender studies and health, among others. Caddy and Regier (2002) noted: "An emphasis is emerging on the methods of transdisciplinary discourse appropriate for negotiating and accountability processes."

The consensus adopted by Philippine fishery experts in 2003 echoed the global call for a more integrated approach to fisheries management. The statement urged government to build programs of actions in the following areas into "integrated fisheries and coastal management plans that should be urgently formulated at the local, regional and national levels:" (DA-BFAR, 2004)

- Reduction and rationalization of fishing capacity;
- Rehabilitation of coastal habitats and environmental quality;
- Improved utilization of harvests;
- Enhanced local stewardship and management of resources;
- Alternative and supplemental livelihood and investment opportunities; and
- Capacity-building and institutional strengthening.

The 7-year (2003-2010) FISH Project sought to … improve institutional capacity and governance toward catalyzing fisheries reform and promoting sustainable fisheries at both local and national levels

Our sustainable fisheries objective

The 7-year (2003-2010) FISH Project sought to set in motion at least some of the above-cited recommended programs of actions in "four biologically and economically important marine ecosystems in the Philippines." (Fig. 1.2) The objective was to improve institutional capacity and governance toward catalyzing fisheries reform and promoting sustainable fisheries at both local and national levels through the following "inter-related components": (USAID, 2003)

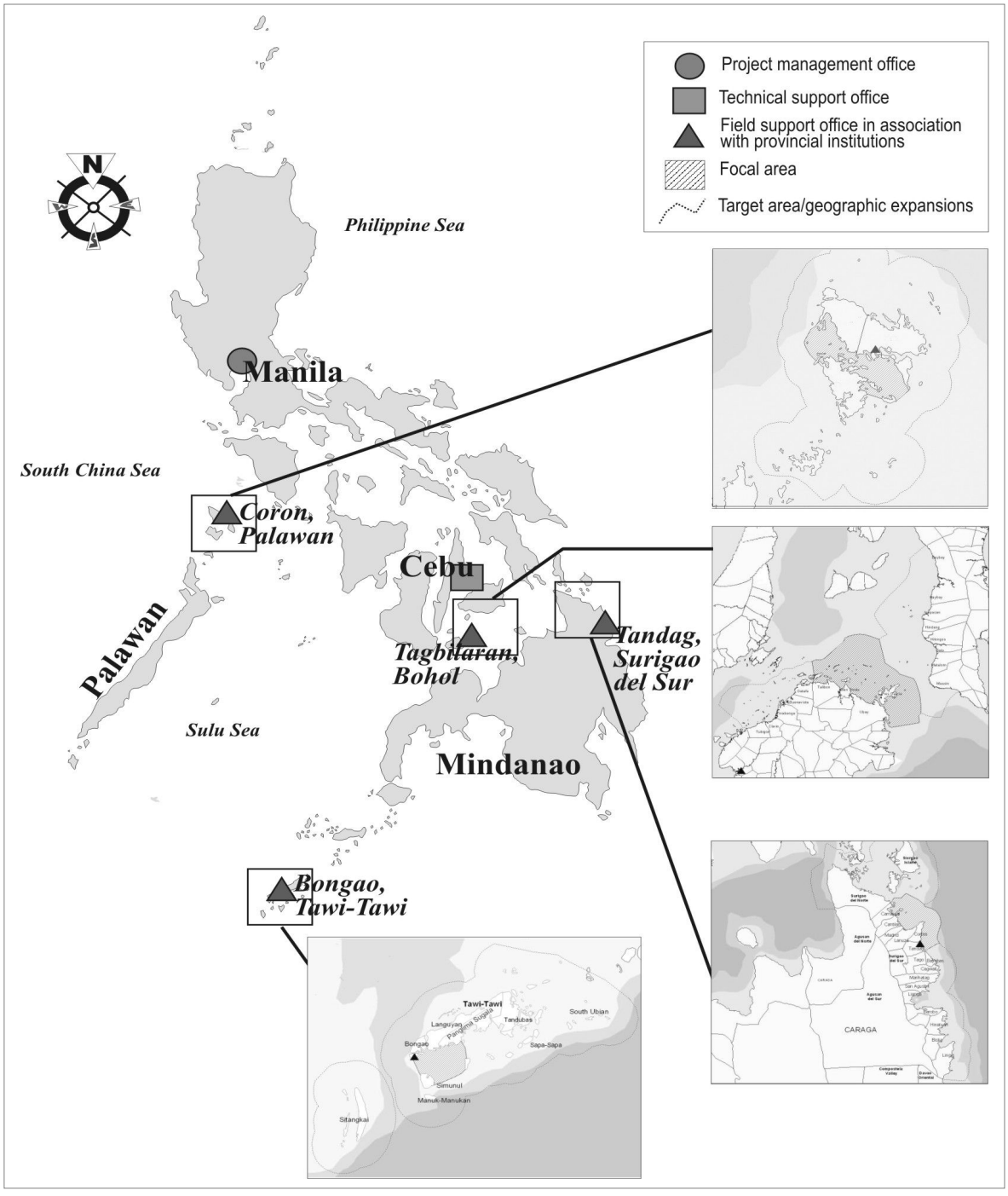
1) Strengthening the capability of local and national institutions to manage coastal resources and marine fish stocks;
2) Improving national and local policies for more sustainable use of coastal resources and marine fish stocks; and
3) Building national and local support for more responsible management of coastal resources and marine fish stocks.

The Project was directed to operate in four "priority ecosystems": the Calamianes Group of Islands in Palawan; Danajon Bank in Central Visayas; Mindanao's Sulu Archipelago with particular focus on Tawi-Tawi; and Mindanao's Pacific Seaboard in Surigao del Sur. (USAID, 2003) All four areas were listed as "very high" to "extremely high" conservation priorities by the

Philippine Biodiversity Conservation Priorities Initiative, and all four showed "high" or "very high" reef threat levels. (Burke, et al, 2002)

This report chronicles the implementation of the FISH Project. In revisiting the Project performance, we hope we will come through with a new understanding of the daunting challenge that still remains and map out a clear and steady path for those who must continue this journey to responsible and sustainable fisheries in the Philippines.

Fig. 1.2. FISH Project sites



CHAPTER 2

Plan of Action

Strategies for Project implementation

In a survey of small-scale fishers' perceptions on coastal issues in 16 provinces in the Philippines, 67% of respondents said "decrease in fish catch" was the most pressing problem in their communities, and more than 50% acknowledged that certain practices – commercial fishing in nearshore waters, conversion of mangroves to fishponds and overfishing – posed "very great or great danger" to coastal resources. Moreover, 70% said they were staying longer at sea to get a decent catch, 68% said fish caught were smaller and 73% said the quantity of fish caught was much reduced. (Table 2.1)

Such acknowledgment, emerging after decades of expert warnings, reflected a problem that had become too big to ignore. Although debate continued over the severity and urgency of the problem and what should be done to address it, few people denied that fisheries were in decline. For the FISH Project, the challenge was no longer so much about getting people to see the glaring fact, but about getting them to accept the often difficult solutions.

Developing a strategic focus

The Project's "priority ecosystems" spanned extensive geographic areas characterized by nearshore and offshore marine environments spread across many jurisdictions. Tawi-Tawi, the biggest ecosystem in terms of surface area, has more than 300 islands and islets and extensive municipal waters (almost 12,000 km^2). The smallest, Danajon Bank, covers less than 2,500 km^2 but falls under multiple jurisdictions (16 municipalities and three cities in four provinces and two regions).

At the outset, given the limited life and resources of the Project, we realized that it would be impracticable to even attempt to cover these areas in their entirety. The identification of priority areas and priority activities early in Project implementation was crucial in ensuring that we were able to generate a significant enough impact to build a foundation for sustainable fisheries in the sites where we worked, while generating lessons that could be applied elsewhere and replicated on a national scale.

With USAID's approval, we drew up an operational plan that designated smaller areas within each of our priority ecosystems as "focal areas" (Table 2.2), where we would focus management interventions to effect positive and measurable changes over the life of the Project. One focal area, consisting of between 3 and 7 municipalities, was selected within each of the target ecosystems using a screening process that considered geopolitical aspects, human exploitation patterns, feasibility of Project implementation, and resource condition. Invariably, the selection favored areas that made both geographic

Table 2.1. Small fishers' views on coastal issues (Adapted from CRMP, 2003)

In 2000, the USAID/DENR CRMP contracted a private research firm, Trends MBL, Inc. to conduct a quantitative *Knowledge, Attitude, and Practices (KAP) Survey* to benchmark current levels of knowledge and concerns of small fishers in the Philippines regarding coastal issues, attitudes and practices. The survey is significant in that it was the first ever attempt to measure, using accepted survey methodologies, the current level of public knowledge on coastal issues, and gauge people's attitudes and practices as they relate to CRM.

Respondents were 700 males, all regarded as heads of households, whose primary livelihood was small-scale fishing. The survey was conducted in 16 provinces, namely, Bohol, Cebu (Olango Island), Negros Oriental, Palawan, Davao del Sur, Sarangani, Quezon, Albay, Aklan, Negros Oriental, Leyte, Misamis Oriental, Davao del Norte, Davao Oriental, Lanao del Norte, and Zamboanga del Sur. Eighty-nine percent of respondents were married and had been residing in their locality for more than 10 years; about 46% were not born in their present town of residence. All respondents were at least 20 years old, with 58% belonging to the 20-44 years age group. Eighty-nine percent had not completed high school and 47% had either no schooling or finished only some elementary education. The average household size was 5.5 persons. Sixty-seven percent did not own or rent a residential lot, but 95% owned the house they lived in. Their houses were typically 1-room, poorly constructed structures made of light and cheap materials. Sixty-three percent used non-motorized boats. The top 3 family expenditures were food (93%), fishing-related supplies and goods (60%), and housing (42%).

Summary of survey results

Food security, poverty are the primary issues. In general, the respondents' views reflected their difficult economic situation. When asked to name their 3 most urgent personal concerns, 74% of respondents answered "having enough to eat everyday", 64% said "health of family members", and 62% "to provide schooling for my children". Expectedly, "decrease in fish catch" and poverty – cited by 67% and 55% of respondents, respectively -- were seen as the top 2 most pressing problems in the community.

The problems are recognized, but not adequately understood. Respondents demonstrated a fairly high level of knowledge of the coastal ecosystem, although many had some misconceptions about fisheries and coral biology. For example, 89% correctly stated that groupers live in crevices of coral reefs, but only 10% correctly agreed that these fish mature slowly and must reach a body weight of more than 1 kg before they can breed. Eighty-three percent recognized the importance of mangrove detritus in the food web of invertebrates and fish, but only 42% believed mangroves help prevent land erosion. And 77% said corals are rocks, with only 6% correctly describing corals as animals. Moreover, while more than 90% of respondents agreed that throwing waste in rivers and the sea, cutting trees, and industrial pollution pose very great or great danger to coastal resources, a much lower 50% considered overfishing as a very great or great danger to coastal resources.

Fishers say catching fish has become increasingly difficult, but still they want to stick to fishing. Confirming findings of previous studies on fisheries trends, majority of respondents noted declining trends in the coastal environment and fisheries. Seventy percent said they were catching fewer fish, even while spending longer hours fishing. Sixty-eight percent said that, "compared to 3 years ago," the fish they caught were smaller, and 74% noted they were catching lower-value species. Nevertheless, only 28% said they would consider shifting to livelihoods other than fishing, and the majority (60%) said they would prefer to continue fishing.

Problems can be solved. Answers to questions related to coastal management issues and solutions were encouraging, with respondents demonstrating a high level of awareness of the problems and what needs to be done to address them -- between 64% and 97% said they agreed or strongly agreed with knowledge statements on different aspects of CRM. More reassuringly, respondents expressed strong support for local government initiatives in CRM. More than 70% said they would support or strongly support totally banning the use of compressors for fishing, banning commercial fishing in municipal waters, imposing heavier penalties for illegal fishers, and establishing marine sanctuaries to rehabilitate fisheries and coral reefs. Moreover, some 50% said they would support limits to the amount of fish they could catch.

To the small fisher, Government is the local government unit. Among possible sources of assistance for specific coastal resource management concerns, the *barangay captain* (village chief) and the mayor, in that order, appeared to be the most accessible to respondents. Respondents said the *barangay captain,* in particular, was the person they were most likely approach about various CRM concerns ranging from illegal fishing to training in CRM. Majority (63%) regarded the mayor as the most influential person in their municipality.

Table 2.2. FISH Project focal and expansion areas

Target Area	Province	Municipality	Coastline (kms)
CALAMIANES GROUP OF ISLANDS	Palawan	Busuanga (FA)	120
		Coron (FA)	381
		Culion (FA)	391
		Linapacan*	196
Total	1	4 (3 FA)	1088 (892 FA)
DANAJON BANK	Bohol	Tubigon*	28
		Clarin*	29
		Inabanga*	62
		Buenavista*	32
		Getafe*	77
		Bien Unido (FA)	45
		Trinidad*	8
		Ubay (FA)	61
		President Carlos P. Garcia (FA)	76
		Talibon (FA)	86
	Leyte	Matalom*	14
		Baybay City*	37
		Bato*	4
		Hilongos*	12
		Inopacan	10
		Hindang*	7
	Southern Leyte	Maasin City*	25
Total	3	17 (4 FA)	613 (268 FA)
MINDANAO'S PACIFIC SEABOARD IN SURIGAO DEL SUR	Surigao del Sur	Cantilan (FA)	19
		Carmen (FA)	--
		Carrascal (FA)	74
		Cortes (FA)	35
		Lanuza (FA)	21
		Madrid (FA)	3
		Tandag (FA)	14
Total	1	(7 FA)	(166 FA)
MINDANAO'S SULU ARCHIPELAGO WITH FOCUS ON TAWI-TAWI	Tawi-Tawi	Bongao (FA)	20
		Panglima Sugala (FA)	94
		Simunul (FA)	29
Total	1	(3 FA)	(143 FA)

FA = focal area *Expansion area

and operational sense, with fisheries and coastal resources that were in relatively good condition but faced a high degree of threats.

Spelling out our strategy

Our strategy was broadly defined in the Project's statement of work (SOW), which stated: "Project activities will work to establish sound policies; strengthen

the ability of both national and local institutions to plan, implement and evaluate management actions; and build political will to carry out more effective governance of coastal resources and marine fish stocks. The promotion of improved governance – transparency, accountability and participation – permeates throughout the Project implementation. The building of local and national capacity to manage coastal resources and marine fish stocks serves as the core activity of the Project, with advocacy and policy work as support mechanisms to institute responsible management of coastal resources and marine fisheries." (USAID, 2003)

The building of local and national capacity to manage coastal resources and marine fish stocks serves as the core activity of the Project.

Based on this USAID directive, we developed an operational framework anchored on capacity development, constituency building and policy support to catalyze normative change in the marine capture fisheries sector and directly challenge its culture of open access fishing and the mindsets and practices that perpetuate it. Working within existing institutional parameters and building upon past lessons, we adapted a well-tested, integrated approach to resource management that was focused on the municipality as the "basic operational unit" (Table 2.3).

Table 2.3. Characteristics of the FISH Project approach adapted from CRMP (CRMP, 2000)

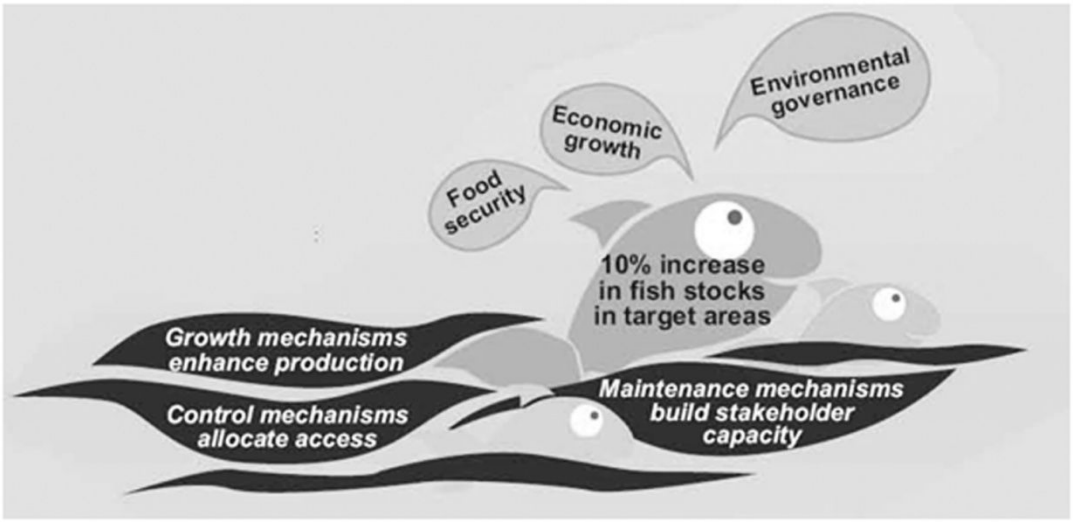
- Integrated
  - ✓ Participation through multi-sectoral partnerships
  - ✓ Enterprise-driven management options
  - ✓ Ecosystem mindset
- Strategic
  - ✓ Issue-driven
  - ✓ Builds upon lessons learned and the best information
  - ✓ Replicable processes
  - ✓ Develops critical mass of CRM leaders
- Sustainable
  - ✓ Institutional capacity-building
  - ✓ Municipality as a basic operational unit
  - ✓ Investment in CRM maintained
  - ✓ Achieves threshold of CRM activities for continued expansion

This approach was first applied by CRMP in 1996-2004 as a means to build support for CRM at both local and national levels of government. In fact, in many ways, FISH was a continuation of the work done by CRMP. CRMP was highly successful in its mission to catalyze the institutionalization of CRM in many LGUs and put ICM on the national agenda, relying primarily on a set of tools that included participatory coastal resource assessment (PCRA); intensive information-education-communication (IEC) campaign; planning; marine protected areas (MPAs); enterprise development; mangrove management; coastal law enforcement; and monitoring and evaluation (M&E).

FISH adopted many of these tools. In addition, it sought to introduce management measures aimed at addressing specific fishery issues perceived to be most relevant by our LGU partners and communities. This was an important first step for the Project – while our primary objective was to improve overall fisheries governance, our interventions must first be perceived as timely and relevant to local needs.

For local implementation, the Project put together a list of growth, control and maintenance (GCM) mechanisms that it planned to introduce in its focal areas through the active engagement of both national and local stakeholders (Fig. 2.1).

Fig. 2.1. FISH Project operational framework



GCM mechanisms included: (FISH Project, 2004)

- Mechanisms to enhance fishery production and marine ecosystem integrity *(Growth mechanisms)*.
    - Establish networks of resilient MPAs for critical habitats and open water to protect spawning, migration routes, populations of mature fish, endangered species and other resources with no-take "sanctuaries" and management zones.
    - Encourage environment-friendly economic development and revenue-generating mechanisms such as marine ecotourism and user-fee systems.
- Mechanisms to allocate access to fisheries and coastal resources *(Control mechanisms)*.
    - Identify restrictions on fishing gear, fish size limits, fishing areas and seasons to achieve sustainable fishing based on the results of the baseline assessment, critical threats analysis, and stakeholder planning.

- Register fishers and issue licenses for fishing vessels and gear (municipal and commercial) based on estimated sustained yield of fish stocks.
- Establish licensing system supported by legislation for commercial fishing vessels to operate in areas where sustainable yields of fish stocks can be expected and regulated.
- Train coastal law enforcement units to enforce fishery laws and other coastal resource-related laws.

- Mechanisms to improve institutional capacity for fisheries and CRM *(Maintenance mechanisms)*.
  - Develop ecosystem-based fisheries management program to address critical threats to fisheries and other coastal resources
  - Cluster LGUs to viable fisheries and CRM units in association with inter-agency and multi-sectoral collaborative mechanisms for planning, implementation and enforcement.
  - Assist stakeholders in integrating population and reproductive health programs in fisheries management.
  - Identify appropriate and efficient market-based incentives for compliance and investments in sustainable fisheries
  - Promote public-private partnerships for fisheries management.

With the devolution of the powers and responsibility for coastal and fisheries management, and growing expectations for the LGU to provide coastal management services to local communities, focusing on the LGU provided some level of guarantee that resource management would continue beyond the political terms of elected officials.

ASUNCION SIA, 2008

With the devolution of the powers and responsibility for coastal and fisheries management and growing expectations for the LGU to provide coastal management services to local communities, focusing on the LGU provided some level of guarantee that resource management would continue beyond the political terms of elected officials. A key objective was to capacitate our LGU partners to perform their mandated functions, including fisheries registration and licensing; establishing closed seasons in municipal waters; monitoring,

control and surveillance (MCS); granting fisheries rights; banning or limiting fishery activities in overfished areas; declaring fishery reserves, fish refuge and sanctuaries; and enforcing fishery laws, among others. Most of these functions were little understood by many LGUs, having been devolved fairly recently through the 1998 Fisheries Code (RA 8550), with many implementing guidelines coming out only in the last 5 years.

At the national level, the primary task was to help improve the national policy framework for fisheries management, and in particular help the Department of Agriculture-Bureau of Fisheries and Aquatic Resources (DA-BFAR) and other relevant agencies and stakeholders to review and enhance national laws, policies and plans or programs consistent with sustainable fisheries and national commitments to international fisheries agreements and protocols (FISH Project, 2004). A key objective was to align DA-BFAR's services with the technical assistance needs of LGUs.

Periodic performance assessments were an integral part of our course of action, not only to track Project performance but more importantly to develop benchmarks that LGUs could use to measure their own progress, tools that they must have if they are to successfully navigate the still uncharted path ahead to sustainable fisheries.

CHAPTER 3

Local Implementation

Promoting sustainable fisheries at the municipal & community level

The bulk of our effort at the local level was necessarily concentrated in municipal waters, the major battleground in the competition over fishery resources. We worked in our focal areas to build the capacity of LGUs and stakeholder communities to promote sustainable fisheries.

At the core of our capacity building were the preparation, adoption and implementation of a multi-year CRM plan that defined the specific management strategies and actions to be undertaken by each LGU, based on the planning process shown in Fig. 1.1.

The process was not necessarily linear, nor was our preset timeline followed in all areas. As a technical assistance-type project with sustainability of implementation as the long-term goal, we had to adapt our interventions to each site's readiness to accept assistance based on a set of predetermined parameters defining the specific commitments that the concerned LGUs and stakeholder communities would bring into the partnership. These included counterpart investment by our partner LGUs and communities in the form of labor, personnel or other material support as an expression of their intent not only to work with the Project but also to sustain the work beyond the Project's life.

At the end of our sixth year of implementation in 2009, as the Project began to wind down, we saw evidences of clear progress in terms of laying the foundations for fisheries governance based largely on the basic CRM planning process, as well as persistent gaps and emerging issues that should be taken into account when planning for future projects with similar objectives as FISH.

Finding our baseline

To determine our starting point in terms of the biophysical conditions in our focal areas, the Project commissioned an independent research group to conduct baseline assessments in our focal areas. The assessments consisted of two main monitoring events: fisheries surveys using proxy measures of fish stocks, and MPA surveys using direct observations of habitat condition indicators, specifically % changes in fisheries-dependent and fisheries independent catch per unit effort (CPUE), and % changes in reef fish biomass, fish species richness and benthic condition inside and adjacent to selected MPAs.

Baseline assessment procedures and methods (Table 3.1) were designed in such a way that changes in fish stocks and other biophysical conditions

could be measured through subsequent monitoring events in 2006, 2008 and 2010. The baseline assessment was done over eight months in 2004 and

Table 3.1. Baseline assessment procedures used by the FISH Project (FISH Project, 2005)

Assessment of capture fisheries

Two major tasks were performed in each focal area: a 3-4-week experimental fishing task and a 3-month catch-and-effort monitoring period. Initial activities included the finalization of the sampling design for test fishing, harmonization of catch-and-effort monitoring procedures, and standardization of forms and templates. Likewise, preliminary test fishing stations for candidate fishing gear were mapped out and possible deployment of enumerators were evaluated.

Pre-sampling activities in each focal area included a round of inspection of the entire area prior to actual field mobilization, focusing on rapid site appraisal and informal interviews with randomly selected local fishers and government authorities, mostly members of the LGU. The purpose of this activity was to obtain preliminary insights into the nature and extent of the fishing operations in the study area. The data provided the basis for subsequent work scoping and scaling of field manpower to execute the sampling plan. This was followed by the recruitment and organization of the test fishing and field monitoring teams to implement the pre-designed scope of work within the specified timeframe. The latter entailed a preparatory phase for hiring, training, tasking, deployment, and trial runs for data collection.

In each focal area, a selection of fishing gear types was randomly deployed for the fisheries-independent surveys; the general plan was to deploy fishing gear in fishing areas randomly selected for the study. Meanwhile, catch and effort of all fishing gear were monitored over 3 months for the fisheries-dependent survey; catch-and-effort information were collected in representative landing sites selected for the study.

MPA Assessment

In each focal area, assessment teams conducted reconnaissance surveys of select MPAs to be included in the baseline assessment. The following set of criteria (Table 3.1.1) guided the selection process.

Table 3.1.1. Criteria for selection of MPA

Criterion	Rationale
1. Recently established or not functioning well	Benefits (or lack thereof) from the MPA should be traceable to the supportive initiatives of the FISH Project
2. Minimum size of 10 hectares; preferred size greater than 20 hectares	More likely to be effective and thus more likely to exhibit detectable signs of improvement
3. No-take zone is present and likely to be enforced	Strong community support or interest in establishing or managing an MPA
4. Habitat has ecological value and potential for improvement	Live coral cover present, possible source or sink for coral reef and fisheries recruitment

In selecting potential MPA sites, the following were considered: 1) exposure to waves, 2) coastline shape/indentation, 3) proximity to mangroves and linked shallow water habitats, and 4) coarse estimates of living coral cover and general reef condition as determined by manta tow surveys.

Manta tow surveys covered as many of the reef areas as possible to construct a broad picture of the distribution of live coral cover within the chosen portion of the focal area. Geographical coordinates of each observation were obtained using a handheld GPS unit. The results were plotted on a map of the focal area to assist the selection of sites where performance baselines would be measured.

The significance of site selection should be noted. Not only did it establish sites to be surveyed in detail using transects, it identified areas where the FISH Project would encourage MPA establishment and management by local communities. As a rule, 5 transects inside and 5 transects adjacent to an MPA were established for data collection, for a total of 10 transects per MPA. Likewise, the assessment of a potential MPA site generally involved the use of 10 transects evenly distributed throughout the site. In some instances, however, unforeseen circumstances necessitated deviations from these rules.

consisted of 3-4-week test fishing using selected fishing gear in pre-determined sampling stations, 3-month catch-and-effort monitoring, and fish visual censuses inside and adjacent to selected MPAs. Assessment results served to draw attention to the sorry state of the fish stocks and habitats in our focal areas.

The results confirmed findings from previous studies that showed fish stocks in the 4 Project focal areas to be in poor condition. In Danajon, for example, trawl test fishing resulted in an average catch of 4.54kg per 30-minute trawl operation from 19 sampling stations and 7.6kg in 5 control stations. But jellyfishes, sea urchins and starfishes constituted about 71% of the catch; excluding them from the computation would mean an average catch of only 1.33 kg. This is equivalent to an average trawlable biomass density of 0.45 t/km^2, estimated using the average trawling speed of 2.65 km/hr and head rope of 8.9 meters. It indicates a very low demersal standing biomass for Danajon Bank, even lower compared to highly overfished traditional fishing grounds like Manila Bay in 1992-93, Lingayen Gulf in 1978-79, and San Miguel Bay in 1995-96. (Table 3.2)

[Baseline assessment results] confirmed findings from previous studies that showed fish stocks in the 4 Project focal areas to be in poor condition.

Table 3.2. Estimates of average demersal stock biomass from trawl survey in Danajon Bank compared to other fishing grounds in the Philippines (FISH Project, 2005)

Fishing ground	Year	Biomass (t/km^2)	Source
Carigara Bay	1979-80	2.00	Armada & Silvestre, 1981
	1995-96	1.04	Pura, et al., 1997
Lingayen Gulf	1978-79	1.33	Villoso & Aprieto, 1983
	1987-88	0.57	Ochavillo et al., 1989
Manila Bay	1949-50	4.61	Warfel & Manacop, 1950
	1968-72	1.71	Silvestre et al., 1987
	1992-93	0.47	Armada, 1994
San Miguel Bay	1947	10.60	Warfel & Manacop, 1950
	1980-81	2.13	Vakily, 1982
	1992-93	1.96	Cinco et al., 1995
	1995-96	1.31	Soliman & Dioneda, 1997
Danajon Bank	2004	0.45	FISH Project, 2004

Catch-and-effort monitoring also found Danajon Bank to have the lowest mean catch rates and lowest live hard coral cover. Most of the catch did not belong to the valuable species category, and valuable species appeared only in small numbers and often very small individual sizes, indicating biological overfishing, most likely due to heavy exploitation of the demersal stock.

Tawi-Tawi had relatively better fish stocks compared to the other sites, but even here, fish abundance and diversity were found to be much lower than

what they should be based on experts' estimates of the area's natural productivity.

A survey of critical issues offered no surprises: destructive fishing using dynamite, cyanide, trawls, fine mesh nets and other illegal gear, as well as non-fishery activities, such as sand and coral quarrying, mangrove cutting and conversion, and pollution, all causing damage to fish stocks and habitats. High fishing pressure was observed across our focal sites, which included mostly fishing-dependent areas characterized by high population growth rates and high poverty incidence with very limited access to opportunities for alternative livelihoods and a very weak institutional capacity to regulate resource use. The situation pointed not only to the immediate need to enforce fishery laws but also to the imperative of managing crucial resource use issues that caused overfishing.

Interventions were not necessarily implemented at the exact time that they were intended to happen or in the exact order that they were listed in the timeline, because we sometimes had to adjust to our partner-LGUs' absorptive capacity and declared priorities, while keeping an eye on our overall objectives.

Setting our plan in motion

FISH officially started in September 2003, but real groundwork started in earnest only in 2004. For much of our first few months of operation, we focused on setting up our site offices in Coron, Palawan (serving the Calamianes area); Tagbilaran, Bohol (serving Danajon Bank); Tandag, Surigao del Sur (serving the Lanuza Bay area); and Bongao, Tawi-tawi (serving the Tawi-Tawi Bay LGUs). A fifth site office opened in 2008 to serve our expansion areas in Danajon Bank, namely, Leyte and Southern Leyte.

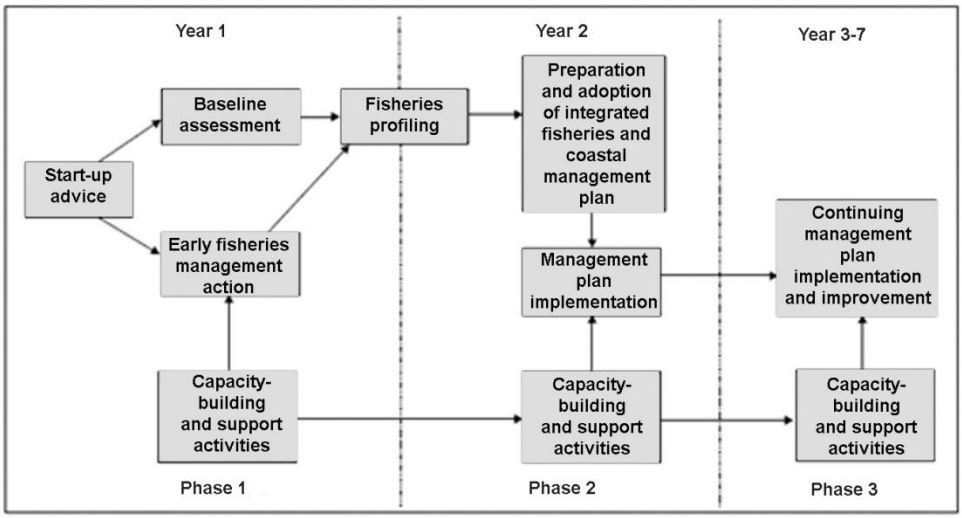
Site managers were hired and fielded immediately to establish presence at the local level. This was closely followed by the recruitment of site and technical assistants to fill the demands and workload brought about by the full implementation of field activities. As activities became more intensive, community organizers were deployed to provide direct support to local stakeholders, and additional experts were hired as needs evolved over the course of Project implementation.

Implementation in the focal areas was generally intended to proceed according to the process and timeline shown in Fig. 3.1, which was defined at the beginning of the Project. However, interventions were not necessarily implemented at the exact time that they were intended to happen or in the exact order that they were listed in the timeline, because we sometimes had to adjust to our partner-LGUs' absorptive capacity and declared priorities, while keeping an eye on our overall objectives.

Based on a rapid assessment of existing local capacities at the start of the Project, it can be said that in general our focal area LGUs in Danajon Bank

and Lanuza Bay had considerably more experience in CRM than the Calamianes and Tawi-Tawi LGUs. It can also be said that initial acceptance of Project interventions by LGUs and stakeholder groups was not as unconditionally accepting as we would have wanted.

Fig. 3.1. FISH Project planning and implementation process in focal areas



Although most LGUs acknowledged that overfishing and illegal fishing were a cause for concern, they did not necessarily regard them as a priority problem requiring concerted interventions and solutions. And while many LGUs agreed in principle that it was their job to promote sustainable fisheries, they stopped short of putting the necessary resources to support important fisheries management measures.

There was also the mistaken tendency to view fisheries management as an end in itself, rather than a means to ensure food security and alleviate poverty. Especially in areas with limited prior experience in resource management, these points of view were pervasive across the bureaucracy, from the mayor to members of the technical staff mandated to manage fisheries, who regarded fisheries management as an "additional" job with no corresponding remuneration, and an added burden to their already meager financial and human resources.

Resource users exhibited different reactions ranging from tentative support to outright resistance. A good number of fishers and community members initially believed that fisheries management would mean taking away their rights and access to livelihood from fishing. While acknowledging that their fish catches were declining and indeed had been on a steady decline for many years, they refused to appreciate that fisheries management was necessary to provide them with a stable and sustainable food supply and income from the sea.

In some areas, this lack of community acceptance reinforced the LGUs' initially equivocal response to the Project's early attempts to introduce fisheries management measures in their areas. To a large extent, these LGUs were less easily swayed by the urgent need for management than by political considerations, for instance, by how well a program could help or hamper a sitting official's bid for re-election. We officially started operations about 10 months before a general election in 2004. In a number of areas, it meant waiting out the election season, when most local officials were focused on winning the vote and avoiding potentially controversial programs, including often contentious fisheries reform. This caused at least a few months of unwelcome -- albeit anticipated -- delay in getting many LGUs to engage in a meaningful way with the Project and our work. Even so, at the outset, FISH attempted to establish linkages with key LGU personnel and other potential "champions" that could serve, at the appropriate time, as a springboard for the full implementation of capacity-building activities.

As it turned out, the first year of local implementation was essentially an entry phase in which FISH focused on building a relationship with its partner LGUs and the national government agencies (NGAs) and non-governmental organizations (NGOs) that supported them. Key to promoting goodwill was the Project's ability to demonstrate its sensitivity to top-of-mind fisheries issues in the focal areas.

Generally, our technical assistance package for local implementation was a combination of training based on participatory peer and adult learning and learning-by-doing processes, IEC, and legal, regulatory and policy support focused on building local capacities to manage fisheries, protect fish habitats (mainly coral reefs) and enforce fishery laws. For the most part, emphasis was placed on activities that addressed issues related to illegal fishing and habitat destruction, and to a lesser extent, overfishing and the increasing demand for fish from a fast-growing population.

Following the CRMP model, FISH technical assistance was based on a consultative and participatory planning process that had been proven to work

well in engaging major stakeholders to a significant degree in decision-making. But such mode of assistance is by nature a usually protracted process, often criticized as "long in planning but short on implementation." To address this concern, we implemented the planning process while simultaneously underscoring the "action" part of the management cycle by incorporating into our work plan start-up activities that produced evident benefits over a fairly short period, including "early fisheries management actions," coastal law enforcement and the establishment of MPAs.

Over the course of Project implementation, there was a slow build-up of LGU involvement (and investment) in decision-making, planning and implementation of CRM, particularly in the following areas: the establishment and management of MPAs, coastal law enforcement, policy development and IEC. In addition, our focal area LGUs were generally receptive to measures aimed at mitigating population issues, which were implemented during the first 5 years of Project implementation as part of our commitment to contribute to USAID's family planning and health objectives.

Where the stakeholders were concerned, illegal fishing far outweighed all other fishery-related issues, revealing not only a serious lack of local capacity to enforce fishery laws, but poor overall fisheries governance.

That our reproductive health component was well-accepted by most LGUs was not surprising, given our focal areas' demographic profile: high population growth rates, high population momentum, low contraceptive prevalence rates, and relatively high unmet need for family planning. As generally follows, the higher the population growth rate, the higher the resource depletion rate.

Through PATH Foundation, we initially worked in 10 of the most densely populated *barangays* (villages) in our focal areas to bring reproductive health information and services, combining these with fish conservation messages. More significantly, we assisted the preparation of an integrated CRM-reproductive health development plan in each of these 10 *barangays.* Subsequently, with little further Project assistance, the program was replicated in 15 additional *barangays* in our focal areas, proof of its high acceptance among LGUs.

More than reproductive health, of course, a much bigger common concern across our focal areas was illegal fishing, and this was borne out in numerous dialogues and consultations that we had with our partner-LGUs and stakeholder communities. Where the stakeholders were concerned, in fact, illegal fishing far outweighed all other fishery-related issues, revealing not only a serious lack of local capacity to enforce fishery laws, but poor overall fisheries governance.

Tackling illegal fishing

Early in the Project implementation, we attempted an ecosystem modeling exercise involving the Danajon Bank focal areas to determine and establish the appropriate fishing gear and effort configuration that would have served as a basis for pursuing biophysical targets, particularly increased fish stocks through the establishment of appropriate levels of fishing effort. Information from a rapid appraisal conducted in 2004 were used to develop the ecosystem model, a simulation of various scenarios from which stakeholders could agree on one scenario that they regarded as most appropriate for their situation and management objectives.

The exercise was undertaken to gauge stakeholder acceptance of a managed fishing regime where effort would be controlled and allocated among legitimate users. In the end, however, the LGUs were deemed not ready for such an intervention, because participants were less concerned about regulating lawful fishing than eliminating – or even just reducing – the still rampant illegal fishing activities happening in their fishing grounds, primarily cyanide, dynamite and commercial fishing and other fishing activities that used active gear.

Initial situational assessments indicated that many gaps in law enforcement could be traced to weaknesses in infrastructural, technical and legal support issues in prosecution. Enforcers not only lacked the necessary skills to fulfill the special requirements of fishery law enforcement, they also faced unique challenges related to, for example, the lack of cyanide detection facilities and fish examiners required to collect and preserve defensible evidence. Furthermore, in the relatively remote areas where we operated, there was a lack of prosecutors and judges – on average, judges of the circuit courts logged only 2-3 work weeks a year on the islands, because they must divide their time between the 5-6 courts assigned to them. Often, enforcers faced harassment suits that prospered more easily than similar suits on criminal cases, and often, they did not have easy access to defense counsel.

Initial situational assessments indicated that many gaps in law enforcement could be traced to weaknesses in infrastructural, technical and legal support issues in prosecution.

And there was the lack of capacity – and in a few cases apparent lack of interest – among LGUs to fully exercise their mandates in coastal law enforcement. Sometimes, lack of capacity was tied to their lack of understanding of the social, economic, technical and political dynamics of certain fishery violations. For example, LGUs generally did not understand the intricate relationships between the trade of nitrate-based fertilizers and blasting caps, and the use of these products in dynamite fishing. And so, conventional strategies aimed at dynamite fishing did not factor in such relationships and were often ineffective and costly.

The level of interest of political leaders in the Project sites to enforce coastal and fisheries laws was generally influenced not only by their knowledge and understanding of the issues, but also by the political and economic interests that predominated at the time, particularly during an election year. In places where commercial fishing concerns traditionally held political and economic clout, for example, political leaders tended to tiptoe around the issue of poaching by commercial fishers on municipal waters, or to selectively enforce the law against the use of active gear. This was the case with a few LGUs in Danajon Bank and Lanuza Bay, where Danish seines were allowed to operate in municipal waters long after the law stated that they could not.

Law enforcement issues were further clouded by problems related to the delineation of municipal waters mandated under the Fisheries Code. Many of the LGUs in the Project sites had not officially delineated their municipal waters, and in a number of places, delineation had become a contentious issue between LGUs with boundary disputes. This was especially critical in the enforcement of the ban on commercial fishing in municipal waters – given the fuzzy boundaries, commercial fishers charged for violating this ban often got off on mere technicality. Commercial fishing intrusion by operators from Manila, Lucena, Bicol and the Visayas was particularly rampant around Calamianes and Tawi-Tawi, with Tawi-Tawi also experiencing periodic incursions by fishing vessels from Malaysia.

ASUNCION SIA, 2008

As might be expected in areas where enforcement was inconsistent or lacking, there was also an observable culture of disrespect for the rule of (fishery) law, and therefore very poor compliance. By and large, violations of fishery laws were regarded as *mala prohibita,* or wrong only because the law prohibited them, and so there was no real social pressure on people to follow them. Indeed, in some areas, violations were sometimes encouraged. In Tawi-Tawi, for example, dynamite fishing – rampant even on ordinary days – was openly encouraged during the few days following the Ramadan and other occasions when large gatherings for meals are common, for example, as part of death and wedding rituals. A similar practice was observed on some islands in Danajon Bank during *fiesta* and birthday celebrations.

All of the above forces were present in some form and to varying degrees in the different LGUs that FISH worked with. In many cases, they were evidenced by inadequate budgetary support given to fishery law enforcement, or worse, political interventions during operations. Even so, to say that all LGUs had little interest in addressing fisheries issues would not be fair or accurate. There were, in the FISH sites, a number of progressive local officials that pushed for reforms and several previous initiatives that provided a platform and opportunities for the Project to go at full throttle in trying to build local capacities for fishery law enforcement.

Indeed, the mere existence of locally initiated, although largely unimplemented, fishery ordinances showed that some LGUs at one time or another had been concerned about the state of their fisheries. LGUs in Danajon Bank and Lanuza Bay, where commercial fishing intrusion was a highly charged issue, had attempted with some degree of success to work together to resolve common concerns. In Danajon Bank, the LGUs had organized the Coastal Law Enforcement Council (CLEC), a forum for cooperation and addressing common concerns, while the Lanuza Bay LGUs had their own Lanuza Bay Development Alliance (LBDA). Even in Tawi-Tawi, where there was very limited local experience in any form of resource management and relatively low awareness of conservation issues, local officials and law enforcers alike generally welcomed the promise of technical assistance in fishery law enforcement.

Enforcement training was conducted in several stages, from the basic enforcement course to enhancement and specialization courses fitted to the peculiar needs of individual sites.

Our law enforcement component focused on building local capacities to enforce and improving the law enforcement environment. Skills training was the primary activity, but the assistance package also included establishing linkages between LGUs, enforcement units and agencies; lobbying for adequate budgetary support from the LGU; encouraging NGOs and civil society support; offering legal advice; supporting relevant policy reforms; and providing limited logistical support, primarily through the Project's Special Activities Fund (SAF). SAF was set up to support "special performance incentive activities" that complemented our capacity building efforts.

Enforcement training was conducted in several stages, from the basic enforcement course to enhancement and specialization courses fitted to the peculiar needs of individual sites. Basic enforcement training began as soon as a municipal enforcement unit – usually called "MCLET" (Municipal Coastal Law Enforcement Team) -- was organized. The existence of enforcement units was required primarily because they would be the main focus of skills and capacity building.

Adult learning methodologies. The principles of adult learning were used extensively in the development and conduct of our various training courses and IEC activities. Lecture discussions were combined with workshops, mapping exercises, games and ice breakers to maintain participants' interest and raise their level of information absorption.

Many training activities employed interactivity and elements of fun to enhance the learning experience. For example, we devised an exercise that quizzed participants on the value of coastal and marine resources; mayor participants who went through this activity realized that they knew very little about these resources and that, because natural resources were generally considered free and allocated no monetary value, most people regarded them as more valuable when converted to other uses.

Another exercise involved participants identifying and discussing the wide range of telltale signs of fish stock depletion in their respective areas and estimating the extent of the problem; the information generated during the discussions often developed into a solid introduction to the causes of overfishing.

One game that we often used, called "Let's go fishing," simulated open access fishing: Paper cutouts of fishes of assorted types and sizes were spread all over the training room; when told by the facilitator to "go fishing," most participants scrambled to get as many paper cutouts as they could, turning chairs over, peeking under tables, snatching the cutouts off walls, and generally uncaring about the mess they created. The object of the game was to cause a chaotic situation of "every man for himself" to illustrate the impacts of open access fishing. As a takeoff point for discussing the various forms of overfishing, the facilitator would also ask participants to measure the fishes they "caught," using a fish ruler that we developed to show the minimum adult sizes of commercially valuable species.

The basic course covered fisheries and maritime law enforcement topics and legal and tactical approaches to site-specific violations. Enhancement training focused on the enforcement of site-specific ordinances covering such measures as temporal and spatial restrictions (including MPAs), registration and licensing, navigation, investigation and report writing. Specialization courses consisted mainly of the standard fish examiner's training course offered by DA-BFAR but also included plotting and chart work, media relations, and trainers' training.

IEC was also key module in coastal law enforcement training courses, particularly in the aspects of prevention and detection in the law enforcement continuum. It covered relevant skills and methods that coastal law enforcers could use to "sell the law" and promote compliance, emphasizing the role of enforcers as "public educators" who could help transform community perception toward illegal fishing, especially cyanide and dynamite fishing, as highly undesirable and unacceptable behaviors. Because illegal activities thrive in the absence of strong moral or ethical standards, training highlighted the role of enforcement in strengthening and then maintaining the moral values and ethical norms of the communities they served.

Between courses, municipal compliance and enforcement teams received coaching and their performance was periodically assessed to gauge their learning progress and identify remaining skills and knowledge gaps. Field assessment results were plugged into the performance monitoring database system to guide action planning at both the LGU and Project levels.

As Project implementation progressed, new strategies and activities were identified to address outstanding issues and take advantage of the opportunities that emerged. Such issues and opportunities came out as early as during the initial rapid appraisals conducted in the first year of FISH. These

events were marked by open and non-confrontational discussions on otherwise sensitive subjects such as the use of dynamite in fishing and graft and corruption in the LGU and even among law enforcers. As a result, the names of suspected violators were revealed almost naturally and, combined with information from key informant interviews, were submitted to the local police for investigation and action.

To the extent possible, all concerned enforcement agencies and stakeholders were involved from the early stages of capacity-building, beginning in fact with the situation assessments. This created opportunities for the various agencies to clarify their duties and responsibilities, determine the scopes and limitations of their capabilities, and explore possible areas of collaboration. For example, the fishery law enforcement training included actual operational planning sessions involving the LGU, PNP and other enforcement agencies present in the area, allowing them to identify there and then specific issues that they could work on together. In some cases, there were opportunities to execute the plan in a training environment, thus giving participants a real-time, learning-by-doing experience in law enforcement.

To the extent possible, all concerned enforcement agencies and stakeholders were involved from the early stages of capacity-building, beginning in fact with the situation assessments.

As it turned out, training was among the easier stages of the technical assistance process. The coaching and mentoring that followed proved to be more challenging, often requiring FISH staff members, usually the site managers and community organizers, to get involved in conflict resolution, motivate law enforcers and constantly remind local politicians of their sworn duty to uphold the law. These were not easy tasks, especially in some Project areas where illegal fishing was a socially acceptable enterprise that even politicians or their families engaged in, and where nearly everyone in town was related to everyone else by blood or marriage.

To deal with these challenges as well as contribute to the Project's constituency-building objectives, we pursued collaboration with various groups and sectors that helped to reduce the opportunity for graft or willful neglect of duty by the LGU by increasing public scrutiny of the enforcement effort. Among

those that were involved were the NGOs for Fisheries Reform (NFR), Environmental Legal Assistance Center (ELAC), Advocates for Policy Reform and Development in Caraga (APREDEC), Environmental Governance Project (EcoGov), Project Seahorse, Marine Aquarium Council, and German Society for Technical Cooperation (Deutsche Gesellschaft für Technische Zusammenarbeit, or GTZ).

Where applicable, we used results from our baseline stock assessments as they became available to convince LGUs of the urgency of enforcing certain laws. There were no historical data on changes in biomass over many years that could be found for the focal areas, but by comparing our results with secondary information from other areas, we were able to show some indications of how serious the depletion of fish stocks had become. For example, in various consultations with the LGUs in our focal area in Danajon Bank, we highlighted the fact that the standing biomass in their municipal waters was at 10% of the biomass in Manila Bay in 1950 and a mere 4% of that in San Miguel Bay in 1947. This alarmed local officials in Ubay, Talibon and Carlos P. Garcia, enough to finally crack down on illegal fishing in the area. The enforcement campaign included commercial Danish seines that had long been able to operate freely despite repeated complaints from small fishers, and clear prohibitions on commercial fishing and the use of active gear in municipal waters.

A formal agreement forged with the national leaderships of PNP and Philippine Coast Guard (PCG), the two enforcement agencies likely to be present in the municipality, also helped to fulfill some of the common gaps in enforcement, primarily the LGUs' lack of technical expertise to enforce and their seemingly universal lack of funding and equipment. Whenever possible, the Project invited officials of PNP, PCG and DA-BFAR to attend trainings and special events and used these occasions to facilitate dialogue and feedback and bridge communication gaps between national and regional offices on the one hand and the field personnel on the other.

We also actively sought feedback from law enforcers on their experience in enforcing various fishery ordinances, and used this to recommend or advocate policy reforms, in most cases involving the amendment or repeal of expressed provisions for law enforcement and the restatement of certain penal provisions. A common complaint among enforcers was the difficulty of pursuing fishery cases, which some LGUs sometimes directly administered by negotiating "out-of-court settlements" that were quite often not legally defensible. One important policy work that sought to directly address this was a study on the establishment of a municipal or city administrative adjudication board to hear and administratively resolve cases involving violations of fishery laws in municipal waters.

Through SAF, the Project commissioned ELAC to undertake a study on the constraints that LGUs faced in administering fishery cases, examine their existing policies and practices in dealing with such cases, and devise local

government administrative adjudication systems or models that are participatory and transparent, engender a sense of accountability among adjudicators and consider both practicality and due process. This study resulted in the development of a training course for LGUs interested in establishing their own administrative adjudication boards for fisheries.

Other policy work undertaken by the Project that directly inputted into fishery law enforcement sought to address specific local issues such as the live reef food fish trade in Palawan and the use of nitrates. As part of our assistance to Tawi-Tawi, we assisted the adoption of regional fisheries administrative order (RFAO) 57 s. 2009 providing guidelines on tropical fish harvesting and trading in the Autonomous Region in Muslim Mindanao (ARMM), an especially important concern for the province, where a still relatively rich source of tropical fishes remains available amid diminishing catches and tighter controls in the traditional sources of these lucrative commodities.

At the barangay level in areas where there were FISH-assisted MPAs, community-based fish wardens were trained and deputized to perform guard and patrol duties in and around the MPAs.

ASUNCION SIA, 2008

To encourage local funding for coastal law enforcement and other CRM programs, the Project developed a framework for carrying out cost-and-benefit analysis of LGU investments in CRM. Such analytical tool could provide estimates of economic losses from the destruction of coastal resources and quantify the benefits gained from management.

Stakeholder participation was of course sought and their involvement as "champions" or advocates of good fishing was encouraged. More specifically, at the barangay level in areas where there were FISH-assisted MPAs, community-based fish wardens were trained and deputized to perform guard and patrol duties in and around the MPAs. This was where we focused most of the Project's commodity support for law enforcement. Through SAF, we helped several people's organizations (POs) involved in the enforcement of MPA rules by providing funds for the construction of watch towers and purchase of searchlights, binoculars, two-way radios, logbooks, monitoring boats, uniforms, charts, GPS, typewriters, legal references, evidence containers, and in some places, temporary detention areas inside monitoring centers of watch towers.

Banking on MPAs

Perhaps to some extent because of the SAF, the establishment of MPAs received favorable response from stakeholder communities. But even without the SAF, MPAs would certainly have been popular still among our focal area LGUs, because they were the most familiar management intervention that was already proven to be socially acceptable.

The number of community-managed MPAs in the Philippines has grown tremendously in the last two decades, but especially after the devolution of critical resource management functions to the LGUs, which initiated many of these MPAs. At the start of the Project, there were several MPAs already existing in our sites, except in Tawi-Tawi, where most local officials were being oriented for the first time to their CRM mandate. Having previously seen the benefits of MPAs, many LGUs were more than willing to accept our assistance to establish more MPAs in their municipalities, or strengthen the management of the ones that were already in place.

In some cases, the LGUs appeared to be primarily motivated by expectations on the potential of an MPA to generate tourism revenues. The development of new dive destinations was certainly the main motivation for the LGU in Coron in the Calamianes, which had aspirations for tourism – understandable given the tremendous natural potential of the area. We took advantage of such interest to engage local officials in the management planning process anyhow, using the consultative process to level off expectations and slowly introduce CRM objectives as implementation progressed.

The opposite was true for Tawi-Tawi. Although blessed with both natural and cultural features and considerable potential for tourism, the province is located in an area where unsettled socio-political conditions remain a deterrent to tourism development. Here, from the onset of the planning process, we had to emphasize the potential of MPAs to contribute to the recovery of fish stocks and the improvement of fisheries. Study tours were the key strategy employed to convince local officials of the benefits of MPAs – these tours included successful MPAs in Bohol, Negros Oriental and Cebu, where fishers were already directly benefiting from the recovery of resources inside and around the MPAs.

Where an MPA was already established by municipal ordinance with adequate provisions, the Project focused on organizing and training a community-based management council to run it, and if they qualified, provided them through SAF with commodity support for the demarcation and protection of the MPA. Otherwise, assistance necessarily included site selection, technical survey and policy support leading to the adoption of an ordinance declaring the establishment of the MPA and then its physical establishment. For MPAs that would be tracked as part of our performance monitoring, baseline conditions were determined and the MPAs were monitored every two years by a survey

team from the University of the Philippines in the Visayas Foundation, Inc (UPVFI).

The decision to rely on expert surveys rather than PCRA methods to track changes in the biophysical conditions of the MPAs was made amid concern within the Project that participatory, "stakeholder-centric" methods would not generate the scientifically reliable data deemed more appropriate for the calculation of the Project results. Nevertheless, in Calamianes and Tawi-Tawi, PCRA exercises were conducted to help community members appreciate better through firsthand observation the importance of coral reefs and the need to protect and manage these resources.

Besides training in coastal law enforcement, community members tasked to manage the MPAs in the various focal areas were trained in IEC and advocacy work to help build support for the MPAs. Fish wardens were expected to enforce MPA rules and regulations but more likely than not, they would rely on "enforcer presence and verbal persuasion" to discourage violations, and depend on other community members not only to obey the rules but also to help guard the MPA and report threats or violations.

Where the MPA had the potential to attract visitors, the Project assisted the LGU in putting in place a user fee system to at least partially pay for its maintenance.

ASUNCION SIA, 2008

Where the MPA had the potential to attract visitors, such as in Coron, the Project assisted the LGU in putting in place a user fee system to at least partially pay for its maintenance. In all cases, considerable effort was taken to convince the various LGUs to include the MPAs in the annual investment plans (AIP). The SAF was a major source of funding for a number of MPAs but it lasted only so long – FISH had to make the LGUs understand that they needed to identify funding sources and mechanisms early enough for management and protection to be sustained.

At any rate in many of the communities assisted by the Project, within a year of the establishment of the MPAs, fishers began reporting some improvement in their fish catches. Fisher testimonies were shared with local

officials to rally them to continue their support for the existing MPAs and in addition, to consider the establishment of new MPAs.

In 2006, hydrodynamic and larval dispersal studies commissioned by the Project were completed, providing new information on current and larval dispersal patterns and potential ecological interactions in our focal areas. We encouraged LGUs to invest in new MPAs that were selected based on these studies to fit the criteria of MPA networks. MPA networks are regarded as generally more effective than single MPAs in protecting multiple elements of an ecosystem such as, in this case, larval sources and sinks.

MPA networks. To better support our fisheries management objectives, we attempted to establish MPA networks in our sites based on results of hydrodynamic and larval dispersal studies that analyzed current patterns to determine the extent of dispersion of plankton and larvae in each focal area. MPA networks are believed to be more effective than single MPAs in terms of improving fish catch and conserving biodiversity. Working with the MPA managers, we used the hydrodynamic and larval dispersal data to determine if any of the existing MPAs in our focal areas were ecologically linked and found out that, in fact, most of them were interconnected. Subsequently, from 2007 onwards, the data were also used to guide the selection of new MPA sites in Calamianes and Tawi-Tawi. We also assisted the organization of the management groups that would take charge of each network, namely the Calamianes MPA Network, Danajon Bank MPA (DBM) Network, Lanuza Bay's Nagkahiusang Mananagat na Nag-amping sa Kadagatan (NAMANAKA), and Tawi-Tawi Bay Fish Sanctuary Alliance (TBFSA). Presided by duly elected officers, each of these organizations formulated their own management plan and policies, and held regular meetings with secretariat support from FISH.

Confronting overfishing

Functionally, all of the MPAs in our focal areas served as marine sanctuaries where fishing was entirely prohibited and human access was restricted. As such they contributed to reducing fishing pressure on fish stocks, at least in the areas where they were located. Being mostly coral reef and seagrass areas, they also helped protect the spawning and feeding grounds of many fish species.

But it has long been shown that MPAs alone cannot prevent the depletion of fish stocks, especially where fishing intensity around the MPAs is extremely high. There is no single silver bullet that will solve overfishing. The strategy must combine measures to protect habitats and fish stocks, enforce fishery laws, as well as adaptively manage fishing effort for the sustainability of fish stocks.

Throughout the Project life, we tackled specific fishery issues whenever and wherever in the focal areas there was an opportunity to do so. At the outset, alongside the baseline assessments, startup of field office operations and "handshakes," we implemented so-called early fisheries management actions, which were generally selected based on stakeholders' perceptions of the relative economic importance of a threatened fishery resource and their willingness to accept regulation on its exploitation. The mode of technical assistance delivery toward capacity-building was primarily through LGU

participation in stakeholder consultations and coordination activities leading to the development of model species-specific management initiatives.

To effectively engage stakeholders and encourage our partners to adopt appropriate management measures, consultations highlighted issues that directly affected fishers, such as, 1) fish stocks would continue to decline if no action was taken to address the issues; 2) solving the complex problem of overfishing would have a greater chance to succeed by breaking it down into its various components; 3) illegal fishing had tremendous impacts on fishers' livelihoods; and 4) fisheries management must consider natural biological processes like spawning and recruitment of species. Messages that underscored not only the problems but also the solutions were repeated for emphasis and generally proved to be the most effective.

It was important to convince stakeholders not only that our proposed closed season for siganid was necessary and eventually beneficial, but also that it could be implemented in a fair and consistent manner.

The consultation process that accompanied our early fisheries management actions confirmed the common observation that local fishers often have a keen knowledge of fish biology, particularly of their particular target species, but they often misuse this knowledge. In Danajon Bank, for example, fishers agreed the siganid population in their area had become depleted and admitted it was partly because the species was hunted even during spawning. This prompted our prescription for a closed season during mass spawning events that occur regularly in seagrass areas during the week of the new moon, which the fishers eventually supported.

The Project's initial fisheries management measures were primarily aimed at gaining stakeholder acceptance of the Project and its guidance. In this regard, the specific actions were probably less critical than the manner by which they were promoted and implemented. Key to securing stakeholder acceptance of fishing restrictions in the initial stages of Project implementation was not scientific information, although it was important to introduce it early so it could be reinforced by local knowledge. Fishers *know* their fish, sometimes more than the experts. If fisheries are unsustainable, it is not always because of the fishers' lack of knowledge of their target species, or even because of their lack of appreciation of their collective capacity to overfish. More than likely, it is because of the fishers' human impulse to maximize their gain, and because of their lack of confidence in the government's ability to successfully enforce regulation.

In Danajon Bank's case, there were existing ordinances regulating siganids, including one (in Talibon) that was adopted in 1998. But these were never successfully enforced, leaving siganid fishers leery of their effectiveness. It was important therefore to convince stakeholders not only that our proposed closed season was necessary and eventually beneficial, but also that it could be

implemented in a fair and consistent manner. Nothing could convince them better than to see for themselves a successful closed season for siganid, and to hear from the LGU and community implementers themselves how they did it. With Project support, a group of LGU officials and community leaders from our focal area in Danajon Bank visited Palompon, Leyte to observe that municipality's siganid conservation program called *Bantay Danggit*, which involved the community in the enforcement of the closed season. This visit provided the impetus for their decision to support a local ordinance establishing a similar closed season in their municipalities.

JON UNSON, 2006

The same process was followed in the implementation of other early fisheries management actions in Danajon Bank and the other focal areas, mainly regulations on the collection of specific resources with significant economic importance, such as blue crab in Danajon Bank, siganid in Lanuza, and abalone in Tawi-Tawi. As these early actions began to generate tangible benefits for primary stakeholders, we continually restated their bases, with added emphasis on the value of using both local knowledge and scientific information in determining not only the state of a resource, but what measures one could possibly take to improve it. This helped boost the LGU's and community's early confidence in experts' opinion and scientific information, to secure their support for fishing restrictions that were based on parameters not immediately obvious to them, such as ecological interactions, potential for overfishing or the impacts of certain fishing methods on other fishing activities.

Meanwhile, we pursued the institutional work needed to sustain the gains we hoped to achieve in capacity building. The opportunity to establish a key requisite of fisheries management in the local governance system came up early in the life-of-Project. In 2004, with Project support at the national level, DA-BFAR issued the implementing guidelines for Executive Order 305 ("Devolving to municipal and city governments the registration of fishing vessels 3 gross tonnage and below"), allowing the Project to begin the process of developing a fisheries registration and licensing system with its partner LGUs. EO 305 was earlier advocated by the National Anti-Poverty Commission (NAPC) Fisherfolk Sectoral Council and the League of Municipalities of the Philippines (LMP) to facilitate the registration of municipal fishing vessels.

The plan was to eventually set up a "one-stop-shop" that administered both registration and licensing, but registration was pursued first in order to build public trust in the system. Registration is relatively easier to promote to fishers than licensing because fishers regard it as a way to claim their privilege to fish; licensing, on the other hand, is often associated with regulation and taxation and thus more difficult to "sell."

The fisheries registration system was installed in each of the focal LGUs through a series of workshops leading toward the adoption of a municipal ordinance that officially instituted the system. Project assistance was sought and provided to train municipal personnel to administer the system, and qualified LGU staff were further trained and certified by the Maritime Industry Authority (MARINA) in admeasurement, a prerequisite to the official registration and documentation of all boats, including municipal fishing boats.

Monitoring results showed that fish stocks seemed to have improved significantly around the MPAs. However, catch-and-effort monitoring data indicated the possible emergence of new threats affecting small-scale fishers.

Standard registration and licensing forms and databases were developed to help ensure that the information collected could eventually be integrated and used to monitor fishing trends on a larger geographic scale, such as at an inter-LGU, regional or wider fisheries ecosystem level. In addition, we put together an information management system designed for easy entry and retrieval of the various information gathered from registration and licensing, catch-and-effort monitoring, and other fisheries activities.

Qualified personnel from each of the focal area LGUs in Danajon Bank and Calamianes were also trained in catch-and-effort monitoring. The plan was to deploy the trainees to data collection assignments over 3 months to determine how effectively each organization could implement a catch-and-effort monitoring program, but the trainees, citing other duties and lack of resources, were unable to complete the task. Even so, we continued to encourage the LGUs to invest in evaluation and monitoring by underscoring the importance of timely information in determining the progress of interventions, detecting remaining and emerging issues, and planning forward to ensure that solutions were identified and applied before any problem became irreversible.

Results from the second and third monitoring events presented us an opportunity to demonstrate just how important data collection and the periodic review and evaluation of management interventions were to promoting sustainable fisheries. The results showed that fish stocks seemed to have improved significantly around the MPAs. However, our catch-and-effort

monitoring data indicated the possible emergence of new threats affecting small-scale fishers.

To illustrate, in Ubay in Danajon Bank, the intensive campaign against commercial fishing intrusion successfully reduced the number of Danish seines operating there from 27 units at the start of the Project to 0 in 2006. The drive against dynamite fishing also appeared to be successful, with the number of dynamite fishers decreasing to about half their number in 2004. Encouragingly, total fisheries production in the area rose from about 1 million kg in 2004, about 27% of which came from illegal fishing, to more than 1.7 million kg in 2006, with illegal fishing output reduced to just over 2% of total production.

REGINA BACALSO, 2004

However, even as total output from legal fishing activities rose significantly, the CPUE of most small-scale fishers actually decreased. The catch-and-effort data revealed two possible reasons: 1) the total number of fishers (estimated from an inventory of gear) increased more than two-fold, and 2) there was a spike in the number of stationary lift nets from 4 in 2004 to 16 in 2006. The former was most likely merely a reaction to the increased fisheries productivity in the area as it was not sustained in the succeeding years, but the latter trend held through 2008, with the stationary lift nets further increasing to 20 units. In addition, there was also a big increase in the number of fish corrals, from 16 in 2006 (it was 17 in 2004) to 48 in 2008.

There was cause for concern because while small-scale fishers (who made up the majority of the local fisheries sector) were generally experiencing lower catches, the few operators of these two gear seemed to be capturing most of the benefits of improved management and increased productivity from the MPAs, with fish corrals recording an increase of more than 400% in total production and stationary lift nets more than 3,000%. Although passive gear permitted by the LGU, stationary lift nets proved to be highly efficient, and most if not all of the fish corrals reportedly used fine-mesh nets (which are illegal except for a few uses specified by law). Indeed, even with their numbers rapidly rising, fish corrals registered an increase in average CPUE from 4.59 in 2004 to 8.54 in 2008, as did stationary lift nets, from 10.31 to 62.10.

There was also concern that the fish corrals (particularly in Talibon) and stationary lift nets (mainly in Ubay) had in fact already started to cause growth overfishing in the area. Despite the massive increases in production from these

fisheries between 2006 and 2008, for instance, Ubay's total fish landings actually decreased by nearly 300,000kg during the period.

Toward the latter part of the Project, based on the outcomes of our fisheries monitoring activities, we drew attention to the possible impacts of the continued proliferation of stationary lift nets and fish corrals. We encouraged the concerned LGUs to consider limiting the number of both types of gear. In Talibon's case, we also recommended that, to reduce overfishing, the mesh size of nets used in fish corrals should be regulated.

In partnership with DA-BFAR, we initiated research on these gear types and their impacts for more definitive recommendations. We also consulted with concerned LGUs and stakeholders to determine appropriate measures to manage the impacts of the gear. Discussions were based on a wide range of considerations, including existing fishing patterns, systems of use rights allocation, legislation and implementing mechanisms.

Based on the monitoring outcomes, we drew attention to the possible impacts of the continued proliferation of stationary lift nets and fish corrals and encouraged concerned LGUs to consider limiting the number of both types of gear.

JON UNSON, 2006

Negotiations started in late 2008 and were still underway more than a year later, even as a few operators, apparently already experiencing declining production, had voluntarily begun to dismantle their installations. The LGUs committed to accept the Project's and DA-BFAR's recommendations as soon as the research was completed and adequate information became available to support the proposed restrictions. Available information and our stakeholders' reactions to the options presented pointed to input (primarily gear) controls as the way to go.

Whatever the manner of control, continued and consistent enforcement proved to be critical, to assure compliant stakeholders that they, and not someone else, would ultimately be rewarded for their forbearance. The ban on the collection of berried blue crabs in Danajon Bank faltered when the stakeholders lost faith in the enforceability of the ban because of poor monitoring (berried blue crabs left to spawn by law-abiding collectors were sometimes harvested by others).

Also in Danajon Bank, strict enforcement of fishery laws from the start of the Project caused Danish seine fishers in three of our four focal area LGUs to cease operations. But until 2008 in Bien Unido, the fourth LGU in our focal area, Danish seine operators were allowed to (illegally) stay in business and persisted in poaching on the municipal waters of the other three focal LGUs, much to the chagrin of the fish wardens trying to guard those areas. Results of our 2008 fish catch monitoring indicated that these Bien Unido-based Danish seine fishers captured a significant proportion of the increased fish abundance and improved species mix resulting from the diligent efforts of the other LGUs. The number of Danish seine operators in Danajon Bank decreased by 46% from 151 units to 81 units between 2004 and 2008, but the catch of those that continued to operate increased more than 100% from 24.75 kg per unit effort in 2004 to 56.8 kg per unit effort in 2008.

The latter case highlighted that environmental issues such as the fish crisis "are not just 'individual' issues involving individual behavior but collective and political problems requiring collective initiatives and political solutions." (CRMP, 2000) It also underscored the inherent weakness of the municipal waters setup and the need for LGUs to work together to address common concerns. From the current Project perspective at the local focal area level, this was mainly an issue of enforcement, one that we attempted to address through advocacy and institutional development.

Fostering collaboration

All Project interventions were undertaken alongside an IEC and advocacy campaign that encouraged our LGU partners and stakeholder communities to help address not only those fisheries issues and problems within their municipal waters but also those happening outside that impact a wide area. Through IEC and advocacy we promoted both small-scale and large-scale actions, by individual LGUs in their own turf or by a group of LGUs through big-group or small-group collaboration covering a wide area across multiple jurisdictions.

In the focal areas, four major activities were undertaken to set the stage for larger-scale management: (1) strengthening the legal basis for inter-LGU cooperation through, for example, the formulation or review of existing inter-LGU arrangements; (2) management planning at the inter-LGU level; (3) facilitating the allocation of budget and other resources by cooperating LGUs to sustain inter-LGU operations; and (4) establishing a functional secretariat to provide policy and plan coordination, monitoring and feedback through information management, education and outreach at the inter-LGU level.

Early in the Project implementation, we worked toward the adoption of a harmonized fisheries management framework plan to provide guidance to our LGU partners in the formulation of their respective fisheries management programs, with some encouraging initial results: In Bohol, the provincial

governor issued an executive order creating an inter-municipality fisheries management planning technical working group tasked to draft a Danajon-wide fisheries management framework plan. In Surigao del Sur, LGUs approved a review of the coastal and fisheries components of the Lanuza Bay Environmental Management Framework Plan to determine how to integrate into it relevant fisheries management objectives and strategies. In Calamianes, stakeholders agreed to develop a Calamian-wide integrated coastal fisheries management plan on which the concerned LGUs would base their respective management programs and strategies.

Because of institutional and other constraints, however, the comprehensive fisheries management planning process that was originally intended to happen at the inter-LGU level during the second year of Project implementation did not start until much later. This left no time at all for the plan to be implemented and fisheries management to complete even one cycle. Nevertheless, we did make significant headway in getting our focal area LGUs to work together on other critical interventions – notably coastal law enforcement, broad CRM planning, MPAs and IEC. Coordination was undertaken through existing inter-LGU arrangements where such existed, such as the LBDA in Lanuza Bay, CLEC in Danajon Bank, and a memorandum of agreement (MOA) between the Calamianes LGUs that called for a coordinated approach to fisheries management. In Tawi-Tawi, where there was little opportunity to institute such arrangements, we pushed the harmonization of management initiatives in order to induce some level of coordination.

Coordination was undertaken through existing inter-LGU arrangements where such existed.

In particular, law enforcement was a natural venue for coordination. LGUs realized from experience that because of the high mobility of illegal fishers and the trans-boundary nature of many fisheries violations, some aspects of enforcement could be done effectively and efficiently only by LGUs working together. In fact, LBDA was formally initiated by two municipalities in Surigao del Sur specifically to address poaching by commercial fishers that originated in one of their neighboring towns. Over time, the alliance expanded to other common development concerns and grew as an organization – LBDA was the

only inter-LGU arrangement in the FISH sites that had a specific provision for funding and other operational support from member LGUs.

But even in Tawi-Tawi where no formal inter-LGU setups existed, we were able to engender cooperation by training the different municipal operating units together, a cost-effective strategy to provide opportunity for government enforcers and community volunteers from different municipalities to work as a team. We also facilitated an inter-agency collaboration agreement for the formation of the Tawi-Tawi Bay Fish Sanctuary Alliance (TBFSA) that created a platform for key CRM players in the province to experience what it would take to organize and accomplish a joint undertaking.

In Danajon Bank where fishery resources span across four provinces in two regions, we participated in discussions initiated by PATH Foundation to formalize the Cebu-Leyte-Bohol-Southern Leyte (CELEBOSOLE) alliance that could have served as a venue for Danajon-wide planning and consultations. Despite the signing of a MOA among the concerned provincial governments, however, the initiative did not prosper because of differences in approach and priorities of the various parties involved. We thus focused our expansion effort on providing direct assistance to municipal LGUs in Leyte and Southern Leyte, particularly through IEC support and training in the establishment of MPAs, coastal law enforcement and CRM planning. The task was made easier by the fact that our initial entry into Leyte and Southern Leyte was made in response to specific requests from some LGUs in these two provinces. Being demand-driven, capacity-building was carried out immediately, largely bypassing the persuasion stage that in other areas determined the LGUs' acceptance or rejection of an intervention or dictated the pace of its implementation.

We also encouraged LGUs to work together in sorting out common resource uses and conflicts in their municipal waters through fisheries zoning. We promoted zoning midway through Project implementation, but issues related to the delineation of municipal waters in many of the focal areas dragged out the process well into the Project's last two years. With the Project and the National Mapping and Resource Information Authority (NAMRIA) facilitating the process, most of the focal area LGUs eventually completed the delineation process, but there were a few that could not because of unresolved boundary

Municipal water delineation. The delineation of municipal waters is one key CRM mandate that LGUs cannot do individually. The process is inherently consultative because it requires agreement between LGUs on the extent of their respective areas of jurisdiction, and it sometimes involves contentious boundary disputes between two or several LGUs that require third-party arbitration. Responding to requests from our partner LGUs and working with NAMRIA, we facilitated the resolution of long-standing boundary disputes between the municipalities of Clarin, Inabanga and Buenavista in Danajon Bank. We also assisted the validation of coastal terminal points and subsequent delineation of municipal waters in 6 municipalities in Surigao del Norte, an expansion site. However, the delineation exercise was not concluded successfully in Calamianes, where overlapping claims on certain islands and islets proved to be too polemical to resolve. There was no delineation attempted in Tawi-Tawi, where municipal waters are very extensive and Project resources were focused on ensuring that nearshore resources which local communities have immediate access to and heavily depended on were properly managed (primarily through MPAs and community-based law enforcement).

disputes. To get around boundary issues, we persuaded concerned LGUs to set aside the debate about who had jurisdiction over the disputed areas (or pursue it in other forums) and focus instead on the fishery resource uses they shared with neighboring municipalities. This allowed us to begin the zoning exercise.

Fisheries zoning. The Project designed a participatory zoning process that included orientation training, fisheries mapping, and consultations with local stakeholders to determine and propose solutions to existing or potential use conflicts. The solutions were added to the zoning map, which was validated through a series of community-level meetings with municipal and *barangay* officials in all LGUs in our 4 focal areas, as well as Leyte. Parallel executive-legislative consultations were also conducted and inputted into the final zoning map, which was presented in a public hearing and then officially adopted through a municipal ordinance or any similar policy instrument.

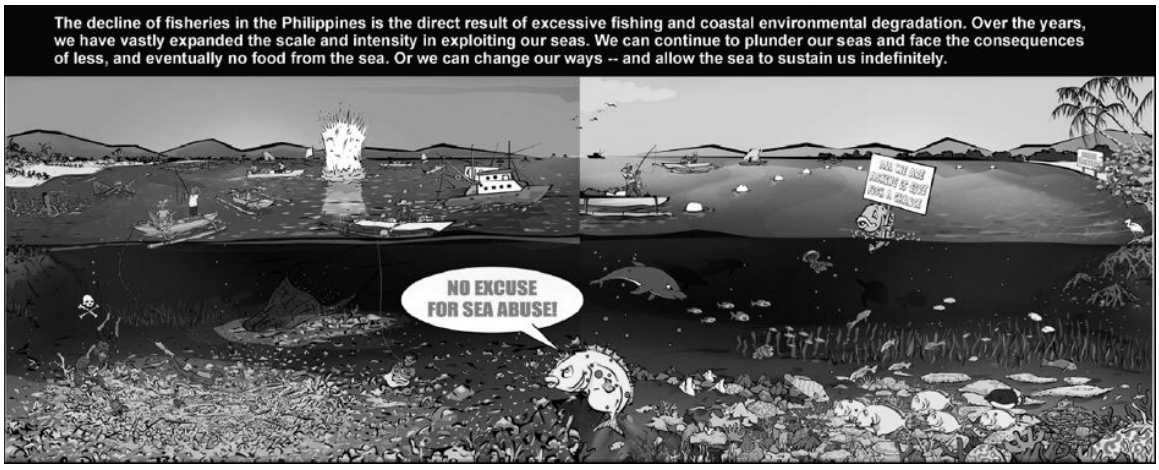
Zoning mostly involved marine spatial planning (MSP) focused on fishery resource use within defined ecosystems shared by the different LGUs in the focal areas. It was intended primarily to determine and evaluate the interactions among the various uses, identify multiple uses and resolve any existing or potential conflicts through proper allocation of space. The planning exercise was patterned after a similar process introduced in Australia's Great Barrier Reef, but modified and abbreviated to fit the focal areas' much smaller spatial expanse, on-going parallel initiatives in the areas, and available technical staff and financial resources. Other experiences were also considered, including those from Tun Sakaran Marine Park in Sabah, Malaysia; the Wakatobi and Komodo National Parks in Indonesia; the integrated coastal zone management zoning scheme in Xiamen, China; and the integrated land, coastal and sea use zoning of Batangas Bay and Bataan.

The zoning plans, as well as ecosystem models developed by the Project for each of the focal areas, fisheries registration data and other information collected from the implementation of various management interventions, fed into the preparation of the fisheries management framework plan, another inter-LGU undertaking. The framework plan outlined the fisheries management interventions already in place as well as other measures to be undertaken by each LGU over a 5-10 year period, including fishing effort configuration strategies and schemes that would guide municipal fisheries managers toward establishing the appropriate levels of fishing effort.

It can be said that, by and large, our effort to "scale up" management to a larger area was pursued dynamically in response to opportunity or demand. But it can also be said that we created our own opportunities by constantly seeking ways to bring our message to fisheries stakeholders in our focal areas as well as our bigger target areas and beyond. The task of steering LGUs through the early stages of capacity development for fisheries management might have been fraught with great challenges, but it also gave us the unique chance to introduce a development mindset that could potentially shape the way fisheries would be managed in the future.

One premise behind FISH was that productivity or growth of fish populations could be increased through the use of an ecosystem approach to fisheries (EAF). (USAID, 2003) As defined, this approach would include the following features:

1. It would consider geographically specified fisheries boundaries and management areas;
2. It would take into account current knowledge and uncertainties about the environment and human components of coastal and marine ecosystems as they pertain to fisheries, and strives to balance diverse objectives in using the ecosystem;
3. It would address human activities and environmental factors that affect these ecosystems, the response of the ecosystems, and the outcomes in terms of benefits and impacts on humans; and
4. Where the ecosystem was already degraded, it would work at rebuilding and restoring the ecosystem, and moving toward sustainable use.



While there was very limited occasion to apply in practical terms an ecosystem approach that specifically focused on fisheries, in many ways through our various interventions, we were able to "work the ecosystem message" and promote (primarily through IEC) some basic EAF principles. This was particularly true for those principles that pertain to decentralization of management to the lowest appropriate level, stakeholder and multi-sectoral participation, use of relevant scientific and user-supplied information, conservation of ecosystem structure and functioning, adaptive management, ecosystem interactions, sustainable use, social equity, precautionary principle, and management at appropriate temporal and spatial scales based on long-term objectives.

Through our various interventions, we were able to "work the ecosystem message" and promote (primarily through IEC) some basic EAF principles [such as] sustainable use.

Admittedly, much of our work in terms of promoting EAF was only mostly about building the appropriate mindset, but this is an essential first step in any change initiative. For fishery resource use to move from open access to managed fisheries under EAF, fisheries managers must undergo a "frame-shift" and transform the way they view, understand and respond to fishery issues. The ecosystem mindset must be deeply embedded in the governance system for the desired change to happen, and realistically speaking, this will take much more effort than FISH already accomplished. Nevertheless, what the Project succeeded in doing is significant in itself, because it has established a sustainable direction that its focal area LGUs can take, and set the right tone for future capacity-building initiatives for fisheries management by LGUs.

Catalyzing behavior change

Addressing open access fishing and promoting changes in fisheries exploitation behavior and practices necessitates the following driving forces: 1) effective local fisheries governance; 2) stakeholder engagement and building social capital; 3) enhancing stakeholder awareness/knowledge; 4) promoting environmental ethics and best practices; and 5) nurturing leaders and champions.

Working on the premise that IEC has a critical role to play in each of these driving forces, we integrated into all of our activities the major IEC strategies of social marketing, social mobilization and development support communication, aimed primarily at developing a constituency for fisheries management within as well as outside the fishing sector. Incorporated into many of our training designs for example were problem-solving and role-playing exercises to help facilitate discussions among the various stakeholders and provide the context by which to bring out the message that while poverty is often used as an excuse for illegal fishing, it is illegal fishing that has caused and continues to deepen the now pervasive poverty in our coastal communities.

Working on the premise that IEC has a critical role to play in [catalyzing behavior change], we integrated into all of our activities the major IEC strategies of social marketing, social mobilization and development support communication.

Activities were targeted mostly at the following stakeholders: 1) key players or resource users who directly or indirectly contributed to fisheries problems; 2) decision-makers whose support was needed to address the problems; 3) opinion leaders who wielded some amount of influence in the community; 3) various sectors who were likely to be affected by the consequences of fisheries management decisions; and 5) organizations or individuals who were in a position to help and promote fisheries management.

Foremost, our constituent was of course the LGU, and as well as all other interventions, most IEC activities were directed at this primary audience.

Our messages generally emphasized the LGU's mandate and corresponding responsibility to manage their municipal waters, and that failure to deliver this mandate could make an LGU liable to higher authorities or the electorate.

Initially, orientation meetings and information caravans spearheaded by the IEC team were held by way of introducing the Project to our target LGUs and other constituencies. Site teams then actively focused on the office of the mayor as well as the municipal council and where possible, the fisheries and aquatic resource management councils (FARMCs), which had influence on the LGU's policy-making as an advisory body. Through a good amount of interpersonal communication and persistence, they slowly built the social capital needed to establish working relationships with the LGU.

The fishing communities were also an important audience for the Project, next only to the LGUs. From the IEC standpoint, the objective was to get resource users to accept "managed fisheries." This proved to be a difficult process. The fishing communities in our sites were seldom smooth functioning social units. A good number of fishers were migrants, with very little or no kinship relations and social obligations in the localities where they fished. In many instances, their relationships with other fishers were characterized by competition dynamics, influenced by a long-held belief that government decisions favored certain sectors' or individuals' interests over their own interests.


JON UNSON, 2006

We employed consensus-building and negotiations to address conflicts not only among resource users but also between resource users and the LGU. In this regard, the Project played a key facilitation role particularly in defusing confrontational situations and helping contending parties come to an agreement, particularly on issues related to site selection for MPAs, municipal water delineation and fisheries zoning.

In an effort to build social capital among and between LGUs and resource users, the Project made sure that fishers were represented in briefings, meetings, workshops and other activities. Existing people's organizations were identified and engaged in the process, and their respective leaders were invited to become members of the TWG. In areas such as Tawi-Tawi where social networks and family ties are paramount, we coursed our interventions through two channels: the LGUs and recognized community leaders. We also recruited at least our initial batch of volunteer MPA enforcers mostly from the family and

clan circles of influential local leaders, relying more on social capital than altruism to build a foundation for volunteerism.

Illegal fishers -- a primary target of our behavior change communication strategy – proved to be among the most elusive. Quite understandably, illegal fishers refused to attend training and IEC activities and indeed were openly hostile to any overtures of engagement or participation. Often, residents claimed that most illegal fishers in their area were "*dayo*" or migrants from other islands or provinces, but in many cases, community members were in fact directly or indirectly protecting illegal fishers with whom they had familial or other connections and shared the bounties of illegal fishing.

To reach illegal fishers, we devised innovative non-confrontational ways to deliver our messages on responsible fishing and cultivate the social value that illegal fishing is an undesirable behavior from both the individual fisher's point of view and the collective view of society. In Danajon Bank, we tapped local school-based talents to provide acting training to children of illegal fishers and out-of-school youth, who successfully produced and staged a play that depicted the huge harm caused by illegal fishing to the environment and society.

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ASUNCION SIA, 2008

Another strategy was to organize simultaneous IEC activities and medical missions to underserved island communities involving the Philippine Navy and PNP, which provided doctors who offered medical services to island residents. These medical personnel worked alongside resource persons from FISH, DA-BFAR and the LGU who talked about the importance of protecting fishery resources. In addition, we engaged select members of the Catholic clergy who initiated "ecological evangelization" activities aimed at conveying the message that illegal fishing is immoral in the eyes of the church. Anecdotal reports said these activities resulted in a drop in illegal fishing, indicating that new social norms might have already started to develop at least in the communities that were specifically targeted.

To reinforce these emerging social norms, we then sought to expand the constituency and social capital for fisheries management beyond the fisheries sector and brought business, academe, media and other non-fishery sectors closer to fishery issues. For example, in Tawi-Tawi, Islamic religious groups and the local media became dependable allies for disseminating important messages on responsible fishing. In Surigao del Sur, two radio stations aired a weekly radio program that tackled a wide range of fishery issues from law enforcement to specific provisions of local fishery ordinances; hosted by lawyers, this radio show was patronized by LGUs and fishers for its insightful legal and technical advice.

In Danajon Bank and Calamianes, the local business sector supported the mural painting activities, exhibits and sea camps organized by the Project for the youth and fisherfolk, while various academic institutions were key partners for IEC in Surigao del Sur. Through the activation of the *Tangay 'Y ang Laud Calamian* (Friends of the Calamian Sea), the tourism, youth and school sectors in Calamianes were also involved in fishery matters, working alongside fishers during special events and sea camps.

The tourism sector was a particularly important

Ecological evangelization. Religion, along with the corresponding institutions that nurture it, has always played a key role in forming the mindset and consciousness of Filipinos. Recognizing this, we reached out to members of the Catholic clergy and Muslim religious groups for assistance and support in promoting environmental values and ethics to stakeholders in Danajon Bank and Tawi-Tawi, respectively.

In Danajon Bank, working with the Augustinian Province of Sto. Niño de Cebu and other members of the clergy, we organized a pilgrimage to the small islands off Bien Unido, Bohol, in an attempt to convince residents there to conserve and protect their endangered fishery resources. "Duaw Sto. Niño" (Visit of the Holy Child) provided residents of the geographically remote islands the opportunity to venerate the Holy Child, a highly revered figure in the Philippine Catholic church. At the same time, it allowed organizers to spread the Catholic Church's doctrine on "stewardship and care for God's creation." The *Sun.Star Daily* online edition reported: "When the 'Duaw Sto. Niño' made a stop at Bilangbilangan last Monday, Sherila Batonghinog, 38, a resident, thought a celebrity was on the island. When she saw it was the image of the Child Jesus, she cried for joy. '*Niari na gyud ang Ginoo among isla* (God has finally come to our island),' Batonghinog said." (Vestil, 2009)

We also supported (through SAF) the Supreme Council for Islamic Preaching and Guidance, Inc. (SCIPG) in the formulation and dissemination of the Philippines' first ever fatwa (religious ruling) on marine conservation. The *fatwa* was formulated by a group of *Ulama* in a series of *mushawarah* (consultation and research) and officially issued by the Mufti of Tawi-Tawi in 2006. Disseminated in four language versions (English, Arabic, Sama and Tausug), the *fatwa* specifically deals with blast fishing, cyanide fishing, the harvesting of juvenile fishes, and the protection and conservation of marine habitats. It categorically declares dynamite and cyanide fishing as "prohibited in Islam" because they cause direct or indirect harm to humans and the environment. It also declares the harvesting of juvenile fishes as "undesirable" if it involves wastage "such as throwing away or abandoning dead tiny fishes" and that the protection and conservation of marine habitats is a "collective obligation of the community."

We developed and produced three video materials – targeted mainly at our Cebuano-speaking sites – that linked environmental degradation to the excesses of human activities. Two of these videos were shown during the observance of the church's Lenten rites and the third video during the mass for the environment in observance of the *Sinulog* festival in Cebu.

We also spearheaded efforts to form the Environmental Coalition of Church and Civil Society, a group of various environmental organizations in Cebu that aims to promote the strategic spread of ecological evangelization among the various environmental subsectors.

constituency for Coron, because of the LGU's bias for tourism development; here, we engaged the chair of the municipal council's tourism committee in discussions on the potential contributions of CRM and fisheries management to the area's development as a tourism destination. Study tours developed for Calamianes focused on the user fee systems of MPAs to emphasize the potential "tourism benefits" that the protection of coastal resources could generate.

Alongside our various constituency-building activities, we produced a wide range of print materials that directly supported management interventions. Posters showing the top fishery law violations and translated into the majority language of the target areas were developed for use as "prompts" by the LGUs and local police – displayed at strategic spots such as fish landing sites, public markets and municipal halls, these posters carried the contact addresses and numbers of the LGUs and PNP and exhorted the public to report any observed violations

To hammer home the message that illegal and destructive fishing was the cause of poverty and not its effect, we created flipcharts showing various cause-and-effect diagrams. For example, one flipchart showed a despondent fisher surrounded by denuded mangroves, a few pieces of small-size fish and dynamite bottles, with the words in bold letters "*Ang pagkaguba sa kinaiyanhong bahandi maoy sinugdan sa pagkalisud sa panginabuhi*" (Poverty began when we started destroying our natural resources). Other flipcharts depicted the poor as the biggest victims of illegal fishing and the future of coastal communities growing bleaker and bleaker as illegal and destructive fishing continues. These flipcharts were used in orientation sessions with fishers and never failed to elicit spirited reactions.

Numerous popular information materials were developed to enhance stakeholder knowledge of fisheries issues and emphasize the need for fisheries management. Early in the Project implementation, we produced a documentary called "Under Construction: The Making of a Coast-wise Nation," which traced the development of CRM in the Philippines and served as the Project's introduction to our focal areas. Other materials explained in an easy-to-understand way the otherwise technical subjects of open access, overfishing and fish as a biologically renewable but finite resource. For example, a pamphlet called "Go easy on the sea" talked about the causes of fisheries

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decline and various measures to address them; spin-off posters were developed that highlighted the main points of the pamphlet, and leaflets and radio plugs discussing the importance of coastal habitats and the need to protect them were produced and disseminated in the majority languages of the target areas.

As the Project's contribution to the growing body of references developed specifically for use by LGU personnel in their CRM work, we also produced a sourcebook that explains the concepts and principles that Philippine LGUs and other relevant organizations can apply to achieve sustainability, particularly in the municipal fisheries sector; endorsed by DA-BFAR, this publication presents a framework for building capacities in municipal fisheries management across different levels of government and stakeholder groups. Another publication, the 2nd edition of "Mending Nets: A handbook on the prosecution of fishery and coastal law violations," was produced in 2008, four years after the 1st edition was published under CRMP; endorsed by the Office of the Solicitor General and PNP-National Law Enforcement Coordinating Council (NALECC), this edition included new administrative issuances relevant to coastal law enforcement that came out after the 1st edition went to press.

Besides the popular media, other strategies were employed to disseminate vital information that supported our advocacies. FISH messages were reinforced by the "visible presence" of management measures (but not necessarily the Project's presence). For example, coastal law enforcers operating in the focal areas were encouraged to wear uniforms that clearly distinguished their role, and MPAs were distinctly marked by buoys and guardhouses.

Taking a cue from environmental educators who espouse the use of highly visual tools and the experiential learning process in adult learning, we employed environmental interpretation as an IEC strategy for enhancing awareness and knowledge on coastal and fishery resources and developing among stakeholders a stronger sense of ownership for their coastal and marine resources, allowing them to better appreciate the natural resources found in their own "backyard." We set up exhibit centers in Bien Unido, Bohol and Bongao and Panglima Sugala, Tawi-Tawi to provide continuing information services focused on CRM, in particular fisheries management. In Talibon, Bohol, the LGU adopted a local ordinance to establish a full-service interpretive center dedicated to fisheries and CRM matters; administered by the municipal agriculturist, the center opened in 2007 with one LGU casual employee

Participatory 3D modeling. "P3DM integrates participatory resource mapping (people's knowledge) and spatial information (contour lines) to produce stand-alone scaled relief models that have proved to be user-friendly and relatively accurate data storage and analysis devices and at the same time excellent communication media. Relief models may also contain additional geo-referenced information obtained from field surveys, Global Positioning Systems (GPS) readings and secondary sources. The latter generally applies to virtual features like administrative boundaries, watershed classifications based on scientifically defined parameters, and others.

P3DM is a relatively new communicative facilitation method used in innovation processes related mainly to resource use and tenure. The method has been conceived to support collaborative initiatives aimed at increasing public participation in problem analysis and decision-making. The process within which P3DM is used may unfold at different levels involving a variety of stakeholders and diverse strategies.

In a practical context, the intervention phase wherein a 3-D model is manufactured leads participants through a collective learning process to the visualization of their economic and cultural domains in the form of a scaled and geo-referenced relief model, which can be used subsequently for different purposes...

Among the different visualizing methods used to spatially reproduced people's knowledge, P3DM is the one which – by adding the vertical dimension and using simple communication means like colors, shapes and dimensions – offers substantial advantages for depicting cognitive maps..." (Rambaldi and Callosa-Tarr, 2002)

assigned to regularly man it and staff from various offices to provide necessary support services on demand.

The exhibits in all four sites were developed through story-building workshops participated in by members of the LGU and representatives of the local fishing communities. Talibon's interpretive center is particularly noteworthy for having been developed largely through a participatory planning process that helped stakeholders appreciate the geological significance of Danajon Bank and its local and global ecological importance. The Center's main showpiece is a 3m by 6m relief map of Danajon Bank that was constructed using a participatory 3D modeling process developed by the National Integrated Protected Area Programme (NIPAP), a special project implemented in 1996-2001 by the DENR's Protected Areas and Wildlife Bureau (PAWB).

All these IEC modes and strategies came into play as we began to recommend new fishing restrictions to address emerging issues related to resource distribution, and facilitate a planning process that more comprehensively tackled resource use issues toward fisheries use zoning. IEC training was integrated into many of the workshops that we facilitated, but in Talibon, because of the presence of an interpretive center there, a deliberate effort was made to deepen the institutionalization of IEC as a basic service of the LGU. Here, members of the LGU staff involved in the interpretive center's operation and programs participated in a strategic planning process aimed at strengthening the center's role in promoting policies and actions that support sustainable fisheries.

Talibon's interpretive center [Bohol] is particularly noteworthy for having been developed largely through a participatory planning process that helped stakeholders appreciate the geological significance of Danajon Bank and its local and global ecological importance.

Milestones & outcomes

Tremendous work went into instituting the governance reform needed to promote sustainable fisheries in our focal areas. Measured against our desired outcomes, not all of our accomplishments can be described as entirely successful. But all outcomes are important, because they provide vital lessons and building blocks that can be applied to future initiatives toward sustainable fisheries. Below we describe these outcomes based on some of our major performance milestones and broadly categorized as improved governance and behavioral change.

Improved local CRM and fisheries governance

A review of local CRM and fisheries management capacities was undertaken in 2009 to determine the impacts of Project implementation on local CRM and fisheries governance, assess the progress of the LGUs' CRM and fisheries management programs implementation, and build the LGUs' capacity to evaluate its performance in CRM and fisheries management. For the most part, the review noted observance by the assisted LGUs of the four criteria for basic CRM that the Project promoted, i.e. 1) adoption of a resource management plan supported by clear policy; 2) allocation of annual budget for some CRM and fisheries management measures; 3) establishment of an office (or a section within an existing office) run by a trained staff dedicated to doing CRM; and 4) implementation of some CRM measures and support services.

Early in the Project implementation, we started a broad CRM planning process that continued through virtually all of the Project's first 5 years, resulting in the adoption of CRM plans in all our focal areas. But the adoption of the CRM plan itself did not guarantee the implementation of a program or activity identified in the plan.

ASUNCION SIA, 2008

Generally, LGUs implemented only those programs or activities that FISH (or other projects) assisted. These included MPAs, fishery law enforcement, IEC and the early fisheries management actions described in this chapter. Some LGUs also implemented mangrove management, with assistance from other projects such as the USAID/DENR Environmental Governance Project (EcoGov) in Danajon Bank.

We used a number of indicators to measure progress in CRM and fisheries governance in our focal areas, namely, the creation or strengthening of

offices or personnel positions in the local bureaucracy, budget allocations, and access to external assistance for purposes of CRM and fisheries management. In particular, we regarded the presence of an office with a clear mandate to undertake CRM and fisheries management as a major requirement for the institutionalization of our interventions.

A full-service office with the right complement of well-trained staff would have been the ideal, but it was not something that could be implemented in the short term in any of the focal area LGUs because of budgetary limitations and rules that effectively constrained the LGUs from establishing new permanent personnel positions. Thus, the service delivery mechanisms for CRM and fisheries management were mostly carried out through an office already existing within the LGU, usually as "intervening duties" assigned to some (or one) of its personnel by an ordinance or executive order. Typically, these mechanisms were installed in the MAO as a section, in a specially created office directly administered by the mayor, or in the case of Tawi-Tawi in the municipal agriculture and fisheries office (MAFO).

The designated office served primarily as the implementing unit of the core CRM programs and in some cases also functioned as a coordinating office for support and other implementation activities, particularly coastal law enforcement and policy development. (Table 3.3)

Based on a scoring system that we devised for our capacity review of Project-assisted LGUs in 2009, the 29 FISH-assisted LGUs together scored 71% in terms of coordinating 10 basic CRM functions, and 69% on implementing these functions. Bohol, which had the highest number of Project-assisted LGUs, recorded the highest scores, while Tawi-Tawi, with only 3 LGUs assisted, had the lowest scores for these competency-based questions (Table 3.4).

The numbers generally reflected how far capacity-building had progressed in each Project site – Bohol was significantly "more mature" in this respect than the rest of the sites. The Bohol LGUs scored more than 80% on understanding the mandate of the designated CRM offices as the primary implementors and coordinators of coastal and fisheries-related programs, compared to the LGUs in the other sites, which scored less than 50%. Competency levels varied from LGU to LGU and from one area of CRM to the next, and generally reflected the programs and activities that the Project supported in each site. Generally, the focal area LGUs scored a high 70% in terms of their self-professed confidence in their ability to carry out specific functions related to CRM planning, law enforcement, MPA management, IEC, and to a certain extent, fisheries registration and licensing, except in Calamianes, where the LGUs scored a much lower 50% on the same competency-based question.

The focal area LGUs, except those in Calamianes, scored a high 70% in terms of their self-professed confidence in their ability to carry out specific functions related to CRM planning, law enforcement, MPA management and IEC.

Table 3.3. Competencies gained by CRM units from FISH Project interventions (based on a capacity review conducted by the Project in 2009)

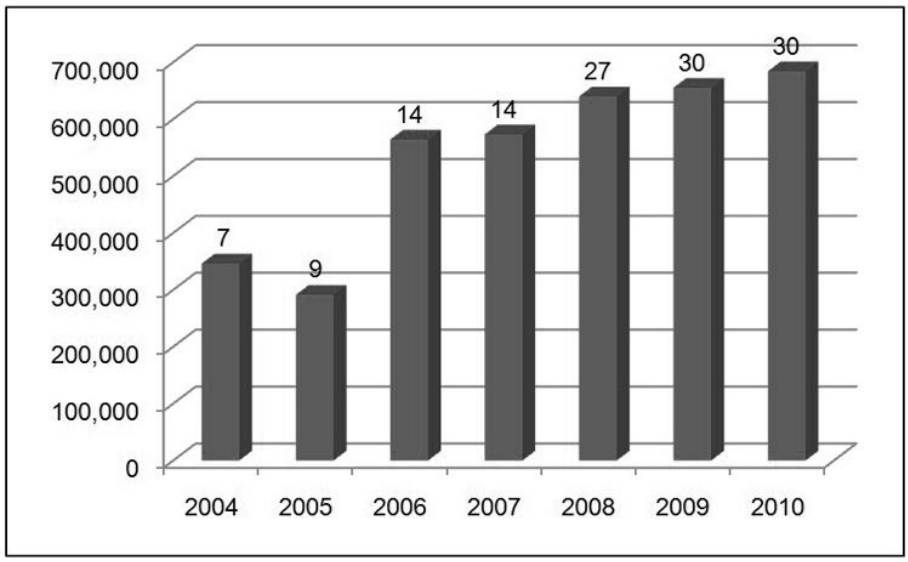
Program/Activity	Competencies
CRM/Fisheries Planning	Coordinate with the municipal planning and development office to review and update CRM/fisheries plans and zoning plans and include projects and activities in the LGU's annual investment program (AIP); through the mayor's office, work with the SB to allocate regular budget for staff, office maintenance and operations and review regulations of the zoning plan
MPA/MPA Network	Provide technical and funding assistance to POs or community-based management groups for maintenance, enforcement and monitoring activities; coordinate regular meetings and reporting of the MPA network and review of management plans; through the mayor's office, work with the SB to allocate regular budget for MPA maintenance and enforcement and review revenue generation mechanism if any
Effort restriction	Coordinate with the municipal coastal law enforcement team on the enforcement regulations of the fishing effort restrictions and monitor results; through the mayor's office, work with SB in consultation with the municipal coastal enforcement team to review regulations to enhance implementation of management measures
Registration and licensing	Coordinate with the municipal treasurer's office on registration and licensing and maintain a database of registrants and licensees; through the mayor's office, work with the SB in consultation with appropriate LGU offices to review regulations on allocations and policy on the proceeds of revenues generated from registration and licensing
Coastal law enforcement	Coordinate with the municipal coastal law enforcement team on the formulation of operations plan, conduct of regular patrols and post-operation assessments; conduct of coordination meetings with relevant offices within and outside the municipality to address enforcement concerns; through the mayor's office, work with the SB in consultation with the municipal coastal enforcement teams to review regulations to enhance implementation of management measures including allocation of budget for enforcement operatives, acquisition of enforcement assets, patrol operations among others
Monitoring and evaluation	Plan and organize monitoring teams, conduct monitoring activities, analyze monitoring results, present results to stakeholders and maintain database; through the mayor's office, work with the SB to allocate a regular budget for staff and conduct of monitoring activities and review policies informed by the monitoring and evaluation results
IEC , training and technical assistance	Provide training and extension services and technical assistance to coastal communities and recommend policy support to SBs

Table 3.4. Capacity scores of FISH-assisted LGUs relative to coordinating and implementing 10 basic CRM functions based on a capacity review conducted by FISH in 2009

Site	No. of LGUs reviewed	Capacity score	
		CRM coordination	CRM implementation
Bohol	9	84%	89%
Leyte/So. Leyte	7	49%	42%
Calamianes	4	23%	25%
Surigao del Sur	6	42%	45%
Tawi-Tawi	3	19%	20%
	29	**71%**	**69%**

Based solely on budget allocations, the LGUs' level of interest in CRM appeared to have increased over time. There was a significant increase in the LGUs' total CRM budget allocations at the end of 2009 from when FISH started in 2004. Budget allocations for CRM averaged about Php669,000 for each LGU in 2010 (with 30 LGUs reporting), up 93% compared to the Php346,000 recorded in 2004 (with 7 LGUs reporting). (Fig. 3.2) The amount was barely enough to cover the minimum requirements of CRM, but it was remarkable nonetheless given that, to begin with, many of the LGUs in the focal areas were 5th and 6th class municipalities with very limited resources.

Fig. 3.2. Average LGU budget for CRM in the FISH Project sites, 2004-2010



On average, about half of the CRM budget was taken out of the 20% development fund – not the ideal scenario perhaps but a definite improvement from what it was in 2004. In addition, an analysis of AIPs in our sites indicated that, at least on paper, LGUs were increasingly incorporating into their annual budget programming the specific programs and activities identified in their CRM plans, particularly those that we specifically promoted.

In practice, of course, as is typical among Philippine LGUs, the AIPs were never implemented to the letter. Also, despite the significant increase in overall budget allocations, CRM actually received only a small proportion of the LGU's total funds, which had to be divided up among many other "priority" development concerns. For example, well before FISH started, the mayor of Cortes, Surigao del Sur was already a strong advocate of CRM, but budget records from 2006 showed that his municipality allocated only 6% of its Php4.5 million development fund for CRM. Clearly, the Project's advocacy effort helped to draw some LGU investments toward addressing CRM issues, but just as clearly, the effort must continue – with the completion of FISH, it is now up to

the CRM unit within each LGU to take up the slack and continue to champion funding support for its programs.

Indeed, "budget allocation" was one area where most LGUs appeared to have the highest confidence level – they scored 96% on the appropriation of a regular budget to maintain the CRM office and its operations and the inclusion of CRM projects and activities in the AIP. Moreover, the LGUs on average scored 90% relative to the capacity needed to fund law enforcement operations and the acquisition of enforcement assets. However, while the LGUs scored a high 82% on the inclusion of MPA establishment and maintenance in the AIPs and 86% on the review and enhancement of MPA management after FISH assistance was completed, they scored only 54% relative to the capacity level needed to fully assist community-based management groups in regularly monitoring the biophysical conditions of the MPAs.

Coastal law enforcement was another area of competence that the LGUs were fairly confident about. In the 2009 capacity review, FISH-assisted LGUs scored about 80% on the formulation of operational plans, post-operational assessments and review of fishery regulations to improve the enforcement of management measures. In this respect, the Coastal Environment Protection Unit (CEPU) of Ubay, Bohol demonstrated the highest level of competence, with members of the team often serving as resource persons for basic enforcement trainings and operations planning workshops within and outside our sites. Still, the LGUs in general scored a low 30% in terms of the capacity level required to coordinate the activities of the various agencies involved in coastal law enforcement in their areas, a critical strategy toward improving enforcement and compliance levels.

Many LGUs were also not equipped to fully administer the fishery registration and licensing system, much less utilize it for fisheries management.

In a capacity review conducted by the Project in 2009, FISH-assisted LGUs scored about 80% on the formulation of operational plans, post-operational assessments and review of fishery regulations to improve the enforcement of management measures.

Although the LGUs scored a high 86% on fishery registration and licensing, they were only really performing the administrative function of recording fishers' names, boats, gear and other information and collecting registration fees when required by local ordinance. We helped a number of our focal area LGUs set up a standard computerized database management system for storage and retrieval of registration and licensing information, but it was not clear that the database was properly maintained, if at all.

None of the LGUs had the capacity to analyze the data either, and there was no indication that any of them actually used any of the fisheries information they collected to determine effort configuration for the purpose of managing fishing effort. What was evident and potentially problematic was the tendency of most LGUs to focus on the prospect of raising additional revenues from fisheries registration and licensing rather than its intended use for fisheries management. To be fair, putting in place the mechanisms that allowed the LGUs to register municipal fishers and their fishing implements took long enough, which did not leave much time for us to provide the CRM offices the training they needed to make full use of the registration and licensing system or to demonstrate in practical terms how the system fitted in the overall fisheries management framework.

Indeed, given that building organizational capacity is a complex and drawn-out process to begin with, there was only so much capacity that the we could attempt to develop in our focal areas within the Project's 7-year lifespan. The highest competency levels the LGUs gained appeared to be in MPA establishment and management, enforcement of fishery laws and regulations, and IEC.

Still, even the minimum capacity to identify and prioritize broad CRM concerns as well as specific fishery issues and make informed decisions on how to manage them allowed LGU officials and technical staffs alike to take ownership of and responsibility for their decisions. Although not quantifiable, there were attitudinal changes related to the LGU's improved capacity and readiness to take action that were quite discernable and thus worth noting.

For example, a number of the local chief executives in the focal areas at first showed indifference or even resistance to our interventions but over time, as they learned more about the issues that we were trying to address, they began to support and became more engaged in the CRM planning and decision-making process.

The development of technical staff members was also remarkable in some LGUs, and their commitment to the job appeared to grow as they gained more competence and understanding of the issues involved and what it entailed to address them. The latter was particularly evident by the way they shared their own realizations of the value of CRM in interviews and other forums, or worked long hours performing various tasks related to coastal law enforcement or CRM, even if they were not formally educated or officially designated to do these tasks

Although the LGUs scored a high 86% on fishery registration and licensing in the 2009 capacity review, they were only really performing the administrative function of recording fishers' names, boats, gear and other information and collecting registration fees when required by local ordinance.

JON UNSON, 2006

to begin with – many times, in the face of serious threats to their physical well-being. In our various interviews, they professed getting a sense of accomplishment simply from hearing small fishers say that their catches were improving.

Also worth noting was the perceptible improvement in the working arrangements among the different offices within the LGU that came out of the CRM planning process. With the wide range of concerns that must be tackled during plan preparation and implementation, more coordinative relationships were perforce developed among the various responsible LGU offices. Social welfare officers in the different sites found that their expertise in the conduct of surveys and understanding community dynamics was essential in the formulation of long-term development plans for coastal communities. The math skills of the municipal engineering officers, planning officers and treasurers of the Bohol, Lanuza Bay and Tawi-Tawi LGUs came in handy in developing a functional fisheries registration and licensing system in their respective areas. And, with their background in biological sciences, rural health workers in Surigao del Sur and Leyte proved to be the most proficient candidates for certification as fish examiners.

There is never enough technical or financial assistance to go around, so it is not surprising to hear LGUs say they do not get the support they need when they need it. The 2009 capacity review gave FISH-assisted LGUs an average score of less than 50% on access to funding, technical and policy support from traditional sources – mainly, the province, NGAs, NGOs and academic institutions. Only Bohol scored above 50% (Table 3.5), but available assistance was limited to certain aspects of CRM planning, MPA establishment and law enforcement (through the CLECs), which were already being provided by the Bohol Environment Management Office (BEMO) well before the Project came in.

Table 3.5. Capacity scores of FISH-assisted LGUs relative to access to external sources of support after FISH Project completion based on a capacity review conducted by the Project in 2009

Sites	No. of LGUs reviewed	Capacity score		
		Funding Support	Policy Support	Technical Support
Bohol	9	34%	42%	53%
Leyte/So. Leyte	7	14%	19%	34%
Calamianes	4	3%	8%	8%
Surigao del Sur	6	6%	31%	41%
Tawi-Tawi	3	7%	6%	16%
	29	**20%**	**33%**	**47%**

In the other sites, stakeholders indicated that there was virtually no institutional support system that they could depend on for funding support outside of the LGUs themselves. Even so, albeit limited, progress was achieved in developing institutional arrangements that could help further develop local capacities in CRM. The participatory process that we promoted and the sheer necessity of coordination opened up opportunities to establish formal and informal linkages with external partners that could serve well the LGUs that decide to pursue collaborations for CRM.

Already, the LGUs' interactions with judges and prosecutors as they followed illegal fishing cases contributed to the enrichment of local ordinances. For example, judges suggested that ordinances should limit court discretion by stipulating the menu of actionable options in penalizing a violator because giving the court full discretion would give judges the option to dismiss the case or merely reprimand violators if only to free up their dockets for "more pressing" cases.

Through coastal law enforcement, LGUs also had the opportunity to work closely and establish alliances with national enforcement agencies, such as the PCG and Philippine Navy, not only in CRM but also in other areas of mutual concern, such as disaster management and peace and order.

An important partnership between municipal LGUs and some provincial governments started to develop through the intervention of FISH. For example, for the first time, the Provincial Fisheries and Aquatic Resources Office (PFARO) in Surigao del Sur channeled assistance through the LGU for the maintenance of some MPAs and livelihood development training for MPA managers; it also began to conduct coordination meetings with all LGU fisheries technicians to find ways to complement local initiatives. Indeed, in nearly all Project sites, concerned offices at the provincial level started to allocate some of their resources to support CRM implementation at the municipal level. The amount varied from Php300,000 in Surigao del Sur to Php4 million in the Project's expansion area in Surigao del Norte, where with FISH assistance the Provincial Environment Management Office (PEMO) facilitated the delineation of all municipal waters in the province, except for those around the municipalities

bounding Mainit Lake that had boundary disputes with their neighbors in the adjoining province of Agusan del Norte.

In relative terms, the amount of provincial assistance was miniscule compared to what each province might have been capable of providing, but it was a milestone nonetheless because for many of these offices, it was only the first time that they were fulfilling their mandate as a service provider in CRM to the municipalities. Indeed, in a few cases, it was with FISH assistance that the role of the province as CRM service provider to the municipal LGUs was clarified. In Tawi-Tawi where the province had no formal provisions within its organization for delivering CRM services to municipalities, we facilitated a participatory and consultative process leading to the formulation and adoption of a provincial environment code that created the Tawi-Tawi Environment Management Office (TEMO) and defined the province's environmental policies.

Being mostly start-ups, the provincial offices concerned were still not fully equipped to provide the complete suite of services needed by LGUs to run a fully functional, fully integrated CRM program that incorporates fisheries management with all other areas of CRM. Bohol's BEMO probably had the longest experience in assisting municipal LGUs, but even its services were limited to CRM planning, MPA management and coastal law enforcement in a few municipalities. For the most part, in terms of human and financial resources and overall office capacity, the provinces had very limited means to adequately fulfill their mandates as CRM service providers, or even to simply take over the support role performed by FISH.

Specifically for fisheries management at both provincial and municipal levels, the effort to capacitate LGUs was largely only at entry level – a good start, but there's a long way to go. For virtually the entire life-of-Project, fisheries management activities covered mainly the basics of identifying and planning a few effort restriction measures in an experimental foray to determine the LGUs' absorptive capacity and readiness to undertake fisheries management in its simplest form. At both Project and field levels, the realities of

ASUNCION SIA, 2008

For the most part, in terms of human and financial resources and overall office capacity, the provinces had very limited means to adequately fulfill their mandates as CRM service providers, or even to simply take over the support role performed by FISH.

implementation afforded little opportunity to develop and test a comprehensive fisheries management planning process based on the principles of EAF. This process would have trained local fisheries managers to use analytical tools for finding and broadly applying the best available information (both scientific and user-supplied) in order to detect, locate and identify localized fisheries problems; determine priority issues; understand their interrelationships with the biological, economic and social elements of the larger fisheries system; assess management options, select the best plan, obtain financial support, implement the plan, monitor and evaluate implementation based on appropriate indicators and reference points, and adapt management as needed – all integral to fisheries management under EAF that aims to balance diverse societal objectives covering both human use and ecosystem objectives.

Notwithstanding the constraints, we were able to demonstrate that fisheries management, even at the most basic level, should consider the relationships between policy, science and public participation. The closed season for siganids and size limits for blue crabs that were adopted in our various sites were based on both scientific and stakeholder knowledge of the spawning behaviors, life stages and habitat needs of the species as well as local fisheries catch trends and gear use data, and were supported by municipal ordinance. Using information from crab fishers, the LGUs introduced spawning cages for berried blue crabs to allow these crabs to spawn before being harvested, and following the recommendation of fisheries experts from the Project, they made sure that the cages were located in the interface areas of seagrass and sandy bottoms to improve the survival rates of both spawning and young crabs.

Without further external assistance, it is doubtful that the LGUs can build on this limited experience to adequately and promptly adapt their policies and programs to the ever-changing dynamics of the fisheries system. However, in accepting their fisheries management mandate, they have opened doors for assisting organizations to bring in more aid and take capacity-building to the next level. The overall fishery gains that were achieved through not only fisheries-specific measures but all Project interventions (i.e., including MPAs, coastal law enforcement, IEC and policy support) might not have been fully satisfactory in terms of the objectives of EAF and the FISH framework, but they were palpable enough to allow an active constituency within the bureaucracy and among resource users to grow and demand better fisheries management services from government and its development partners.

Changes in fishing norms and practices

Stricter fishery law enforcement, IEC and the emerging benefits from habitat protection and effort restrictions all contributed to bring about small but obvious changes in fishing patterns in our sites. Although not totally eliminated, Danish seine, trawl, and dynamite fishing in some areas were

ASUNCION SIA, 2008

In Bohol, the number of Danish seines and trawls dropped 46% and 55%, respectively.

considerably reduced. By most accounts, there was at least some compliance with fishery laws in the focal areas in Danajon Bank, Lanuza Bay and Tawi-Tawi (fisheries data from Calamianes offered scant information on illegal fishing practices that, based on anecdotal evidence, might have existed in the area).

For example, records show the number of dynamite fishers in Bongao, Tawi-Tawi fell by nearly 61%, while in Bohol, the number of Danish seines and trawls dropped 46% and 55%, respectively. In Lanuza Bay, the CPUE from Danish seine fishing was down more than 35%, indicating that, even as the number of units on record remained fairly steady and even increased in 2008 (Danish seine operators were permitted by DA-BFAR), they might have been prevented to some extent from operating in municipal waters.

However, compliance seemed to have been mostly driven by fear of apprehension rather than the fishers' desire to follow the law or "do what's right." Indeed, in many areas, there was an apparent shift to other illegal fishing practices that were not as strictly monitored and might actually have been tolerated by LGUs, or to other municipalities where enforcement was lacking.

The use of fine mesh nets in impounding gear, for example, seemed to be largely tolerated in Danajon Bank, where the number of fish corrals using fine mesh nets rose by about 32% between 2004 and 2008. In Bongao, Tawi-Tawi, the enforcement of the ban on shipments of the CITES-protected *mameng* (*Chelinus undulates*) failed to totally stop the illegal activity, as traders simply moved their business to another town (Sibutu), where the LGU allowed it.

Also quite pronounced was the increased use of gear types that were not strictly regulated or considered illegal, including modified gear that might have been destructive (or at least inappropriate for current use) but not specifically regulated by any existing law. Notable among these were the stationary lift nets in Danajon Bank, which multiplied more than five-fold from only 4 units in 2004 to 22 units 4 years later. Although a passive gear, the stationary lift net

proved to be overly efficient for use in an area where major fish stocks were already overfished and the competition for fishery resources quite intense.

The results of MPA surveys conducted in 2006 and 2008 generally showed an upturn in fish biomass and abundance near the MPAs, but overall in the focal areas, fish biomass did not improve significantly, indicating still extremely high fishing pressure outside the MPAs. Furthermore, issues related to equity of access to fishery resources seemed to have persisted. In Danajon Bank, it appeared from available fisheries data that the stationary lift nets captured a disproportionate amount of the benefits that might have been generated by MPAs, law enforcement and other measures to protect fishery resources in the area. While CPUE were mostly down or increased only slightly for gillnets and lines (except for troll, which rose more than 150%), stationary lift nets registered a whooping increase in CPUE of about 361%, despite the substantial increase in the number of units.

This kind of trend was of course not unexpected. It is normal for fishers to adjust quickly to new fishery rules by modifying their gear or shifting to other gear, and it is not uncommon for some fishers to skirt the law if they could. It was not clear if local fisheries managers appreciated the significance of these developments in terms of the need to promptly address emerging threats through continuous monitoring and adaptive management of the various fisheries. It was unlikely that they would have been able to properly diagnose every problem and determine the best solution anyway, given their still very limited capacity in fishing effort management. For one, they lacked the necessary means to adequately monitor and measure changes in fishing patterns and fish stocks in order to effectively manage fishing effort.

Because we did not make much headway in our effort to institute catch-and-effort monitoring as a regular function of our partner LGUs, we made no attempt to deepen local capacity to manage fishing effort. Instead we developed during our exit phase a template for the development of benchmarks, indicators and reference points for fisheries management that formed part of our

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HILCONIDA CALUMPONG, 2004

recommendations to our partners (See Appendix 1). These performance measures can be further refined through a consultative process and built into the CRM benchmarking system developed by CRMP and already being used by DENR to evaluate the level of performance of LGUs in CRM.

What was encouraging in our experience was the development of a new ethic on fishing in our sites, especially among individuals in both government and the fishing communities that directly participated in the capacity-building effort. There was, for example, a perceptible change of outlook among those who have been through at least one of our many law enforcement trainings and IEC activities with regard to the severity of illegal fishing as a legal offense. In the past, even law enforcers sometimes tended to dismiss illegal fishing as a minor misdemeanor or breach of law that harmed nobody, or an "act of necessity" when committed by marginal fishers that just got by with their meager income from fishing. Through their participation in our activities, they claimed to understand the dangerous and far-reaching consequences of illegal fishing. Some even went further and said that in fact every act of "bad fishing" was a serious offense, even when there was nothing in the law that said it was, because it had serious immediate and long-term impacts not only on fishers' incomes and livelihoods but also the overall present and future well-being of communities and the entire nation.

The same new outlook was observed among LGU staff assigned to CRM duties and community members who were directly involved in, for example, guarding MPAs. Some even described their work as "not just a job, but also a life mission," a conviction that was affirmed and strengthened by the participation of the church in the campaign against unsustainable fishing, which added a moral dimension to their advocacy efforts. In two island communities in Bien Unido, Bohol where our partners from the Catholic clergy brought their ecological evangelization mission, some members of the illegal fishers' families later expressed "shame" and remorse for their involvement in illegal fishing. They did however insist that it would be difficult for them to shift to other livelihoods without government support. Because illegal fishing originating in these two communities caused major enforcement problems to all four LGUs in the Danajon focal area, all mayors concerned worked together to get the Technical Education Skills and Development Authority (TESDA) to open training opportunities not only to families of fishers who had given up their illegal fishing gear, but also to members of POs who had supported the LGUs' CRM programs from the outset.

To a certain extent, increased public participation in advocacy and other FISH activities helped create transparency in the delivery of CRM services and promote accountability in local government. The participatory approach that we used engendered frequent interactions between resource users and those in government that clarified the roles each had to play in the management of resource use. In law enforcement particularly, such interactions developed

Regular meetings, dialogues, site exposure trips and trainings that allowed community members to interact with the police and local authorities in a learning setting helped resolve misconceptions on both sides and create an atmosphere of mutual trust and confidence.

public trust and confidence in law enforcers, especially among community members directly involved in the process.

In Calamianes, for example, community leaders used to perceive the local police as inefficient and uninterested in enforcing fishery laws, so they conducted sea patrols on their own, usually with support from NGOs. If they had any interaction with the police at all, it was when an operation resulted in the arrest of illegal fishing suspects or the seizure of fishing paraphernalia, at which time they had to turn the case over to the police. This was where misunderstandings and the prevailing lack of trust between the police and community members often became evident – the police might refuse to accept seized items and suspects for fear that the arrest was not conducted properly, or if they did accept a case and prosecute it, it would get dismissed on technical grounds. This fueled among community members more suspicions of police negligence or inefficiency, or worse, connivance in illegal fishing.

Regular meetings, dialogues, site exposure trips and trainings that allowed community members to interact with the police and local authorities in a learning setting helped resolve misconceptions on both sides and create an atmosphere of mutual trust and confidence. On the one hand, community members learned to appreciate that policemen were highly vulnerable to harassment suits when the rules of arrest and seizure were not followed and unless they were members of the Maritime Group, they were not necessarily trained in maritime law enforcement, making them prone to errors in judgment. On the other hand, the police realized that many communities had sufficient training in coastal law enforcement and could be relied upon to exercise due discretion and follow proper procedures when making an arrest. As community-police-LGU interactions moved from training to actual operations, opportunities arose for all sides to witness each other's hard work, capacity and sincere intent to fight illegal fishing, which increased their confidence and trust levels, which in turn encouraged further cooperation and collaboration.

The lingering concern about the LGUs' commitment to sustain CRM was well-founded, especially that the Project closeout happened in an election year when many new municipalities had a change in political leadership. Because support for every development program usually hinges on the perceived priorities of decision-makers, any hope for the sustainability of CRM in the FISH-assisted LGUs must lie in the stakeholders' stated desire to carry on the work they had started and their ability and commitment to bring their concerns to their leaders' attention. Despite the perceptible capacity gaps that remain, this is not at all a false hope, for there now exists in each of the FISH-assisted LGUs and the communities they serve an active constituency for sustainable fisheries that, if they so wish, can exert political pressure to maintain or expand relevant programs.

CHAPTER 4

National Implementation

Promoting national fisheries reform

In the Philippines, the fisheries management challenge appears doubly daunting in the face of constraints in a national institutional setup that, while still adapting to decentralization, is also being called upon to take local fisheries management efforts to a higher level of coordination, if not integration. Our view and the cornerstone of our work at the national level was that integration was expected even under the current decentralized setup of government. The 1998 Fisheries Code recognizes the LGU's jurisdiction in the management of municipal waters, while explicitly declaring the policy of the State "to manage fisheries and aquatic resources in a manner consistent with the concept of an *integrated coastal area management in specific natural fisheries management areas, appropriately supported by research, technical services and guidance provided by the State."* (Italics provided)

Much of our focus at the national level was to point up this State policy and, where possible, define the work needed to enforce it. This involved assisting DA-BFAR, other relevant agencies and stakeholders in reviewing and enhancing national laws, policies and plans or programs consistent with sustainable fisheries and the Philippine government's commitments to international fisheries agreements and protocols.

Retrofitting fisheries policy

Like that of local implementation, a key objective of our work at the national level was to encourage a frame-shift – specifically, a change in the way relevant government agencies regarded and exercised their responsibility in fisheries management *vis a vis* the LGU, so that it emphasized more clearly the national government's critical role as "integrator" and provider of technical services and guidance to the LGU. To support this, our initial activities included reviewing national laws, policies and plans or programs consistent with sustainable fisheries and national commitments to international fisheries agreements and protocols, many of which are founded on or espouse ecosystem-based assumptions, concepts, values and practices. Policy issues negatively impacting local fisheries management were analyzed to guide national policy reform and promote the formulation of policies that were consistent with local priority concerns and applicability. Insofar as it is the principal caretaker of the country's fisheries and aquatic resources at the national

Insofar as it is the principal caretaker of the country's fisheries and aquatic resources at the national level, DA-BFAR was our main partner in a consultative policy review process that also involved DILG (particularly the PNP), DENR, and major stakeholder groups.

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The review process established that in broad terms Philippine policy is generally attuned to the integrated, ecosystem approach. The principles of human and ecosystem well-being, maximum biological productivity, sustainable use and equity are enshrined at the very top of the country's legal and regulatory framework. In *Article XII: National Economy and Patrimony*, the 1987 Philippine Constitution declares:

> *"The goals of the national economy are a more equitable distribution of opportunities, income and wealth; a sustained increase in the amount of goods and services produced by the nation for the benefit of the people; and an expanding productivity as the key to raising the quality of life for all, especially the under-privileged.*
>
> *"…The State shall protect the nation's marine wealth in its archipelagic waters, territorial sea, and exclusive economic zone and reserve its use and enjoyment exclusively to Filipino citizens.*
>
> *"…The Congress may, by law, allow small-scale utilization of natural resources by Filipino citizens, as well as cooperative fish farming, with priority to subsistence fishermen and fishworkers in rivers, lakes, bays, and lagoons."*

In addition, the Philippines is a signatory to international agreements that set forth many of the principles upon which the concept of EAF has developed. These include the 1995 UN-FAO Code of Conduct for Responsible Fisheries, 1992 Convention on Biological Diversity, 1992 Action Agenda for Sustainable Development, and the United Nations Convention on the Law of the Sea, among others.

Philippine commitment to these international agreements is firmed up by national laws. In the case of fisheries, such commitment is fleshed out in the 1998 Philippine Fisheries Code, which emphasizes poverty alleviation, social equity, food security, rational use of resources, people empowerment and sustainable development through the protection of fisheries and aquatic resources, optimal utilization of existing resources, maintenance of ecological balance and the quality of the environment, and improvement and rationalization of the domestic market (DA-BFAR, 2005). The Code is supported by other national laws such as the LGC 1991, the Agriculture and Fisheries Modernization Act (AFMA) and the National Integrated Protected Areas System (NIPAS) Act, among others. (Table 4.1)

HOWARD CAFUGAUAN, 2006

Table 4.1. Important Philippine policies relevant to EAF existing at the start of the FISH Project

National policy instruments aimed at improving service delivery by enhancing local autonomy

- RA 7160, the Local Government Code of 1991 devolved to the LGUs the management of coastal waters up to 15 km and provides mechanisms for LGUs to collaborate with each other and consolidate and coordinate their efforts, services, and resources for common purposes. Nothing prevents these common efforts from involving national government agencies if necessary. Generally, LGUs have full freedom and authority to define their cooperation and coordination arrangements, which may incorporate any activity, including EAF.
- RA 7586, the National Integrated Protected Areas System (NIPAS) Act of 1992 authorizes the establishment of protected landscapes and seascapes which may be located wholly or partially within municipal and/or national waters. Such waters, which may obviously include fishery resources, come under the management jurisdiction of a multi-sectoral, multi-agency body called the Protected Area Management Board (PAMB) led by the DENR. The PAMB's inherent nature departs from fisheries in that the objective is defined in terms of protection and conservation, not exploitation, which is the case in fisheries.

National policy instruments aimed at improving people's access to opportunities for undertaking sustainable livelihoods

- RA 8435, Agriculture and Fisheries Modernization Act (AFMA) of 1997 provides a development framework over a special area – the Strategic Agricultural and Fisheries Development Zone (SAFDZ), for the development and industrialization of the agricultural sector for the purpose of attaining food security and self-sufficiency, and expressed acceptance of the principle of sustainable development to guide the careful and judicious use of the country's natural resources for the purpose of long-term sustainability.
- RA 8550, the Philippine Fisheries Code of 1998 provides that (i) it is the policy of the State to ensure the rational and sustainable development, management and conservation of the fishery and aquatic resources in Philippine waters, including the Exclusive Economic Zone (EEZ) and in the adjacent high seas, consistent with the primordial objective of maintaining a sound ecological balance, and protecting and enhancing the quality of the environment (Section 2(c)); and, (ii) that this may be undertaken by the management of fishery and aquatic resources in a manner consistent with the concept of an integrated coastal area management in specific natural fishery management areas, appropriately supported by research, technical services and guidance provided by the State (Section 2(f).
- RA 8425, Social Reform and Poverty Alleviation Act of 1998 institutionalized the processes of the Social Reform Agenda (SRA), mandating the National Anti-Poverty Commission (NAPC) to enhance the programs, approaches and strategies to strengthen the partnership between government and the basic sectors. It also provides for the Adoption and Integration of the SRA in the National Anti-Poverty Action Agenda and identifies fisheries and aquatic resources conservation, management and development as a flagship program for fishing communities.

Special laws providing special legal regimes for specific areas of sustainable development

- RA 7611, The Strategic Environmental Plan for Palawan Law of 1992 established the Palawan Council for Sustainable Development (PCSD), which has jurisdiction over an entire island ecosystem and its adjacent marine waters.
- RA 6734, the Organic Act for the ARMM of 1987, as amended by RA 9054 of 2001, defines the complete suite of governmental powers of the Autonomous Region in Muslim Mindanao, including a fisheries jurisdictional zone up to 15 km from the shoreline.
- MMAA 86 Fisheries Code for the ARMM in 1999, mostly adopts the provisions of the Fisheries Code, except that it limits the extent of municipal waters to 12 km and extends regional waters to 22.5 km (this is not consistent with RA 9054 above, which states that regional waters cover those waters "up to 15 km from the coastline of the autonomous region but within the territorial waters of the Republic.")

One important finding that came out of the review was that a dichotomy existed between policy and practice in Philippine fisheries administration: On paper, national policy adhered to and emphasized the principles of sustainable development; in practice, the immediate need to provide an inexpensive and steady supply of fish to a rapidly growing population got the bigger share of national government attention than the increasingly urgent need to limit fishing

ASUNCION SIA, 2009

On paper, national policy adhered to and emphasized the principles of sustainable development; in practice, the immediate need to provide an inexpensive and steady supply of fish to a rapidly growing population got the bigger share of national government attention than the increasingly urgent need to limit fishing effort to sustainable levels.

effort to sustainable levels. This bias was evident in the type of assistance that DA-BFAR opted to provide LGUs, most of it focused on increasing fisheries production through aquaculture and mariculture and the provision of production inputs such as fishing nets and motorized boats. With regard to the implementation of FISH, the bias was greatly felt in the circuitous process of engaging DA-BFAR in a meaningful way in the capacity-building process needed to fully institutionalize fisheries management at the local level.

Indeed, DA-BFAR opined that fisheries management was second only to food security in its list of priorities, revealing an operational policy favoring short-term expediency more than long-term sustainability, and somewhat discordant with the state policy declared in the Fisheries Code that fisheries management is a means to achieve food security and not an end in itself:

> *"Sec. 2. Declaration of Policy – It is hereby declared the policy of the State:*
>
> *"a) to achieve food security as the overriding consideration in the utilization, management, development, conservation and protection of fishery resources in order to provide the food needs of the population;*
>
> *"c) to ensure the rational and sustainable development, management and conservation of fishery and aquatic resources in Philippine water...;" and*
>
> *"f) to manage fishery and aquatic resources in a manner consistent with the concept of an integrated coastal area management in specific natural fishery management areas, appropriately supported by research, technical services and guidance by the State."*

DA-BFAR's policy was nonetheless explicable in terms of the practical, not to mention political, considerations of meeting the livelihood needs of fishers at one end of the spectrum, and consumption and demand for fish at the other. Limiting fishing effort to levels necessary to restore depleted fish stocks might in the short term result in loss of livelihood for a significant number of fishers and a decrease in fisheries production, which could cause a tight supply situation amid increasing demand for fish, which in turn could lead to seafood price spikes, a scenario that was unlikely to be politically tenable given too few viable livelihood and food supply alternatives. Publicly at

least, fisheries officials often understated the fact that this dire scenario would happen anyway if fishing effort were not managed and if the depletion of fish stocks were allowed to continue.

Among our first activities was to engage DA-BFAR, primarily through consultations with the bureau's management and key staff toward formulating the appropriate policy work. This resulted in the identification of a list of priority policy actions to be supported by the Project. In order to deal with the varied policy requirements of our partners, we adopted a set of criteria to guide the selection process (Table 4.2) but also allowed some flexibility with regard to policy items identified as critical by our partner agencies.

Table 4.2. Criteria used in the selection of priority policy actions to be supported by the FISH Project

Primary Criteria -- used principally to evaluate the significance of a candidate policy work given the range of alternative policy activities and instruments that the Project could target during its lifetime.

1. *Impact/Substance* – These criteria were used to evaluate the importance of a candidate policy work given key issues and opportunities impacting the fisheries sector and the policy environment through which these issues and opportunities could be addressed. They included:
    a. Strategic importance or relevance of the policy work to key issues and opportunities in the sector and the policy handles by means of which these could be addressed;
    b. Catalytic spread or extent by which the policy work could help catalyze subsequent work on other policy activities and/or instruments;
    c. Size or magnitude of beneficiaries to be potentially benefited or impacted by the candidate policy work; and
    d. "Closeness" to implementation or the amount of time or work needed for the candidate policy work to be used or implemented by mandated institutions.
2. *Partner's viability* – Based on these criteria, the Project weighed the viability of the policy work from the perspective of its partner institutions. They included:
    a. Partner's perceived priorities; and
    b. Partner's readiness or capability to implement outputs generated through the candidate policy work in terms of personnel, technical, and financial capabilities.
3. *Project's (operational) viability* – These criteria were used to evaluate how well and how timely the Project could carry out the candidate policy work. They included:
    a. Project's comparative advantage, relative strength or advantage to pursue the candidate policy work (given the Project's objectives and financial, manpower and technical capabilities) compared to other groups active in policy development in the Philippines;
    b. "Gestation" time or the amount of time the Project would need to bring a candidate policy work to completion -- necessarily, the outputs should be deliverable within the Project's lifespan and contribute within the desired timeframe to stated Project objectives; and
    c. Costs or budgetary requirements to complete a candidate policy work

Start-Up (Supplemental) Criteria – used mainly during the start-up phase (first two years) to evaluate how a candidate policy work could contribute toward:

1. Enhancing the *Project's visibility* among various groups, personalities and institutions in fisheries development and conservation;
2. Establishing the Project in a *leadership role* in fisheries development and conservation or toward producing *early impacts* leading to such leadership role.
3. Establishing, reinforcing or building *relationships and alliances* to support Project activities and successes.

In the meantime, we started to directly address some critical policy issues affecting our focal areas that required national-level discussion. Our attention was necessarily centered on our focal areas, but there was also conscious effort to pursue policy actions that supported fisheries management initiatives across a wide cross section of Philippine coastal LGUs.

An early policy output that directly supported one of our focal areas was a study on the live reef food fish trade that the Project commissioned to the Resources, Environment and Economic Center for Studies, Inc. (REECS). Aimed primarily at addressing weighty issues related to the Palawan live reef food fish trade such as overfishing and habitat destruction, this policy study was used as reference for the Palawan Live Reef Fish Ordinance of 2005. The ordinance regulates the collection of live reef fish, particularly in Calamianes, where a significant portion of the Philippine live reef fish trade is concentrated (in 2002, Calamianes supplied 55% of the total volume of live food fish produced in the Philippines). (Padilla, et al, 2003) Although Palawan-centric, the study could also serve as a useful input to designing a national live reef food fish trade policy that tackles the rapid expansion of live food fish trade to many coastal provinces, including all three of the FISH target areas in Tawi-Tawi, Lanuza Bay and Danajon Bank.

ASUNCION SIA, 2009

A FISH-assisted study on the live reef food fish trade could serve as a useful input to designing a national policy that tackles the rapid expansion of the live reef food fish trade to many coastal provinces, including all three of the FISH target areas in Tawi-Tawi, Lanuza Bay and Danajon Bank.

Another policy initiative that was completed early in the life-of-Project focused on EO 305, which devolved to municipal governments the registration of municipal fishing vessels (not more than 3GT) consistent with their mandates under the Local Government Code and Fisheries Code. Supported by LMP and the NAPC Fisherfolk Security Council, this EO addressed vital issues related to vessel registration, for example by making registration easier for small-scale fishers. (The old setup required all fishers to go to the PCG to register their boats, not particularly easy in remote areas without convenient access to PCG offices.)

We assisted the implementation of EO 305 by facilitating the formulation of the framework and guidelines for the registration and licensing of both municipal and commercial fishing vessels. To assist the process of adoption and subsequent implementation of the EO, we provided training in admeasurement and other skills relevant to vessel registration and licensing. The immediate objective was the adoption of the EO and its guidelines by the focal area LGUs,

but the longer term objective was for all coastal LGUs nationwide to have their own fishery registration and licensing system. To achieve this, we tapped one of our partner agencies, the DILG, to encourage the various leagues of LGUs to lead the implementation of EO 305. (DILG, 2007)

In direct response to a provision in the Fisheries Code requiring the formulation of a national plan for fisheries, we assisted the preparation of a Comprehensive National Fisheries Industry Development Plan (CNFIDP), which defined the operational framework and blueprint for fisheries management in the Philippines over 20 years.

Of particular interest to the Project was DA-BFAR's mandate and capacity to ensure that registration and licensing becomes an integral part of the country's fisheries management system across all levels of management. To the extent possible, we tried to engage DA-BFAR in our training activities in order to put registration and licensing in the agency's action agenda.

Among our other priority policy actions were studies related to the implementation of a commercial fishing vessel license reduction scheme and the use of data from the National Stock Assessment Project (NSAP) to inform plans to manage fishing effort. We also began the process of developing an EAF framework for Philippine fisheries alongside an integrated fisheries management unit (FMU) system. This framework was based on the following definition of EAF adapted from the UN-FAO: (Garcia, et al, 2003 in Batongbacal, 2009)

> *"The ecosystem approach to fisheries management considers geographically-specified fisheries management that takes account of knowledge and uncertainties about, and among, biotic, abiotic, and human components of ecosystems, and strives to balance diverse societal objectives. Such an approach will address human activities and environmental factors that affect an ecosystem, the response of the ecosystem, and the outcomes in terms of benefits and impacts on humans. A distinguishing feature of an ecosystem approach is an emphasis on protecting the productive potential of the system that produces resource flows. For an ecosystem that is already degraded, the goal becomes one of rebuilding or restoring the ecosystem."*

Having coincided with the 2nd review period for the 1998 Fisheries Code, the Project also made the study of the Code's implementation a top priority, focusing mainly on consolidating and prioritizing proposed amendments in the areas of capture fisheries, aquaculture, post harvest facilities, activities and trade and the penal provisions. Following consultations with DA-BFAR, in direct response to a provision in the Fisheries Code requiring the formulation of a national plan for fisheries, we assisted the preparation of a Comprehensive National Fisheries Industry Development Plan (CNFIDP), which defined the operational framework and blueprint for fisheries management in the Philippines over 20 years (Table 4.3).

Table 4.3. Salient features of the Comprehensive National Fisheries Industry Development Plan

- Provides the strategic directions to be undertaken over the next 20 years (2006-2025) to manage Philippine fisheries, and lays out the key project interventions that may be implemented over the first medium term plan (2006-2010).
- A product of extensive consultations at all levels of governance, involving many concerned agencies and a whole array of stakeholders.
- Science-based, taking into account the best available scientific/technical information. Structurally, the plan is divided into five chapters.
- Aims to promote the sustainable development and adaptive management of the Philippine fisheries sector.
- Provides a status assessment (past and present) of the fisheries situation in the country including the bio-physical, socio-economic and institutional dimensions.
- Explains pertinent sustainable development concepts, such as inter- and intra-generational equity, holistic development, integrated management and carrying capacity as well as relevant guiding principles specific to the fisheries sector that include precautionary principle, ecosystem-based management and decentralized administration.
- Describes development trends and challenges.
- Provides a prognosis for Philippine fisheries in terms of status and benefits, highlighting the development scenarios in relation to various driving forces and pointing out two desired pathways: (1) expansion of environment-friendly aquaculture and (2) substantial reduction in post-harvest losses.
- Describes the strategic vision and mission over a 20-year period. The sectoral vision is: "A sustainable and competitive fisheries industry that contributes to food security and provides optimum socio-economic benefits to Filipinos: The long-term goal is to sustain the industry's socio-economic benefits without jeopardizing the fishery resources and the associated habitats."
- Adopts the following strategic objectives: 1) Rationalize utilization of fishery resources; 2) Protect fisheries habitats; 3) Reduce resource use competition; 4) Maximize full potential of aquaculture; 5) Promote competitiveness of fisheries products; 6) Minimize post-harvest losses; 7) Enhance capability of LGUs, NGAs and local communities; 8) Promote appropriate fishery policies; and 10) Strengthen institutional partnerships.
- Presents the first medium-term programs and projects which include the following measures:
  - ✓ Measures to address sustainable and equitable utilization of municipal fishery resources for the benefit of small-scale fishers and coastal communities, such as: 1) Validation of priority use rights through municipal registration and licensing; 2) Enhancement of locally managed marine areas; 3) Sustainable fisheries livelihood support; 4) Fisheries law enforcement enhancement; and 5) Rationalization of municipal fishing effort
  - ✓ Measures geared toward rational exploitation, sustainable development and conservation of fisheries and aquatic resources in Philippine commercial waters, including the EEZ and the adjacent high seas, such as: 1) Rationalization of fishing effort in overfished commercial fishing areas; 2) Development and implementation of an MCS system for commercial fisheries; 3) Development, adaptation, and promotion of selective environment-friendly and cost-effective fishing gear and practices; and 4) Exploratory fishing in EEZ and beyond, and in under-exploited commercial fishing grounds.
  - ✓ Measures aimed at increasing the contribution of the aquaculture industry in national development through the adoption of progressive and economically competitive technology under a framework of social equity and environmental sustainability, such as: 1) Institutionalization of best aquaculture practices (BAP); 2) Establishment of standards for quality and implementation of farm-based hazard analysis and critical control point; 3) Rationalization of policies on the introduction of live aquatic organisms; and 4) Empowerment of small holders and fisheries in aquaculture.
  - ✓ Measures that support the development of comprehensive programs on product safety and quality systems, development of market and marketing systems for Philippine fish and other aquatic products, and eventual reduction of post-harvest losses, such as: 1) Strengthening of the fish inspection system; 2) Development of national quality standards for fish and fisheries products; 3) Reduction of fisheries post-harvest losses; and 4) Development of "Model Villages for Philippine Fisheries Post-Harvest."
  - ✓ Measures to address the critical capacity gaps of the institutional system, as well as develop the management capacity and institutional partnerships for effective management of the fisheries sector, such as: 1) Improvement of policy and regulatory framework for fisheries; 2) Building institutional capacity of DA-BFAR; 3) Enhancing fisheries management capacity through partnerships; 4) Organizing networks of local fishers and aquaculture communities; 5) Building alliance for integrated co-management of ecosystems; and 6) Budget estimations and institutional arrangements and mechanisms for plan implementation, monitoring and evaluation. Implementation features DA-BFAR in the lead role, assisted by a fisheries development coalition and various partnership initiatives.

To ensure that the plan reflected the wide range of perspectives of the various stakeholder groups, we facilitated a highly participatory and consultative process involving organizations and individuals from the government, non-government and private sectors that had a stake in or impact on the fisheries sector. Co-chaired by DA-BFAR, the consultation process lasted 4 years, from 2004 to 2008, and involved situational analysis, threat analysis, scenario assessments, drafting of action agendas, setting of agenda priorities and review and revision of policy resulting from the process. Subsequently, through internal briefings and tasking, we assisted the bureau's management staff in the process of preparing the final CNFIDP.

As part of the Philippines' commitment to the International Plan of Action to Prevent, Deter and Eliminate Illegal, Unregulated and Unreported Fishing (IPOA-IUU) adopted by the UN-FAO in 2001, we assisted the formulation of the National Plan of Action to Prevent, Deter and Eliminate IUU fishing (NPOA-IUU) (Table 4.4). As with most of our activities, plan preparation followed a participatory process involving government agencies and NGOs involved in fisheries management and conservation.

Table 4.4. Salient features of the draft National Plan of Action to Prevent, Deter and Eliminate Illegal, Unregulated and Unreported Fishing

Anchored on the provisions of national laws, primarily the Philippine Fisheries Code of 1998, otherwise known as Republic Act (RA) 8550, that provides for the development, management and conservation of the fisheries and aquatic resources of the country, the NPOA-IUU discusses the following:

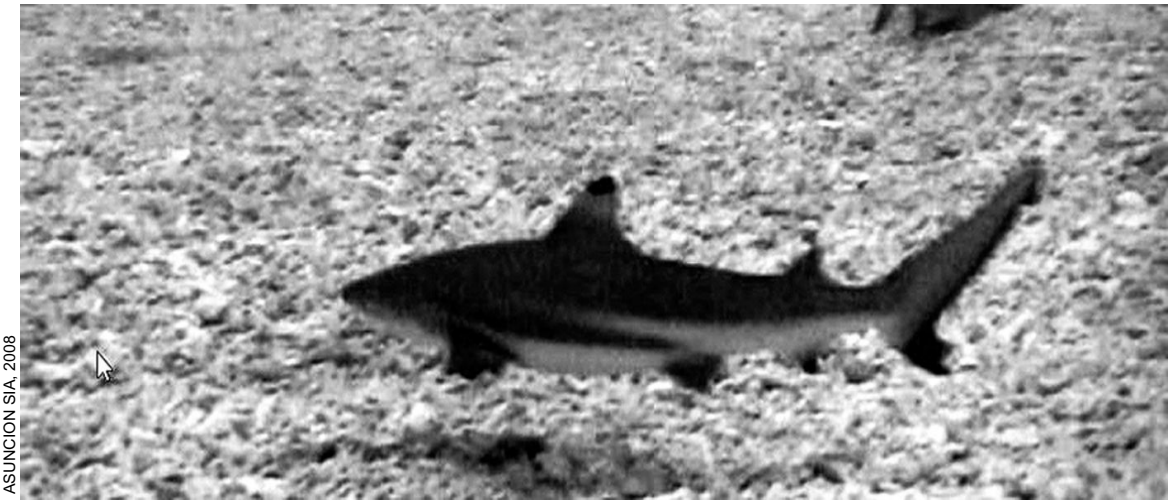
- Areas that can be improved in the systems and mechanisms in the Philippine fisheries sector to reinforce the Fisheries Code's effectiveness in addressing issues that render it weak and insufficient;
- International and national policies that aim to address all aspects of IUU fishing in an effective manner;
- Measures related to Flag State Responsibilities to ensure that fishing vessels entitled to fly the Philippine flag do not engage in or support IUU fishing;
- Coastal State Measures to prevent, deter and eliminate IUU fishing in the EEZ;
- Port State Measures to control port access by fishing vessels to prevent IUU fishing;
- Trader-related measures for adoption by Regional Fisheries Management Organizations (RFMOs) to which the Philippines is a party;
- Research initiatives and efforts undertaken in the country in the field of fisheries, as well as areas for further research and collaboration in support of IUU fishing deterrence and prevention;
- National commitments to RFMOs relevant to the prevention, deterrence, and elimination of IUU fishing; and
- Special Requirements of Developing Countries like the Philippines in their efforts to make progress in eliminating IUU fishing.

The document outlines current measures and efforts to address all aspects of IUU fishing and identifies specific actions and country commitments to reinforce the Fisheries Code and address gaps or weaknesses in the Philippine fisheries management systems and mechanisms. Broadly, the Philippines committed to include the NPOA-IUU in the CNFIDP, and specifically, to organize a Philippine MCS network and the institutionalization of joint

commitments among DA-BFAR, MARINA, PCG and National Telecommunications Commission (NTC) to manage fishing capacity, key requisites to a well-coordinated integrated national system to monitor and regulate IUU fishing.

Besides the NPOA-IUU, we assisted two other country commitments, namely, the NPOA on the Conservation and Management of Sharks and Rays, and the NPOA on the Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security, and priority policy action items identified by partner institutions, such as mangrove reforestation, a proposal to close Manila Bay fisheries, climate change and administrative adjudication for fisheries.

The Project assisted the formulation of national plans of actions on illegal, unregulated and unreported fishing, conservation and management of sharks and rays, and the Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security.



ASUNCION SIA, 2008

On occasion, we were also called upon to provide "expert opinion," such as in the case of four House bills proposing the establishment of "modified mariculture development parks" in Tawi-Tawi – in this case, we advised against a plan to raise *mameng* in cages for fear that, because the fingerlings to be used would still be sourced from the wild, such a mariculture project would lead to overfishing of juveniles and further complicate the enforcement of measures to protect this red-listed species.

One policy work the we pursued independently of our partner agencies and other stakeholders was an initial attempt at designing a benchmarking system for fisheries management based on a CRM benchmarking system developed by CRMP for Philippine municipalities and cities and adopted by DENR as part of its national CRM reporting and benchmarking system. Specifically, the work focused on developing a template for the development by

concerned agencies and stakeholder groups of benchmarks, reference points and indicators against which the performance of LGUs in fisheries management can be measured (Appendix 1).

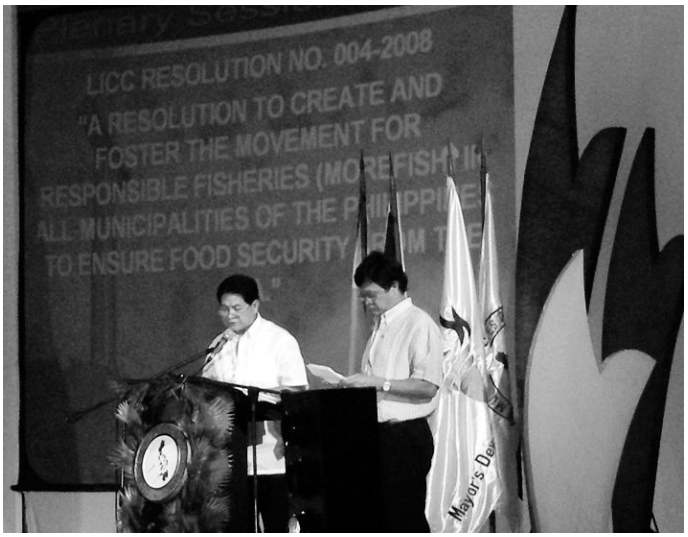
Building up support for fisheries reform

The many inherently contentious issues that must be dealt with in fisheries reform made constituency-building imperative to Project implementation at both national and local levels. At the national level, we focused on strengthening and expanding the constituency for fisheries management to generate political influence and leverage support for our policy initiatives. This involved the identification of organizations and individuals who were in a position and willing to serve as advocates or champions of policy reform toward sustainable and responsible fisheries, as well as providers of fisheries management information and technical assistance to the LGUs.

In operational terms, there really was not much distinction between our policy initiatives and constituency building activities. Indeed, it can be said that the consultative and participatory process that we employed in our policy work was very much an exercise in constituency-building, as the process of constituency-building was in many ways also a process of informing policy-making. The two components worked in tandem, always informing, complementing and reinforcing each other, so they were both present in nearly every Project activity. Nevertheless, in setting strategic directions, we made a distinction in terms of each component's objectives: while the policy component was obviously focused on bringing about relevant policy change, the constituency-building component was primarily concerned with ensuring substantial stakeholder presence and involvement in the reform effort.

At the national level, constituency-building was employed primarily as a strategy to support our policy work, and where applicable, to catalyze institutional change. A great deal of the constituency-building effort was naturally centered on DA-BFAR itself: For much of the Project life, we worked with key DA-BFAR officials and technical personnel to build a constituency base for our policy initiatives within the bureau. We engaged the bureau's officials in candid discussions on critical policy issues, while enlisting the technical staff in the policy work needed to initiate the reform process. Simultaneously, we broadened our support base to include other government agencies with mandates relevant to fisheries management. DILG was of course included as an implementing partner, and for various specific concerns, other agencies such as the National Fisheries Research and Development Institute (NFRDI), National Agriculture and Fisheries Council (NAFC), National Economic and Development Authority (NEDA), Mindanao Economic Development Council (Medco) and the ARMM regional government.

We also tapped the 1,560-member strong LMP, reviving an old alliance developed during CRMP that helped that project achieve a strategic spread of



With FISH assistance, LMP focused on building a constituency for fisheries management anchored on a network of peers called MOREFISH composed of like-minded local chief executives who actively advocated environmental protection and marine conservation in the LGU community and concerned NGAs, particularly DA-BFAR.

best practices in coastal management. With FISH, LMP focused on building a constituency for fisheries management anchored on a network of peers called Movement for Responsible Fisheries (MOREFISH) composed of like-minded local chief executives who actively advocated environmental protection and marine conservation in the LGU community and concerned NGAs, particularly DA-BFAR.

Also with LMP, we engaged the Mayors Development Center (MDC) in the development and implementation of the "Executive Course on Sustainable Fisheries Management" (ECSFM) and the conduct of the 2nd Conference of Coastal Municipalities (2CCM). Designed specifically for LGU officials, the ECSFM was a training program on basic CRM and fisheries management. The 2CCM, on the other hand, was a follow-through of a similar conference held in 1999 that resulted in the adoption of a 15-point resolution on CRM (CRMP, 2000). The 2CCM was convened on June 28-30, 2009 in Cebu City to evaluate how well the 1999 resolution was implemented and to discuss developments in the fisheries sector, including the NPOA-Coral Triangle Initiative (CTI) and climate change.

A number of the constituency building activities that we pursued at the national level aimed to directly support local implementation, but were also designed to help expand the national constituency for fisheries management. For example, we participated and supported the annual and special meetings of the PNP-NALECC. The NALECC provided the Project a venue to report to the whole law enforcement community the activities undertaken in our sites, ventilate issues hindering enforcement, clarify policies that affected field enforcement and mobilize support from the PNP and other enforcement agencies to the concerned LGUs when it became imperative. At the same time, it was our intention to contribute to the development of NALECC as a policy recommending body by making it a conduit of proposed policy measures and improvements as they were experienced on the ground.

We also sought to build the support base specifically for EAF within DA-BFAR and other relevant NGAs. Throughout 2007 to 2009, briefings were held especially for officials of DA-BFAR and the ARMM on the critical need for adopting EAF, as well as for DILG and NEDA during FISH TWG and consultative group meetings. For the Project, this signaled the beginning of the institutional work needed to set in operation a system of governance favoring a more integrated EAF. Additionally, after NSAP results showed that most fisheries in the Philippines were in significant decline, the matter was discussed with NAFC through its Committee on Aquaculture and Fisheries.

With the ABS-CBN News Channel (ANC), we produced "*Hinagpis Ng Dagat*" (Sigh of the Sea), a documentary report on the issues facing Philippine fisheries, current measures to address such issues, and the viewpoints and recommendations of various stakeholders and other key players in the fisheries sector.

Outside of our core group of partner agencies, we started to build a constituency for EAF among LGUs, with LMP (through MOREFISH) serving as the main conduit of information to emphasize the pivotal role of LGUs in managing municipal fisheries under EAF. Through NFR, NGOs and POs were also consulted to generate support for the preliminary EAF framework that we developed. All told, 17 area consultations with NGOs and POs were conducted nationwide.

As results from our sites became available, we put to good use our field experiences to illustrate either the benefits of sustainable fisheries policies, or the implications of unsustainable policy decisions. Local experiences were documented for dissemination through various media, including print, broadcast and the Internet. Documentation served three purposes: 1) to record and share Project lessons to a wider audience; 2) to recognize and affirm the experiences and achievements of stakeholder communities, partner LGUs and their individual staff members in the various aspects of CRM and fisheries management; and 3) to generate positive feedback on good governance in fisheries management to help influence policy directions at the national level.

We compiled 81 "success stories" from our focal areas that also served as our contribution to the "Telling Our Story" section the USAID website. Working with the ABS-CBN News Channel (ANC), we also produced "*Hinagpis Ng Dagat*" (Sigh of the Sea), a documentary report on the issues facing Philippine fisheries, current measures to address such issues, and the viewpoints and recommendations of various stakeholders and other key players in the fisheries sector. Shot almost entirely in our focal areas, the report highlighted the management efforts of our local partners.

All FISH-assisted LGUs were included in the second edition of the Directory of CRM Learning Destinations, which was first published under

ASUNCION SIA, 2008

CRMP to promote the work done by participating LGUs as well as provide a resource for those looking for examples of past and current CRM practices. Nearly 100 cities and municipalities participated in the second edition and took advantage of the opportunity to share their best practices not only with our partner LGUs but the wider community as well.

To establish the Project as a source of objective information on fishery policy issues, we made a point of expanding our reach and sphere of influence beyond our sites by sharing our training and IEC materials and expertise as widely as possible. For example, we supported the US Department of the Interior-Philippine Biodiversity Conservation in the conduct of a national environmental law enforcement training and summit where Project lessons in enforcement were shared with a national audience. By invitation from different institutions and projects, we disseminated our technical assistance strategies and approaches through various forums, not only in the Philippines but also overseas.

The Project participated in workshops and conferences in the U.S., Mexico, Malaysia, Norway and other countries and submitted numerous articles authored by our staff to several publications, including local dailies and international technical and scientific journals. And, through our website at *http://oneocean.org*, we made practically all of our training and IEC products freely available to anyone with access to the Internet, in order to contribute to the global knowledge base on CRM and fisheries management and more importantly, to harness the power of information sharing to help catalyze much needed changes in fisheries policies and practices in our sites, as well as across the Philippines and the world.

Milestones & outcomes

All told, as of end-2009, we assisted the review, formulation or revision of nearly 30 national and local policy documents and studies, including a set of proposed bills amending certain provisions of the Fisheries Code that was submitted to DA-BFAR and Congress in 2005. The specific policy instruments corresponding to these documents and studies are listed in Table 4.5 according to the type of fisheries management mechanisms (growth, control or maintenance) that they supported.

Table 4.5. Policy documents and studies supported by the FISH Project, as of end-2009

Policies promoting growth mechanisms

- HB (House Bill) 5990 providing for the establishment by LGUs of MPAs covering at least 10% of coastal areas.
- Draft FAO adopting and implementing the NPOA on Conservation and Management of Sharks and Rays.
- RFAO 17-2009 providing the rules and regulations on the lease of fishponds in ARMM, including the reversion of abandoned fishponds to their original natural state

Policies promoting control mechanisms

- Draft FAO providing the rules and regulations on the registration and licensing of commercial fishing vessels, fisherfolk, fish workers and gear
- Draft FAO providing the rules and regulations on the registration of municipal capture fisheries for implementation by LGUs
- Draft FAO on the National Plan of Action on illegal, unreported and unregulated fishing.
- Joint DILG-DOJ-DOTC-DA No. 1 series of 2005 providing the implementing guidelines for EO 305 series of 2004 on the devolution of the registration of fishing vessels 3 GT and below to LGUs
- DILG Memorandum No. 37 series of 2007 enjoining the Leagues to lead the implementation of EO 305
- Evaluation of policy options for live reef food fish trade in Palawan
- Draft FAO providing guidelines for the implementation of the Wildlife Act (RA 9147) for aquatic wildlife
- Draft FAO on the implementation of a commercial fishing vessel licensing reduction scheme
- REO (Regional Executive Order) 16 series of 2006 creating an Inter-Agency Regional MCS Team in ARMM
- Draft REO adopting the Operations Protocol for the ARMM MCS Team
- RFAO (Regional Fisheries Administrative Order) 50 s. 2009 establishing a commercial fisheries licensing system in ARMM
- RFAO 57 s. 2009 on tropical fish collection and trading in ARMM
- REO 003 s. 2009 creating a TWG for the formulation of the ARMM Comprehensive Regional Fisheries Development Plan

Policies promoting maintenance mechanisms

- NPOA-CTI. National Plan of Action for the Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security
- Proposed HBs amending certain provisions of Republic Act (RA) 8550 (Philippine Fisheries Code of 1998)
- Proposed HB 227 establishing the Department of Fisheries
- Draft FAO establishing an ecosystem-based management framework for Philippine fisheries
- FOO 213 s. 2008 adopting the CNFIDP
- FOO 217 s. 2008 adopting an Integrated Fisheries Management Unit Scheme in the Philippines
- DAF-AO (Department of Fisheries-ARMM Administrative Order) 01-2006 providing the implementing rules and regulations for MMAA 86 (Fisheries Code of ARMM)

Nearly one-third of the outputs of our policy work addressed policy concerns in ARMM, ranging from controls on tropical fish harvesting and trading to the establishment of a commercial fisheries licensing system in the region. This was not a reflection of any deliberate bias for ARMM, but rather the offshoot of a perceived need shared among ARMM officials to develop local fisheries policies according to the provisions of the Organic Act for ARMM (RA 6734 as amended by RA 9034) and the ARMM Fisheries Code (MMAA 86). By and large, therefore, technical assistance was demand-driven and as a result, 6 out of the 8 ARMM policies that we supported were adopted or implemented by concerned regional agencies. For that matter, ARMM policies also made up

about one-half of the FISH-assisted policies that were actually adopted or implemented.

Overall, only about one-third of the policies that we supported had reached the adoption or implementation stage at the end of 2009. Notable among these were the CNFIDP, implementing guidelines for the registration of municipal fishing vessels, and a fisheries office order on the adoption and implementation of an integrated FMU scheme. The low rate of policy adoption reflected not only still unresolved differences in philosophy and priorities among stakeholders but also the highly consultative and participatory, but inherently time-consuming, process that the Project employed toward achieving its policy objectives. For example, the CNFIDP went through numerous subsector consultations and TWG reviews – a process that took 4 years – before it was adopted through a fisheries office order in 2008. On the other hand, the NPOA-IUU and the FAOs on municipal and commercial fisheries registration and licensing remained on the back burner 5 years after they were completed, as DA-BFAR pursued other perceived priority concerns. Meanwhile, the guidelines for the implementation of RA 9147 (Wildlife Act) for aquatic wildlife, while already published, had yet to be widely disseminated to the LGUs.

All told, the uptake of policies into the government system was largely determined by the priorities of the agencies concerned, particularly DA-BFAR. As a technical assistance project, FISH could advocate certain policies and facilitate and assist the policy work needed for their adoption, but whether at the local level or other levels of government, the final decision to adopt and implement policies rested solely on government.

Still, stakeholder participation was essential to help ensure that all sectoral and organizational concerns were properly ventilated and considered in policy-making and that critical implementation issues were identified. While the eventual policy issuances might not have adequately addressed all stakeholder concerns or guaranteed effective implementation, the consultation process did enable the concerns of stakeholders to be identified, opened communication

Stakeholder participation was essential to help ensure that all sectoral and organizational concerns were properly ventilated and considered in policy-making and that critical implementation issues were identified.

channels among stakeholders, and established or strengthened working relationships among concerned institutions and stakeholder groups – all valuable ingredients for improving implementation and further advancing policy reform.

The CNFIDP was a product of stakeholder participation and perhaps the most significant policy document that came out of the Project's 7 years of implementation, with implications to Philippine fisheries over the next 20 years. Extensive consultations at all levels of government involving relevant agencies and a wide range of stakeholders helped ensure that it represented the different views and concerns of the many sectors affected by and impacting Philippine fisheries, while bringing out their shared vision for the future of fisheries in the country.

What came out of the discussion was a clear call "to promote the sustainable development and adaptive management of the Philippine fisheries sector" based on fundamental sustainable development and environmental principles as well as the principles of EAF, partnership and decentralized administration (Table 4.6). This reflected an emerging consensus that while the current decentralized setup of LGUs managing municipal waters had set off a multitude of local initiatives and encouraged primary stakeholders to take personal responsibility for fisheries management, there was still a need to include ecosystem considerations in the management equation, and this required a wider, more integrated approach involving closer coordination and partnerships between all concerned institutions and stakeholders.

Table 4.6. Concepts and principles guiding the Comprehensive National Fisheries Industry Development Plan

Sustainable development concepts
1. Inter- and intra-generational equity
2. Holistic development
3. Integrated management
4. Carrying capacity
Principles for fisheries sector development
1. precautionary principle
2. ecosystem-based fisheries management
3. participatory management
4. partnership
5. decentralized administration
6. polluter pay principle
7. accountability

It is too early to determine whether or not the one dozen or so FISH-assisted policy instruments that were actually adopted have in fact positively impacted the specific fisheries management concerns that they were intended to address. But this much can be said: the sheer amount of work that we put into pushing policy reform was a major accomplishment in itself and could only

contribute positively to shaping the still evolving policy landscape for fisheries in the Philippines.

We also have much to show in terms of audience reach and the sheer number of our IEC products. Between October 2003 and September 2009, we produced some 200 titles in various formats (print, radio, video, etc.), with more than 110,000 copies of our print materials reaching various organizations and individuals nationwide, and radio, TV and the Internet expanding our reach at least ten-thousandfold more across the world.

However, it would be difficult to measure how much these modes of information dissemination actually contributed to constituency-building that directly supported our policy work. What was clearly evident was that demand for information was never lacking, and in fact the demand grew as our IEC materials reached more people, indicating at least increasing interest in the fishery issues that we highlighted. These materials became popular sources of information not only for our sites but also for areas supported by other donor-funded projects such as GTZ, Coastal Conservation and Education Foundation (CCEF), Sustainable Management of Coastal Resources in the Caraga and Bicol Regions (SUMACORE), Plan International, Partnerships in Environmental Management for the Seas of East Asia (PEMSEA) and Integrated Coastal Resource Management Project (ICRMP).

The impacts of constituency-building activities involving interpersonal interactions were much easier to gauge. From about 5,600 participants that attended our 180 consultation meetings, conferences, workshops and trainings emerged at least a few dozen peer trainers, advocates and champions for sustainable fisheries not only across our sites but also among participating organizations with regional or national influence.

In terms of influence, the biggest of such gatherings was the 2CCM, which we organized with LMP (through MOREFISH) and other partners. The conference was attended by close to 600 mayors, technical staff and representatives from NGOs and donor-funded projects and resulted in the

The 2nd Conference of Coastal Municipalities in the Philippines was attended by close to 600 mayors, technical staff and representatives from NGOs and donor-funded projects.

adoption of 14 resolutions that addressed various issues related to fisheries, food security and climate change, as well as the holding of the conference of coastal municipalities as a biannual event. (Table 4.7) It was also attended by 30 representatives from the CTI member countries (Indonesia, Philippines, Malaysia, Timor-Leste, Papua New Guinea and Solomon Islands) who participated in a week-long exchange program based on the ECSFM that the Project organized and hosted.

Our partnership with LMP proved to be particularly productive in terms of leveraging support for fisheries management and sharing Project lessons for application in other areas. Through the League's MDC, a total of 88 mayors participated in the ECSFM. Through MOREFISH, LMP also helped the Project push policy reform, in particular by passing through its National Directorate a resolution endorsing to both DA-BFAR and its member-LGUs the adoption of the FMU scheme.

Table 4.7. Resolutions adopted at the 2nd Conference of Coastal Municipalities in the Philippines

Res. No. 1. Calling on LMP and DA-BFAR to assist member municipalities in establishing inter-LGU cooperative arrangements in fisheries management.
Res. No. 2. Calling on LMP and concerned agencies to institutionalize the CCM as a biannual event to provide a forum for coastal municipalities to discuss common environmental and development issues.
Res. No. 3. Calling for the inclusion of marine areas as a basis for the computation of the internal revenue allotment (IRA).
Res. No. 4. Urging Congress to elevate DA-BFAR into a department of national scope to ensure sufficient funding for the management of the coastal and fishery resources of the Philippines.
Res. No. 5. Calling for the enhancement of IEC activities by all concerned agencies and the MDC in the areas of climate change, marine biodiversity and population management.
Res. No. 6. Requesting the Department of Education to integrate climate change and marine biodiversity in school curriculums.
Res. No. 7. Calling for the enactment and implementation of financial measures necessary for the empowerment of LGUs in adopting an integrated and strategic coastal and fisheries resource management.
Res. No. 8. Requesting DA-BFAR to implement the CNFIDP.
Res. No. 9. Requesting the PNP to assign at least 2 PNP personnel per municipality to enforce fishery and coastal laws.
Res. No. 10. Directing the LMP and MDC to formulate a model administrative adjudication ordinance and to capacitate LGUs in the operationalization of the adjudication process.
Res. No. 11. Requesting the DA-BFAR to provide patrol boats and other necessary paraphernalia to coastal communities in need.
Res. No. 12. Enjoining the DENR to support coastal municipalities nationwide in undertaking mangrove rehabilitation and conservation programs and other appropriate buffer zone measures to help mitigate the impacts of climate change.
Res. No. 13. Requesting the Department of Justice (DOJ) to create paralegal teams to assist LGUs in the prosecution of fishery-related cases.
Res. No. 14. Enjoining the LMP to create a TWG to monitor the gains of the first and second conferences of coastal municipalities using exemplary initiatives of LGUs as baselines.

Meanwhile, our involvement with the NALECC led to the institutionalization of a mechanism for concerned agencies to monitor, report, and discuss fishery law enforcement issues and find appropriate solutions. In addition, our partnership with various NGOs, advocacy and religious groups

Our partnership with various NGOs, advocacy and religious groups established the role of civil society as a provider of independent expertise, legal assistance and moral guidance on CRM and fisheries management to both LGUs and resource users.

Engaging civil society in fisheries reform. As part of our constituency building, we promoted the NGOs' role as a provider of independent expertise to LGUs. APREDEC, our main partner for Lanuza Bay, used to be a loose organization of like-minded professionals – mainly lawyers -- who championed the rights of marginal fishers in Surigao del Sur. In 2006, prompted by an opportunity for funding under the FISH SAF, the group decided to formally organize. They worked with the Project until 2009, helping introduce policy reforms that strengthened the Lanuza Bay Development Alliance. Simultaneously, with our assistance, they beefed up their capability to assist the Lanuza Bay LGUs in the technical aspects of coastal management, including resource assessment, community organizing, law enforcement, and IEC.

"We now have in our organization not only lawyers but also community organizers and technical experts," APREDEC founder Gerardo Maglinte told FISH in an interview in 2008.

He revealed plans to expand the group's operation to the entire CARAGA region. "We've built a good relationship with LGUs, while keeping our independence as an NGO. This allows us to serve both as a catalyst of change and as a source of support for the LGUs."

The group continues to produce a radio show that was developed with FISH assistance to provide a public forum for the discussion of coastal problems and their solutions. (Sia, 2009)

established the role of civil society as a provider of independent expertise, legal assistance and moral guidance on CRM and fisheries management to both LGUs and resource users. For example, our NGO partner in Surigao del Sur, APREDEC, while still largely focused on assisting Lanuza Bay LGUs, has set its sights on expanding its operation to the entire CARAGA region through the CARAGA Lawyers Network. Also, the *shariah* organization SCIPG in Tawi-Tawi and the Catholic clergy's "ecological evangelists" in Cebu remain a primary source of moral guidance on fisheries matters for the faithful in the areas they serve.

At the national level, our collaboration with NFR was instrumental in connecting the community of stakeholders with policymakers and promoting transparency in policy decisions. The broad-based community involvement that NFR and other partner NGOs brought into the policy-making process not only contributed to improving the relevance of draft policies, but also added significantly to the policies' legitimacy, visibility and influence.

That said, community involvement must continue. Two years after it was adopted, the CNFIDP has yet to be applied to DA-BFAR's financial and budget programming, an indication that a well-defined operational framework may not be enough impetus to drive substantive change in institutional priorities. An engaged constituency led by LMP, NFR and their allies in national government could be the compelling force to push the reform process forward and spur change-resistant institutions to finally put policy into action toward sustainable fisheries.

CHAPTER 5

The Sustainability Challenge

Recommendations for program sustainability

Through all seven years of the implementation of the FISH project, we sought to establish appropriate sustainability mechanisms at the municipal, inter-LGU, provincial and national levels of government. The existence of some enabling conditions provides some indication of the sustainability prospects of our interventions.

At the **local level**, five enabling conditions to sustain implementation were identified, namely, 1) regular budget allocated to CRM programs (including – or specifically – fisheries management); 2) management plan adopted and supported by policy; 3) office formally mandated with CRM responsibilities; 4) institutional support systems available and accessible to LGUs; and 5) local champions and constituencies organized and active in the advocacy for sustainable fisheries.

1) *CRM or fisheries management plan adopted and supported by policy.* As of 2008, all focal area LGUs had officially adopted (generally by municipal ordinance) their respective multi-year management plans. Except that of Calamianes which was fairly focused on fisheries, all plans covered the broader CRM concerns such as habitat management, waste management, coastal tourism, livelihood development, and fisheries management.
2) *Regular budget allocation.* The average annual budget allocated to CRM by each focal area or expansion LGU increased 93% from Php346,000 in 2004 to more than Php669,000 in 2010. Generally, however, about half of the budget amount was covered by the LGUs 20% development fund, and few of the plans were specifically funded in the LGUs' AIPs. LGUs were clearly implementing at least some of the programs outlined in their plans, which indicated that funding support for CRM activities was taken from other budget items or through the LGUs' general fund sources. This could mean that funding support could be withdrawn quite easily, leaving program sustainability in doubt.
3) *Office formally vested with the authority and mandate to carry out or coordinate CRM programs, including (or focused on) fisheries management.* In general, CRM programs, including fisheries management, were implemented through an existing office specifically mandated by municipal ordinance or executive order as the primary CRM implementing unit or coordinating office. Most of the 29 LGUs that participated in our survey in 2009 maintained such an office,

usually as a section in the MAO or the Mayor's Office, or in the case of the Tawi-Tawi focal area LGUs, under the newly established MAFO.

4) *Institutional support systems existing and accessible.* We identified several possible institutional sources of technical, policy and funding support for LGUs, including NGAs, the province, NGOs and academic institutions. However, most LGUs did not regard the province as a major source of support, except in Bohol, where based on a capacity rating system developed by FISH, LGUs scored over 50% on access to technical services from the province. But even in Bohol, available expertise was limited to CRM planning, MPA establishment and coastal law enforcement. In general, the LGUs said they also got very little support from other institutional sources, including DA-BFAR.
5) *Local constituencies organized and active in sustainable fisheries advocacy.* Various constituency groups helped promote transparency in decision-making and push fisheries reform in our sites. They included the FARMCs, NGOs, POs and religious sector, as well as "champions" within the LGUs who worked with them. Many of them felt confident about the ability to sustain their advocacy work, but there were also a good number, especially among POs managing Project-supported MPAs, that said they needed further assistance.

At the **inter-LGU level**, we promoted cooperation and collaboration to provide a venue for policy and plan coordination and develop a support base for fisheries management from within the LGUs' ranks, while building the foundation for scaling up fisheries management to a larger area. Four sustainability factors were considered: 1) legal basis of the inter-LGU cooperation; 2) inter-LGU planning; 3) budgetary support for inter-LGU programs; and 4) permanent secretariat to coordinate cooperation.

1) *Legal basis for inter-LGU cooperation.* There was at least one inter-LGU arrangement in each focal area that we helped to establish or strengthen by defining or refining its legal basis. Generally, an inter-LGU

Various constituency groups helped promote transparency in decision-making and push fisheries reform in our sites.

arrangement was established through an inter-LGU MOA, memorandum of understanding (MOU), or covenant that set forth the terms and objectives of cooperation.

2) *Inter-LGU management plans.* The Calamianes LGUs adopted in 2008 an integrated fisheries management plan, while the LBDA completed in 2006 an improved version of its Environmental Management Plan, aligning its member-LGUs' CRM programs and activities. As of end-2009, the Danajon Bank and Tawi-tawi LGUs had yet to finalize their inter-LGU plans.
3) *Budgetary support for inter-LGU programs.* Except for the LBDA plan, all inter-LGU plans were intended primarily for policy and coordination purposes and had no budgetary support from the cooperating LGUs. In the LBDA's case, the annual contribution of each of its 7 member-LGUs was increased from Php50,000 in 2003 to Php150,000 by 2009. The fund was intended primarily for the LBDA secretariat's operating expenses and various program implementation activities. It must be noted that the individual LGUs used part of their municipal CRM budgets to meet their financial obligations to the LBDA. While this may seem to be a case of transferring money from the left pocket to the right, it did allow the LGUs to leverage their resources and accomplish more for the same amount of money.
4) *Permanent secretariat.* Except for LBDA which had its own secretariat, the various inter-LGU cooperation arrangements were coordinated by an existing agency at the provincial level and were largely limited to MPA monitoring, law enforcement and IEC. For example, the activities of CLEC in Danajon Bank and the TBFSA in Tawi-Tawi were coordinated by BEMO and the Tawi-Tawi provincial DA-BFAR, respectively. We coordinated the various activities leading to the adoption of the Calamianes Integrated Fisheries Management Plan, a function that, as of end-2009, the Coron LGU had started to assume as the focal municipality for inter-LGU collaboration in Calamianes.

At the **provincial level**, we harnessed the important but still largely untapped role of the provincial government as a service provider in CRM and fisheries management, by providing limited capacity-building support to different provincial offices with the relevant mandates. Capacity-building generally focused on establishing three enabling conditions for sustainability: 1) provincial government's role as CRM service provider clarified, defined and strengthened; 2) provincial staff trained as CRM service providers; and 3) funding support for CRM included in the provincial annual investment plan.

1) *Provincial government's role clarified, defined and strengthened.* In Bohol, the province through BEMO had a fairly well-defined and active role as a CRM service provider to municipal LGUs even prior to FISH, but this was not the case in our other sites. We provided some organizational

ASUNCION SIA, 2007

At the provincial level, investments in CRM were mostly intended to support specific activities, such as environment-themed events designed to promote public awareness of coastal issues.

development support to relevant provincial offices in Palawan (Provincial CRM Office), Surigao del Sur (PFARO) and Tawi-Tawi (TEMO). However, at the time of the survey, these offices had yet to establish a tangible enough presence in our focal area municipalities.

2) *Provincial staff trained as CRM service providers.* The Project engaged the provincial offices in our interventions at the municipal level, thereby providing them many opportunities to develop some capacity as a technical assistance provider, particularly in resource assessment, CRM planning, marine spatial planning, municipal water delineation, law enforcement, MPA management and IEC.
3) *Funding support for CRM included in the provincial annual investment plan.* One indication pointing to the provincial governments' interest in assuming a more active role in CRM was the inclusion in their budgets of provisions for CRM program implementation at the municipal level. The amounts ranged from Php300,000 in Surigao del Sur to Php4 million in our expansion area in Surigao del Norte. They were intended mostly to support CRM planning, MFARMCs, MPAs, mangrove management, law enforcement, livelihood development, municipal water delineation and IEC activities, such as environment-themed events designed to promote public awareness of coastal issues.

Three sustainability factors were considered at the **national level**: 1) policy reform and development, 2) constituency building, and 3) reporting and feedback.

1) *Policy reform and development.* The Project completed about 30 policy initiatives, 11 of which had been adopted by DA-BFAR at the end of 2009, including 2 fisheries office orders on the adoption and implementation of the CNFIDP and integrated fisheries management unit scheme, two major policies that set the direction for fisheries development in the Philippines. Several other important policies were not acted on, however, largely because of a lack of institutional support.

2) *Constituency building.* Several important allies were engaged in fisheries reform at the national level, the most strategic of which were the NFR and LMP, which represented the NGO/PO and LGU sectors. The LMP in particular proved to be an effective lobby group for policy initiatives that addressed issues affecting municipal fisheries. In 2008, LMP adopted sustainable fisheries as a programmatic objective through its MOREFISH program, which was developed with FISH assistance.
3) *Enforcement reporting and feedback.* NALECC and PNP adopted a system of reporting coastal law enforcement issues to national decision-makers and issuing resolutions or directives to relevant agencies that specifically address such issues. This reporting and feedback mechanism makes enforcement agencies like PNP and DA-BFAR more accountable for the actions they take on illegal fishing matters.

Remaining gaps

There are two key aspects of capacity development where LGUs need assistance in order to effectively carry out and sustain CRM implementation. The first aspect relates to the technical requirements of project implementation, and the second concerns organizational and operational needs. Much of our effort at building local capacity to promote sustainable fisheries focused on developing technical capacities at the activity level, mainly MPA management, coastal law enforcement and IEC. In a number of our sites, some degree of competence in specialized technical functions, such as MPA monitoring, fishing vessel admeasurement, and GPS navigation and mapping, has been achieved. In most areas, personnel and resource users have also been exposed to IEC interventions and learned to advocate and champion CRM and sustainable fisheries within the LGU.

Much of our effort at building local capacity to promote sustainable fisheries focused on developing technical capacities at the activity level, mainly MPA management, coastal law enforcement and IEC.

However, in terms of fisheries management and in particular fishing effort management, lack of technical expertise remains a top concern that must be addressed. Our experience with FISH underscored only too well that fishery law enforcement and MPAs alone cannot solve our overfishing problem – there must also be a systematic effort to manage overall fishing effort, and this is a critical gap that still needs to be resolved.

Besides enforcing already existing fishery laws and management measures, LGUs in general still do not have the technical capacity to address overfishing issues and the emerging issues on equity of access to fishery resources evident particularly in Danajon Bank (Chapter 3). Few LGUs have even attempted to undertake fish catch monitoring on a regular basis, much less use fisheries information to analyze fishing trends for the purpose of fishing effort management. Indeed, while much progress has been achieved in capacitating LGUs in coastal law enforcement, MPA management, IEC, and some aspects of CRM planning and coordination, most LGUs still lack the technical capacity to fully perform their CRM mandates under the LGC and 1998 Fisheries Code.

Overall in the target areas, more work also needs to be done to address organizational and operational constraints, and even in the focal areas where the bulk of capacity building was directed, critical gaps remain. These include numerous institutional issues, such as lack of continuity between political term limits in the implementation of programs requiring sustained effort; poor implementation of CRM and fisheries management plans; weak law enforcement capabilities; inadequate institutional support; and inconsistency and conflicts between plans, programs and legislation within and between local and national governments.

Lack of funding is a perennial concern. While the average annual budget for CRM in the focal areas increased substantially from Php346,000 in 2003 to more than Php669,000 in 2010 (Chapter 3), this amount is still way below the investment needed for sustainable CRM at the municipal level, even one that is focused solely on fisheries concerns. Thus, although CRM and fisheries management plans have been adopted across our sites, most programs remain grossly underfunded, and their implementation is consequently patchy at best.

Funding deficits could be reduced by leveraging local resources through various inter-LGU cooperation arrangements, but except in Lanuza Bay, such arrangements have been largely limited to policy formulation and coordination. Other sources of funding and technical expertise – the province, NGOs, academe and NGAs – are also not easily accessible and are themselves generally hampered by limited resources and capacity. Overall there is very limited assistance available for improving fisheries governance, particularly in regard to fishing effort management.

While some NGOs have become excellent service providers to catalyze improved CRM, their focus has been mainly on MPAs, community organizing, advocacy, legal services and IEC. Academic institutions involved in research of the socio-environmental aspects of CRM and fisheries can play a vital role by providing sound scientific studies and assessments needed for management decisions, but they too are underutilized. In general, information flow from assisting organizations is unidirectional with feedback mechanisms to government decision-makers lacking.

National government is expected to provide consistent and clear policy guidance, training, and technical and financial assistance to LGUs

Provinces can be an important source of support and in fact have already proven to be uniquely suited to foster harmonized local policies and programs through a provincial policy framework, provide technical and information management support services to coastal municipalities and cities, and thus contribute to the sustainability of local programs. With training from FISH, a number of provinces have begun showing increased appreciation of their role as CRM service provider by allocating funds for local CRM implementation. However, even here, there is still only minimal assistance that LGUs can expect whether in terms of funding or technical services. As in municipal and city LGUs, capacities still need to be developed in the provinces, in the context of both the technical and organizational requirements of CRM.

The policy instruments and institutional arrangements now present in the different provinces – from Bohol's BEMO to Tawi-Tawi's TEMO -- are encouraging developments, but they must be strengthened to become fully operational and truly relevant to the contemporary needs of CRM in their localities. Even Bohol's BEMO, the oldest and most experienced among the provincial offices that provide technical assistance in CRM, is currently confined to a few CRM services, namely, CRM planning, MPA management and coastal law enforcement in a few municipalities.

Higher up the government hierarchy, NGAs with the bulk of CRM-related responsibilities -- DA-BFAR, DENR, DILG (including the PNP), and the Department of Transportation and Communication (DOTC), in particular the PCG – often come up short in implementing policies and services toward supporting local initiatives in CRM. Since the devolution of major CRM responsibilities -- particularly fisheries management – to the local government in 1991, national government not only should have realigned and prioritized policies and programs toward the common goal of improving local governments' capacity to manage their own coastal and fishery resources, it was also expected to provide consistent and clear policy guidance, training, and technical and financial assistance to LGUs, as well as monitor and evaluate the condition of coastal resources and progress of local management programs.

Instead, considerable inconsistency, overlap, inaction, and conflict continue to exist within and between national government agencies' (NGA) policies and programs related to CRM.

In particular, DA-BFAR, the country's lead national agency in charge of fisheries, has yet to undertake a capacity development program for LGUs in fisheries management. In recent years, the bureau has taken steps to work more closely with LGUs, but its assistance remains heavily focused on increasing fisheries production, primarily through aquaculture and mariculture.

FISH did a tremendous job in assisting the formulation of various policies supporting sustainable fisheries, but only a handful of these policies have been approved by DA-BFAR. Even the CNFIDP, the 25-year framework plan for sustainable fisheries development which in 2008 was adopted for implementation through a fisheries office order, has yet to be considered in the DA-BFAR's budget programming. Consequently, the bureau continues to face serious issues that hamper its ability to balance its mandate for increased production with sustainable use of the nation's fishery resources.

Looking ahead

Many of the answers to current issues are already in the form of policy that needs only to be put in operation, with some refinements, if necessary. In addition, the development and application of a number of sustainability instruments and mechanisms are underway and need only to be further pursued. Below are some recommendations on how to pick up capacity building where FISH left off, so as to provide program continuity and promote the sustainability of interventions at the different levels of management.

Local implementation

At the local level, our capacity building program was anchored on a participatory planning process framework that defines the broad activities and strategies applicable across the realm of CRM. This framework has been successfully institutionalized to varying degrees in our sites, leading to the adoption by the LGUs of CRM as a basic service. In order to efficiently address the still numerous capacity gaps that continue to persist in local implementation, capacity development must build on this framework by

defining the process, specific activities and task sets for each program or best practice.

Several actions can be immediately taken in the FISH sites to advance capacity building and improve local implementation. These include:

1) Improve the LGUs' capacity to coordinate, monitor, review and evaluate program implementation. Monitoring and evaluation is a common weak spot in local implementation that capacity building must continue to work on;
2) Continue to encourage the inclusion of CRM in the LGUs' AIPs to help ensure that funds are available for implementation. The greater challenge, however, is how to ensure that there are regular budget allocations for personnel services, operations and capital outlay to support CRM and fisheries management programs, and furthermore that funds allocated to CRM are actually spent for the purpose that they are intended.
3) Review and evaluate policy implementation, and address capacity gaps as needed. Many policies supporting sustainable fisheries have been passed that are not yet implemented, often because of a lack of political will or enforcement capacity, or simply because of the absence of implementing guidelines.
4) Continue to push for the creation of permanent CRM positions. Most LGU offices designated to undertake CRM in the FISH sites are essentially improvised arrangements usually supported by an executive order issued by the local chief executive. Often, these arrangements are the only viable option given that most LGUs have reached their 45% budget cap on personnel services. But they are rather tenuous, because the offices can be easily dissolved by simple revocation of the executive order.
5) Continue to work with and build an active constituency among community stakeholders to promote program continuity, transparency and accountability in planning and decision-making. Public recognition of local government leaders that support CRM helps promote wider public support and reinforces the LGU's commitment to continue the program after the end of a political term.
6) Build law enforcement programs to promote compliance by supporting activities related to prevention, apprehension and prosecution. We attempted to put in place three basic ingredients in the local governance system to support fisheries law enforcement, namely, budgetary support for procurement and personnel services, competent manpower to undertake enforcement and a way to make the LGU criminally and administratively liable for the non-enforcement of fisheries laws. To sustain enforcement, future

initiatives must ensure that these ingredients remain in place, while aiming for systemic improvements in law enforcement.

7) Continue to develop capacity in the different aspects of CRM. Compared to where it started just over a decade ago, the effort to institutionalize CRM as a basic LGU service has progressed far enough to have some tangible impacts. But compared to the full range of CRM concerns that need to be addressed, it has only really just begun. For the most part in our sites, capacity in terms of skills, knowledge, institutions and relationships have been established for MPA management, coastal law enforcement and IEC, but there is still only very limited capacity in fisheries management, particularly fishing effort management.

ASUNCION SIA, 2009

The single most important sector in the coastal zone is the municipal fisheries sector, and it must remain the focus of future capacity building efforts.

The single most important sector in the coastal zone is the municipal fisheries sector, and it must remain the focus of future capacity building efforts. Where fisheries management is concerned, future initiatives must integrate into the process the steps needed to systematically manage fishing effort using the best available information to continuously guide planning, policy-making and enforcement.

During the course of Project implementation, we tested a participatory process of identifying species that required management and the measures needed to manage them. One deficiency in this approach was that it did not complete the integration of this particular process into the main planning activity that was being undertaken to broadly identify the programs and strategies to address local CRM concerns. Consequently, there was little appreciation of the process itself, because LGUs perceived the activity as a one-off exercise to achieve a specific objective, such as the declaration of a siganid closed season. Nevertheless, with a little adaptation, future projects would do well to use this experience to develop a fisheries management process that is suited to existing capacities and resources at the local level, and then integrate

the process into the LGU planning system. The fishery registration and licensing system that we helped install in our focal area LGUs must also be linked to the system to inform planning and management.

One critical area of competency that still needs to be filled is fish catch monitoring. Our attempt to install a fish catch monitoring system in our sites did not prosper because LGUs found the methods used to be too rigorous and costly. Despite such setback, the effort to develop an acceptable fish catch monitoring method must continue and LGUs must be persuaded to use it by demonstrating its practical applications, particularly in managing fishing effort.

Institutional support systems

It was our operational policy to engage multiple levels of government to build institutional support for local initiatives and promote program sustainability. The following actions are recommended to further develop these institutional arrangements:

1) Continue to develop inter-LGU arrangements by creating a strong mechanism for coordinating collaborative activities. A permanent secretariat, funded by the LGUs themselves, is ideal but it may not be acceptable to some LGUs for various reasons (personnel tenure, budget, procedures, jurisdiction, etc.). In general, it is best to let the cooperating LGUs decide what coordinating mechanism would work best for them, given their limitations and constraints. Inter-LGU collaboration would also benefit from having a stronger legal basis.
2) Strengthen the role and capacity of the province as a CRM service provider. Projects can tap the interest shown by the different provinces in assisting local CRM programs to fill at least some of the demand for technical assistance from LGUs. But provinces need capacity building themselves, and they too have limited resources. One area where they can strategically assist municipalities would be in the maintenance of fisheries databases – this may be worth exploring.
3) Continue to engage the LMP in policy advocacy and capacity building for CRM. Our partnership with LMP led to the establishment of a regular CRM advocacy program under the LMP national secretariat and the institutionalization in the MDC of a training program for mayors. To

promote program continuity, the national secretariat and the MDC – being the main program proponents – must be strengthened so that they can more effectively advocate CRM within LMP and advocate the LGUs' fisheries management concerns with DA-BFAR.

4) Assist DA-BFAR in carrying out the integrated FMU scheme and CNFIDP. We made some headway in overcoming institutional resistance to fisheries reform in getting these policy initiatives approved by bureau officials. But until DA-BFAR begins to take ownership of these initiatives and implement them as priority programmatic actions, the reform process cannot prosper. This may require substantial investments in organizational development. DA-BFAR is not equipped to meet the current demand for technical assistance in fisheries management in the country – it has one small section responsible for fisheries management that is mostly tasked with the regulation of commercial fishing operations. The bureau has to be beefed up, both in terms of human and financial resources, to be able to adequately perform its role as service provider not only to the municipal LGUs but also to the commercial fishing sector. Even more capacity building is needed to bring it up to par with the administrative requirements of EAF. One immediate action that can be taken is to install the fish catch monitoring system that FISH developed in the DA-BFAR information management system.
5) Engage DILG more fully in the capacity development effort. DILG holds two key functions that can directly impact LGU adoption of CRM as a basic service: capacity development in governance and monitoring of LGU performance. We have developed a preliminary benchmarking system for fisheries management that can be developed further through a consultative process for use by DENR, DA-BFAR and DILG in monitoring and evaluating LGU performance in CRM and fisheries management (Appendix 1). To assist LGUs in CRM service delivery and increase their capacity in environmental governance, DILG must broaden its functions to include policy review and technical assistance in environmental and natural resources management, and work toward establishing collaborative relationships in CRM with DENR and DA-BFAR. Also, DILG has authority over the PNP, which performs all police functions over territorial waters and rivers and coastal areas. Currently, the ability of the PNP to enforce coastal laws at sea is severely hampered by the lack of trained coastal law enforcement officers and

The LMP national secretariat and the MDC must be strengthened so that they can more effectively advocate CRM within LMP and advocate the LGUs' fisheries management concerns with DA-BFAR.

equipment, including patrol boats, required to do the job. Future initiatives can build on the FISH Project's success in institutionalizing within the NALECC a reporting and feedback mechanism that allows national decision-makers to respond quickly to coastal law enforcement issues as they are reported from the ground.

Scaling up management

As capacities are built across all levels of government, there are emerging opportunities and challenges to scale up the gains across the fishing groups of the country. The following recommended actions have been put forward for the Philippine government to consider:

1) Adopt and fully implement an ecosystem-based clustering of management areas (FMUs) defined according to their distinct biophysical and ecological characteristics such as resource distribution. The FMUs were formulated based on the 10-year data of DA-BFAR's NSAP.
2) Build the capacity of individual LGUs and inter-LGU alliances to collectively manage a defined FMU including among others the provision of timely technical information as basis for management decisions, technical assistance to LGUs and local stakeholders and appropriate infrastructure and equipment to effectively respond to fishery law violations.
3) Prioritize support for the improvement of local fisheries management systems at the LGU level. As we have demonstrated, municipal fishing grounds though mostly overfished remain to be a promising area where proper management can lead to rapid recovery of resources.
4) Spearhead an inter-agency initiative to support a local government enforcement program particularly in responding to strategic enforcement concerns such as poaching and intrusion of commercial fishing operations in municipal waters.
5) Adopt and implement the CNFIDP.
6) Promote poverty alleviation and sustainable fisheries policies and programs (e.g. mariculture, livelihood support) that provide a balance between enhancing productivity, maintaining environmental and ecosystem integrity and promoting social equity.
7) Create and strengthen an inter-agency policy coordination unit to harmonize conflicting policies, plans or priorities among agencies of the national government or between national and local governments.

ASUNCION SIA, 2009

Sustainable fisheries must happen. Our fishery resources are not something we can lose without dire consequences. The stakes are too high.

A hopeful outlook

In 2003 when we received our marching orders to promote sustainable fisheries in the four FISH Project areas, we knew that we would be facing many great challenges. But we also knew with certainty that what we were tasked to do was not impossible. Now, seven years later, we are proud of our many accomplishments particularly in helping our partner LGUs achieve some capacity in controlling a number of critical factors that could cause harm to their municipal fisheries.

But the question persists, can sustainable fisheries happen? On this, we remain hopeful. Sustainable fisheries can certainly happen, but not without more hard work from everyone concerned.

Fact is *sustainable fisheries must happen*. Our fishery resources are not something we can lose without dire consequences. The stakes are too high. And having gone this far, after learning and accomplishing so much, those who are responsible for municipal fisheries in our focal areas, along with those who are mandated to assist them, are at least in a better place today than seven years ago, even with a still good distance to go. Through their shared experience in implementing the FISH Project, they have gained knowledge steeped in reality, and it will stand them in good stead as they continue their way forward to sustainable fisheries, more surely and more confidently now that they have the wisdom of experience and clarity of hindsight.

To reach a port, we must sail.
Sail – not tie at anchor. Sail – not drift.
– Franklin D. Roosevelt

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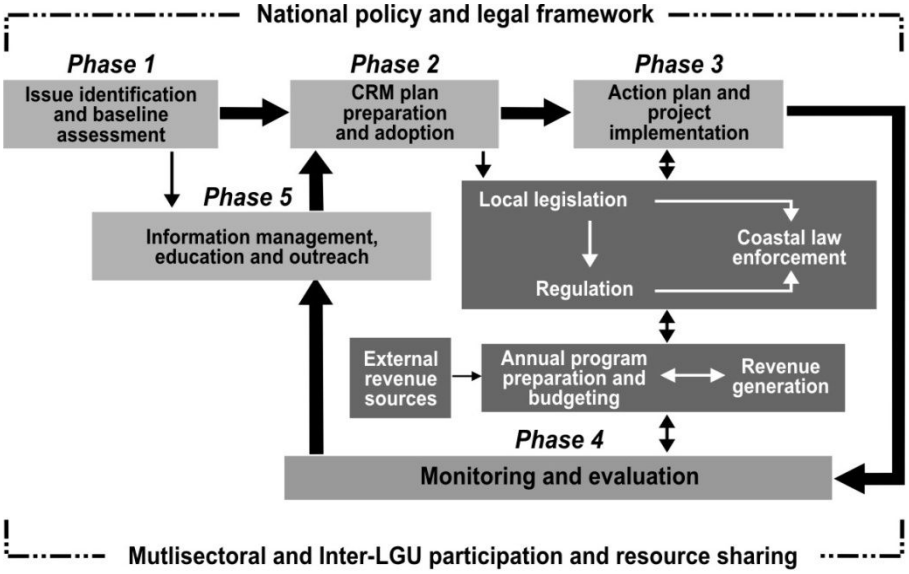
Appendix 1. Proposed template for the development of a municipal fisheries management benchmarking system in the Philippines

Background

The devolution of fisheries management (FM) started in 1991 with the enactment of the Local Government Code (LGC) and was reinforced by the Philippine Fisheries Code (FC) of 1998. These laws laid the basis for local government units (LGUs) to exercise jurisdiction over coastal resources and municipal waters, and vested in them the primary responsibility for coastal resource management (CRM). Several externally assisted projects have since focused on building the capacity of LGUs to deliver their CRM mandate. Among these was the Coastal Resource Management Project (CRMP), a technical assistance project of the Department of Environment and Natural Resources (DENR) supported by the United States Agency for International Development (USAID). Implemented over 9 years (1996-2004), CRMP made significant headway in mainstreaming coastal issues on the Philippine national agenda and promoting CRM as a basic LGU service.

As part of its institutional development initiative, CRMP worked with DENR and other stakeholder groups to develop a framework for LGUs to track and measure their performance in CRM program implementation. This framework has been adopted by the DENR for its CRM certification program, which CRMP also helped to developed. It defines key benchmarks of performance (Appendix 2) that LGUs can use to determine their progress in CRM, corresponding mainly to their progress in implementing the CRM planning process (Fig. A.1) and in adopting a set of best practices, including FM, marine protected areas (MPAs), mangrove management, coastal law enforcement, and solid waste management, among others. To be fully effective, however, the framework needs to be further developed by defining appropriate benchmarks and indicators for each of the CRM best practices.

Fig. A.1. CRM planning process adapted for LGUs in the Philippines (DENR, et al, 2001)



So far, a set of benchmarks and indicators has been developed for MPAs through the initiative of the NGO Coastal Conservation and Education Foundation (CCEF). To contribute to the effort, the Fisheries Improved for Sustainable Harvest (FISH) Project of the Department of Agriculture-Bureau of Fisheries and Aquatic Resources (DA-BFAR), Department of the Interior and Local Government (DILG) and USAID prepared this template that DA-BFAR, DENR, DILG and other concerned groups (different local government leagues and stakeholder communities) can use to develop in a participatory and consultative process a set of benchmarks, reference points and indicators that LGUs can use to monitor and evaluate their performance in FM.

This template is based on the following frameworks:

1) The four orders of coastal governance outcomes that group together the sequences of institutional, behavioral and social/environmental changes, where each level of changes is regarded as a building block for achieving the desired results and can lead to more sustainable forms of coastal development (Olsen, 2003);
2) The CRM planning cycle, which consists of baseline assessment, plan preparation and adoption, program implementation or enforcement, and monitoring and evaluation (M&E) of results and impacts.
3) Two-tier benchmarking to track progress at the institutional and implementation/enforcement levels, as follows:
    a. Benchmarks at the institutional level: Enabling mechanisms to institute FM, and
    b. Benchmarks at the implementation/enforcement level: Management practices consisting of growth, control and maintenance mechanisms for FM.

Objectives

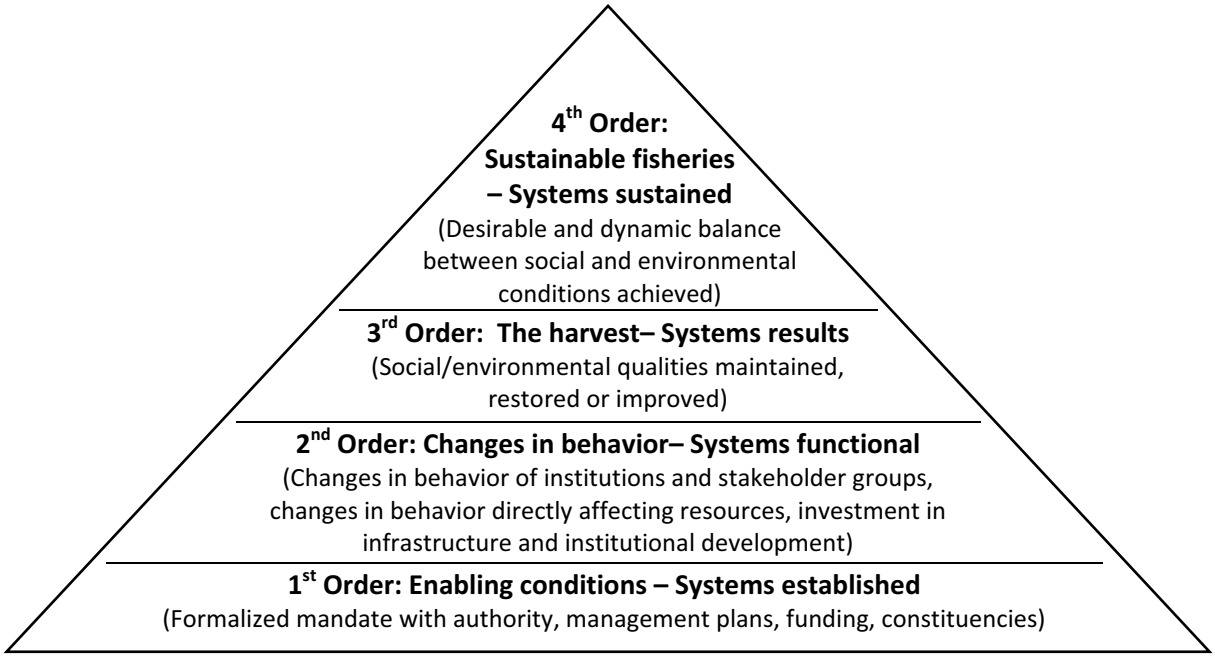
The primary purpose of this FM benchmarking template is to provide a framework that can be used to develop a standardized set of benchmarks, reference points and indicators for municipal FM in the Philippines, preferably through a consultative and participatory process involving concerned NGAs such as DA-BFAR, DILG and DENR, and representatives from the local government leagues and stakeholder communities. While such standardized benchmarks and indicators are not yet available, the benchmarking system described here can also be used for the following purposes:

1. Familiarize LGUs with some essential elements and enabling mechanisms for establishing an FM program
2. Provide LGUs with guideposts in FM program implementation
3. Provide LGUs with an M&E protocol to assess program performance, progress and outcomes

FM benchmarking framework

This FM benchmarking system is based on the four orders of coastal governance outcomes described by Olsen (2003). (Fig. A.2).

Fig. A.2: Orders of coastal governance outcomes (Olsen, 2003): Graphical interpretation of the building blocks for sustained municipal FM using the 5-level hierarchy of needs model developed by Maslow (1943)



The 1st Order requires the existence of enabling conditions that set the stage for the implementation of FM interventions, primarily a formalized mandate with the appropriate implementation arrangements, management plan or policies, resources, management systems, and constituencies. The 1st Order is adopted as Level 1 in the benchmarking system and referred to as "Systems established".

The 2nd Order is characterized by changes in behavior that promote social and environmental improvements. When applied to FM benchmarking, behavioral change should be manifested by an observable degree of institutional and stakeholder capacity and resolve to implement, enforce and sustain management, as well as ongoing plan and program implementation. The 2nd Order is referred to as Level 2 or "Functional system" in the FM benchmarking system.

The 3rd Order is achieved when the desired results of a functioning system become evident. In FM, it may be characterized by indications of the maintenance, restoration or improvement of key environmental and social conditions. It is applied to FM as Level 3 or "Systems results," referring primarily to the biophysical, socio-economic and revenue improvements achieved through the LGU's FM initiatives.

The 4th Order is marked by the realization of sustainable development, a state where a desirable and dynamic balance is achieved between social and environmental conditions. In the graphical presentation shown in Fig. A.2 that depicts the 4 orders of coastal governance

outcomes as 4 blocks forming a pyramid, the 4th Order sits atop the pyramid. Each block in the pyramid is built upon the one below it and therefore cannot exist unless the lower block has been set in place. The first 3 orders are necessary foundations to achieve the 4th Order. Conversely, if any of the lower level fails, the 4th Order will stand on shaky ground and could crumble. In FM, the 4th Order – Sustainable fisheries -- is the final and topmost benchmark, and it is characterized by fisheries that produce consistent outputs (socio-economic and biophysical) over an indefinite period without damaging the resource base.

The FM benchmarking system is set up in a manner that follows a project management continuum. Level 1 is generally achieved when plans and programs are adopted, legitimized and established, and the management system, including an M&E system that tracks key performance indicators, becomes functional. Level 2 is the implementation and enforcement stage. Level 3 comes about when the desired results or impacts are achieved, as shown by findings from M&E activities.

The table of FM benchmarks below shows this continuum, the clusters of programs under each FM mechanism and a detailed description of each level.

FM benchmarks

Benchmark and rationale	Benchmark description
Basic requirements (Enabling mechanisms)	
Fisheries profiling, baseline assessment and M&E protocols	**Level 1:** Baseline assessment conducted and profile developed as basis for the identification of FM issues and the development of M&E indicators ➢ Fisheries profiling and baseline assessment conducted ➢ Status of fisheries established, issues and opportunities determined and appropriate management practices and mechanisms identified ➢ Key indicators for biophysical, socioeconomic and governance aspects developed as part of the M&E plan **Level 2:** M&E conducted to assess and analyze the biophysical, socioeconomic and governance results of FM implementation ➢ M&E database developed and functional to track key biophysical, socio-economic and governance indicators ➢ M&E plan/protocols developed, approved and funded to assess changes in biophysical, socioeconomic and governance targets ➢ M&E data collection conducted, data stored in the database and results analyzed and fed back to stakeholders, partners and LGU leadership/authorities **Level 3:** M&E regularly conducted demonstrating overall positive improvement in biophysical, socioeconomic and governance aspects of FM ➢ Regular M&E conducted based on the plan/protocol and results compared to baseline information ➢ M&E results showing overall improvement in biophysical, socioeconomic and governance indicators (e.g. improvement of conditions of key coastal habitats, biomass within and adjacent to the MPAs, fish catch of selected gear used or target species caught by selected group of fishers, and income of small-scale fishers; reduction of illegal fishing; increased use of friendly gear; increase in LGU revenues from fisheries)

Benchmark and rationale	Benchmark description
Basic requirements (Enabling mechanisms)	
FM plan and budget	**Level 1:** FM plan adopted and incorporated into the AIP ➢ Programs, projects and activities laid out in the FM plan responsive to the issues identified in fisheries profiling and baseline assessment ➢ FM plan adopted by the LGU through an ordinance and incorporated into the municipal development plan or municipal CRM plan ➢ At least 30% of FM programs, projects and activities funded in the LGU's AIP **Level 2:** FM plan implemented and programs regularly funded through AIP and other sources ➢ FM plan reviewed, adjusted and/or updated based on results of regular M&E and other sources of information ➢ At least 70% of FM programs, projects and activities implemented with allocation from AIP and other funding sources **Level 3:** FM plan updated and/or revised based on M&E results and continuously funded through AIP and other sources ➢ FM plan reviewed, adjusted and/or updated based on the results of the regular M&E and other sources of information ➢ 100% of FM programs, projects and activities implemented with allocation from AIP and other funding sources
FM office	**Level 1:** FM office established with corresponding mandate and staff trained ➢ FM office organized and staffed and/or integrated into appropriate office (e.g. MAO, MENRO, CRM Office, Office of the Mayor) and vested the mandate to implement and coordinate FM activities ➢ FM office provided human and financial resources to initiate implementation and coordination activities **Level 2:** FM office implementing and coordinating delivery of programs and services to coastal communities ➢ FM office investing in training and development and institutional strengthening to be able to effectively implement programs and deliver services ➢ FM office actively developing linkages with institutional partners and other government agencies to support its FM program implementation ➢ FM office bringing in support programs and services leveraged from institutional partners and other government agencies **Level 3:** FM office sustaining/maintaining implementation and coordination for effective delivery of programs and services ➢ FM office demonstrating innovative and proactive approaches in tapping opportunities to effectively sustain the delivery of programs and services to coastal communities ➢ FM office maintaining strong internal and external linkages

Benchmark and rationale	Benchmark description
Basic requirements (Enabling mechanisms)	
Fisheries registration and licensing	**Level 1:** Fisheries registration and licensing system established ➢ Inventory of fishers, fishing boats and fishing gear conducted ➢ Fisheries registration and licensing ordinance adopted and implementation procedures established ➢ Registration and licensing of fishers, fishing boats and fishing gear initiated with 50% compliance ➢ Fisheries registration and licensing database developed **Level 2:** Fisheries registration and licensing system implemented and enforced ➢ Fisheries registration and licensing database functional and registration and licensing data stored and analyzed ➢ At least 75% compliance with fisheries registration and licensing achieved ➢ Configuration of appropriate/sustainable fishing effort initiated **Level 3:** Fisheries registration and licensing system implementation sustained and database information utilized to determine fishing effort configuration and other regulations ➢ Registration and licensing information used to improve or revise plans and policies to contribute to the improvement of biophysical, socio-economic or governance indicators ➢ Database fully functional and information used to determine effort configuration ➢ At least 90% compliance with fisheries registration and licensing achieved
Fisheries law enforcement	**Level 1:** Fisheries law enforcement program established ➢ Fisheries law enforcement team composed of deputized and trained personnel established with specific mandate and funding allocation for initial activities **Level 2:** Fisheries enforcement operations regularly conducted ➢ Operations plan developed and executed, fisheries law enforcement team regularly trained, and necessary enforcement assets procured **Level 3:** Fisheries enforcement operations sustained to address prevailing issues ➢ Coordination mechanism established with agencies having fisheries law enforcement mandates ➢ Illegal activities in coastal areas and municipal waters reduced or stopped

Benchmark and rationale	Benchmark description
Basic requirements (Enabling mechanisms)	
Municipal water delineation	**Level 1:** Delineation of municipal water boundaries initiated ➢ Coastal terminal points (CTPs) agreed and preliminary maps and technical description of municipal water boundaries determined **Level 2:** Municipal water boundaries adopted ➢ Municipal water delineation ordinance enacted ➢ NAMRIA-certified municipal water map procured **Level 3:** Municipal water boundaries utilized as basis for LGU jurisdiction and protection of small fishers' preferential-use rights ➢ Municipal water boundaries used for FM, i.e. resource use allocation, licensing and permitting of fishers, fishery enforcement, etc. ➢ Small fishers enjoying preferential use of municipal waters
Fisheries use zoning	**Level 1:** Fisheries use zoning planned and initiated ➢ Existing and potential municipal water uses identified, conflicting uses identified and resolved, proposed fisheries use zoning map developed and regulatory mechanisms formulated **Level 2:** Fisheries use zones harmonized, adopted and implemented ➢ Fisheries use zoning ordinance enacted and management/enforcement arrangement defined ➢ Fisheries use zoning policies implemented and enforced with funding support from LGU and other sources ➢ Compliance monitoring activities regularly conducted **Level 3:** Fisheries use zones sustained ➢ Enforcement of fisheries use zoning policies sustained with funding support from LGU and other sources ➢ Compliance with rules and regulations stipulated in the fisheries use zoning ordinance improved
Acceptance of CSO participation in FM	**Level 1:** Local constituencies (CSOs) for FM organized and established ➢ FM-related organizations (e.g. FARMCs, CSOs) formed and active in supporting FM activities **Level 2:** Local constituencies for FM actively participating in program implementation activities ➢ FM-related organizations contributing to local policy formulation, plan review, program implementation and monitoring and evaluation **Level 3:** Local constituencies' involvement in FM sustained ➢ FM-related organizations actively pushing for accountability when authorities fail to sustain FM program implementation

Benchmark and rationale	Benchmark description
Management practices (Growth, control and maintenance mechanisms)	
Marine Protected Area (MPA)	**Level 1:** MPA established ➢ MPA site identified, baseline conditions established, management plan and ordinance adopted, MPA boundaries delineated, management body and enforcement team trained and organized and monitoring indicators established **Level 2:** MPA management plan and policies implemented, enforced and monitored regularly ➢ Enforcement protocol operational, guard house and other enforcement infrastructure established, and assets utilized for enforcement ➢ Management body and enforcement team conducting regular implementation and enforcement activities with funding support from LGU and other sources ➢ Biophysical, socioeconomic and compliance monitoring activities conducted **Level 3:** MPA management sustained with positive impacts ➢ Management body and enforcement team sustaining implementation and enforcement activities with funding support from LGU and other sources ➢ Biophysical and socioeconomic status improved compared to baseline ➢ Compliance with MPA rules and regulations improved
MPA Network	**Level 1:** MPA networking arrangements adopted ➢ Components of MPA network identified, management plan adopted, implementation/coordination arrangement established, and enforcement and monitoring protocols agreed **Level 2:** MPA networks implemented, enforced and monitored ➢ MPA network management plan implemented with funding support from LGU and other sources ➢ Coordination meeting with MPA network management body regularly conducted and issues arising from enforcement/monitoring activities and results discussed **Level 3:** MPA networks sustained with positive impacts ➢ Implementation of MPA network management plan sustained with funding support from LGU and other sources ➢ Biophysical and socioeconomic conditions of the components of the MPA network improved ➢ Compliance with MPA network policies improved

Benchmark and rationale	Benchmark description
Management practices (Growth, control and maintenance mechanisms)	
Mangrove Management Area	**Level 1:** Mangrove management areas established ➢ Mangrove management site identified and delineated, baseline conditions established, management agreement forged with concerned stakeholders, management plan approved, management body organized and monitoring indicators established **Level 2:** Mangrove management plans and policies implemented, enforced and monitored ➢ Management body conducting regular implementation and enforcement activities with funding support from LGU and other sources ➢ Biophysical, socioeconomic and compliance monitoring activities conducted **Level 3:** Mangrove management areas sustained with positive impacts ➢ Management body sustaining implementation and enforcement activities with funding support from LGU and other sources ➢ Biophysical and socio-economic status improved compared to baseline ➢ Compliance with rules and regulations stipulated in the management agreement improved
Fishing gear management	**Level 1:** Fishing gear management system established ➢ Fishing gear to be managed identified and prioritized, baseline conditions established, management plan and ordinance adopted, management and enforcement arrangement established and monitoring indicators established **Level 2:** Gear management system enforced and monitored ➢ Management body conducting regular enforcement activities with funding support from LGU and other sources ➢ Biophysical, socioeconomic and compliance monitoring activities conducted **Level 3:** Gear management system sustained with positive impacts ➢ Management body sustaining enforcement activities with funding support from LGU and other sources ➢ Biophysical and socioeconomic status improved compared to baseline ➢ Compliance with rules and regulations stipulated in the management plan and ordinance improved ➢ M&E results utilized to improve, revise management plan, regulations and procedures

Benchmark and rationale	Benchmark description
Management practices (Growth, control and maintenance mechanisms)	
Species specific management	**Level 1:** Species-specific management system established ➢ Fishery resources to be managed identified and prioritized, baseline conditions established, management plan and ordinance adopted, management and enforcement arrangement established and monitoring indicators identified. **Level 2:** Species-specific management system enforced and monitored ➢ Management body conducting regular enforcement activities with funding support from LGU and other sources ➢ Biophysical, socioeconomic and compliance monitoring activities conducted **Level 3:** Species-specific management system sustained with positive impacts ➢ Management body sustaining enforcement activities with funding support from LGU and other sources ➢ Biophysical and socioeconomic conditions improved compared to baseline ➢ Compliance with rules and regulations stipulated in the management plan and ordinance improved ➢ M&E results utilized to improve and revise management plan, regulations and procedures
Revenue generation for FM	**Level 1:** Revenue generation system on FM established ➢ Potential revenue-generating coastal and fishery management programs assessed and identified, baseline assessment conducted or existing data analyzed, specific-revenue ordinance enacted, revenue-collection program established with clear purpose and implementation arrangements **Level 2:** Revenue-generating measures effectively implemented and enforced ➢ Revenue collection program implemented and compliance monitoring activities conducted ➢ Revenues collected monitored, and program implementation evaluated and modified/adjusted if necessary **Level 3:** Revenue-generating measures sustained and showing positive impacts ➢ Implementation of revenue-collection program and revenue-generating measures sustained ➢ Revenues from the implementation of coastal and FM programs increased compared to baseline ➢ Revenues invested in FM programs

Benchmark and rationale	Benchmark description
Management practices (Growth, control and maintenance mechanisms)	
Multi-institutional collaboration for FM	**Level 1:** Multi-institutional collaboration for FM established ➢ Potential partners from LGUs, NGAs, NGOs, academe, private sector and funding institutions identified ➢ MOAs and other instruments adopted through municipal legislative action or signed by collaborating partners; planning, implementation coordination and monitoring arrangements established **Level 2:** Multi-institutional collaboration effectively implemented to support FM programs and services ➢ Multi-institutional FM program activities coordinated, implemented, enforced and monitored **Level 3:** Multi-institutional collaboration sustained and showing positive impacts ➢ Multi-institutional FM program implementation sustained with measurable positive impacts to collaborating LGUs and coastal communities ➢ Multi-institutional collaborative mechanisms improved contributing to effective management of coastal and fishery resources

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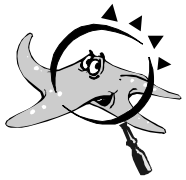
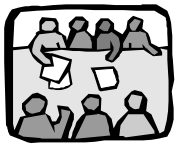
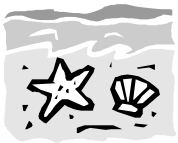
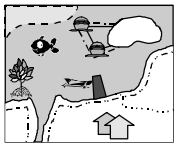
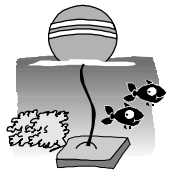
Appendix 2. Municipality/City Benchmarks for the 3 levels of CRM

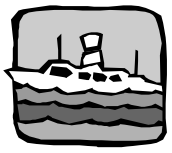
BENCHMARK AND RATIONALE	BENCHMARK DESCRIPTION
BASIC REQUIREMENTS  **Coastal resource assessment** ***Resource assessment is necessary to describe the status of habitats and fisheries and the socioeconomic condition of coastal communities in the municipality/city. The results of coastal resource assessment are used to plan short and long-term interventions and monitor changes in socioenvironmental conditions.***	**Level 1: Coastal environmental profile developed** ✓ Coastal environmental profile developed through secondary data compilation and baseline assessment (e.g., PCRA, rapid assessment, scientific surveys) of coastal resources and socioeconomic and environmental conditions in coastal areas Condition of fisheries, coastal habitats, and other resources and their uses assessed ✓ General socioeconomic condition of the municipality/city described ✓ Coastal database and information system established **Level 2: Monitoring plan developed and implemented for assessing socioenvironmental conditions** ✓ Monitoring plan for assessing biophysical and socioeconomic conditions developed to assess changes resulting from CRM plan implementation ✓ Biophysical and socioeconomic assessments conducted on a regular basis for at least 2 years ✓ Linkages with NGAs, NGOs, and academic institutions involved in monitoring developed to assess conditions and use data for decision-making ✓ Key indicators identified and highlighted in the monitoring plan ✓ Coastal database/information management system established and operational **Level 3: Socioenvironmental conditions assessed in accordance with monitoring plan** ✓ Biophysical and socioeconomic assessments conducted on a regular basis for at least 5 years ✓ Data analysis conducted and compared to baseline conditions ✓ Coastal database and information management system updated regularly
 **Multi-year CRM plan** ***The multi-year CRM plan provides overall framework and direction in managing the coastal resources of the municipality/city. A multi-year plan sets the short and long-term strategies, and consolidates programs, targets, and priorities of local governments in addressing coastal issues through participatory processes and public consultation.***	**Level 1: Multi-year CRM plan drafted** ✓ Draft multi-year CRM plan prepared through stakeholder consultations which may include: description of the area, maps, management goals and objectives, strategies and actions, institutional and legal framework, timeline and funding requirements, and M&E system ✓ Coastal environmental profile used as basis for planning **Level 2: Multi-year CRM plan finalized and adopted** ✓ Multi-year CRM plan finalized and adopted after public hearings and with supporting municipal/city resolution/ordinance **Level 3: Adopted multi-year CRM plan reviewed annually and revised as needed** ✓ Annual review of CRM plan conducted ✓ Results of M&E of CRM plan implementation and other program reviews considered as inputs to revision ✓ Multi-year land and water use plans reconciled and made consistent

BENCHMARK AND RATIONALE	BENCHMARK DESCRIPTION
 **Annual CRM programming and budgeting** ***Annual and appropriate levels of investment are needed to sustain local CRM plans and programs. Municipal/city CRM unit or office with trained staff and operating budget is also needed to sustain efforts in implementation.***	**Level 1: Annual budget allocated for CRM** ✓ Annual municipal/city budget allocated for CRM and other sources of funding leveraged or secured in support of the CRM plan **Level 2: Financial and human resources assigned to CRM activities** ✓ Annual budget allocated and human resources assigned to CRM activities ✓ CRM budget allocated annually for at least 2 years, supplemented by other sources of funding for implementation, as needed ✓ Trained CRM staff assigned to municipality/city with operating budget **Level 3: Annual programming and budget sufficient to implement the plan** ✓ Annual programming and budget allocated for at least 5 years ✓ CRM unit established under MAO or CRM office with staff and budget
 **CRM-related organizations** ***The success of CRM activities can be attributed to well-organized communities in the form of POs, FARMC, or TWGs. Through community organizing, people are empowered to be partners of LGUs in implementing CRM plans and programs.***	**Level 1: CRM-related organizations formed and active** ✓ M/CFARMC and at least 1 other CRM-related organization (e.g., TWG, Bantay Dagat, PO) formed and are active as evidenced by regular meetings (at least quarterly), trainings conducted, and activities accomplished **Level 2: CRM-related organizations active and effective** ✓ M/CFARMC and at least 1 other CRM-related organization contributing to local policy formulation, CRM plan review, and implementation **Level 3: CRM-related organizations effective and supported financially through municipal/city budget or revenue-generating mechanisms** ✓ Active and effective M/CFARMC and at least 1 other CRM-related organization sustained and supported with funding from various sources
 **Shoreline/foreshore management** ***Infrastructure and other development activities in shoreline and foreshore areas often result in adverse impacts on coastal habitats and fisheries. Setback rules, regulation, and monitoring of existing and intended development activities, and measures to mitigate their impacts should be carefully planned and effectively implemented***	**Level 1: Shoreline/foreshore management measures planned** ✓ Existing shoreline and coastal land use reviewed ✓ Strategies to protect shoreline and foreshore areas from destructive development identified (e.g., setback requirements, zoning, mangrove reforestation, or other shoreline/foreshore management measures) ✓ Programs planned to protect shoreline and foreshore areas (e.g., mangrove reforestation, ordinances drafted providing for protection of shoreline and foreshore areas) ✓ Shoreline and foreshore management measures incorporated into CRM or land-use plan **Level 2: Shoreline/foreshore management measures adopted with implementing guidelines** ✓ Shoreline/foreshore management measures adopted through local ordinance and implemented through local business and building permits ✓ Shoreline management measures (e.g., setback requirements, zoning, mangrove reforestation, or other shoreline/foreshore management measures) implemented to minimize negative impacts of development in coastal areas **Level 3: Shoreline/foreshore management effective with regular monitoring and enforcement** ✓ Regulation, monitoring, and enforcement of shoreline/foreshore use in accordance with existing ordinances, permits, and plans ✓ Illegal construction in shoreline setbacks and foreshore areas minimized

BENCHMARK AND RATIONALE	BENCHMARK DESCRIPTION
BEST PRACTICES  **Municipal water delineation** ***The delineation of municipal waters defines the geographic extent of the municipality's/city's jurisdiction for taxation or revenue generation, law enforcement responsibilities, resource allocation, and general management powers. A municipality/city with delineated municipal waters can ensure the protection of the rights of its resident small fishers in the preferential use of their territorial waters.***	**Level 1: Municipal water boundary delineated in accordance with prescribed guidelines** ✓ Preliminary maps and technical description of municipal water boundaries determined in accordance with prescribed guidelines ✓ Inter-LGU discussions and workshops held to identify potential boundary issues in accordance with prescribed guidelines **Level 2: Municipal water boundaries adopted** ✓ Local ordinance enacted to establish municipal water boundaries after public review and consultation and certification by NAMRIA **Level 3: Municipal water boundaries utilized as basis for LGU jurisdiction and protection of small fishers' preferential-use rights** ✓ Municipal water boundaries used for CRM and other activities (e.g., zoning, law enforcement, regulation, taxation, etc.) ✓ Small fishers enjoying preferential use of municipal waters ✓ Monitoring, control, and surveillance of activities conducted to stop illegal activities and destructive practices in municipal waters
 **Coastal zoning** ***Coastal zoning minimizes resource-use conflicts in coastal areas. Different use zones or areas are set aside for protection, rehabilitation, multiple-use purposes, and other types of human activities. Management of each zone is guided by regulatory mechanisms. Integrating the water use zones into the land use plan of municipality/city would ensure rational and wise utilization of the area.***	**Level 1: Coastal zoning planned and initiated** ✓ Existing water and land uses identified ✓ Existing and potential areas of conflicts identified ✓ Existing zoning plans reviewed **Level 2: Coastal zoning harmonized, adopted, and implemented** ✓ Land and water use plans reconciled and harmonized ✓ Development activities in coastal areas monitored and undertaken in accordance with coastal zoning requirements **Level 3: Coastal zoning effective and sustained** ✓ Coastal zoning requirements reviewed regularly ✓ Resource use conflicts minimized ✓ Regular monitoring for compliance
 **Fisheries management** ***Fisheries management is an integral component of CRM. Regulatory and other management measures to limit access to fisheries resources are essential in the regeneration of***	**Level 1: Fisheries management measures planned and initiated** ✓ Regulatory mechanisms planned and initiated to limit access to and pressure on fishery resources, and may include licensing, limitations on number of fishers, closed seasons, gear restrictions, limitations on size of fish caught, color coding of boats, and other catch restrictions **Level 2: Fisheries management measures implemented** ✓ Municipal fishers registered and licensed ✓ Regulatory mechanisms for fisheries management adopted through local legislation and enforced for at least 2 years ✓ Monitoring plan for municipal fisheries developed and implemented

BENCHMARK AND RATIONALE	BENCHMARK DESCRIPTION
depleted fish stocks. Fisheries management aims to improve fisheries productivity, equity in the use of and access to resource base and ecosystem integrity.	**Level 3: Fisheries management measures sustained with positive impacts** ✓ Regulatory mechanisms sustained for at least 5 years ✓ Number of municipal fishers regulated and limited ✓ Improved compliance with fisheries regulations ✓ Increased catch per unit effort
 **Marine protected areas** ***MPAs, such as reserves, sanctuaries, and parks provide protection and conservation of critical habitats and reef-associated fisheries. A well-planned and managed MPA leads to marine biodiversity conservation and increased fisheries production. Revenues can also be generated from tourism and other activities in MPAs.***	**Level 1: MPAs planned or established** ✓ Participatory processes involving coastal stakeholders in assessment and planning initiated for the establishment of at least one MPA (e.g., coral reefs, seagrass beds, other important coastal habitats) ✓ Social acceptance for site selection sought ✓ Site selection with baseline assessment conducted ✓ Management measures or plan drafted ✓ Ordinance enacted or revised for establishment and management of an MPA **Level 2: MPAs managed and enforced** ✓ MPA management sustained for at least 2 years ✓ Management body and plan finalized, adopted, and accepted by community ✓ Marker buoys and signs installed ✓ Biophysical and socioeconomic conditions monitored **Level 3: MPA management sustained with positive impacts** ✓ Management activities sustained for at least 5 years ✓ Biophysical improvement measured ✓ Socioeconomic benefits accruing to LGU and community through revenue-generating mechanisms, increased fish catch, or enhanced sense of community pride ✓ Compliance with MPA rules and regulations
 **Mangrove management** ***Mangrove ecosystems are extremely productive and supply resources, such as wood, fish, and crustaceans as well as other ecological and economic benefits for coastal municipalities/cities. Mangrove forests, managed through a Community-based Forest Management Agreement or other management measures, will contribute to the regeneration of depleted fisheries resources and provide mangrove-friendly economic activities for coastal communities.***	**Level 1: Mangrove management measures planned or established** ✓ Baseline assessment and inventory of mangrove areas conducted ✓ Community-based forest management agreements, mangrove planting, protection, or other management and rehabilitation measures planned or established **Level 2: Mangrove areas managed and protected.** ✓ Community-based mangrove management agreements awarded or other management and rehabilitation measures established and sustained for at least 2 years **Level 3: Mangrove areas sustained with positive impacts** ✓ Economic benefits derived from mangrove management options ✓ Mangrove areas rehabilitated and maintained ✓ Mangrove management measures sustained for at least 5 years

BENCHMARK AND RATIONALE	BENCHMARK DESCRIPTION
 **Solid waste management** ***Solid waste management, through segregation, volume reduction, and waste minimization, is necessary to ensure cleanliness in the coastal environment, particularly shoreline and foreshore areas. Proper management and disposal of solid waste minimize negative impacts to coastal resources and protect people from diseases.***	**Level 1: Solid waste management system planned and initiated** ✓ National and local laws on solid waste management reviewed, public orientation sessions conducted ✓ Solid waste management board established ✓ Waste segregation, minimization, collection, and disposal systems planned and initiated ✓ IEC conducted **Level 2: Solid waste management system operational** ✓ Solid waste management board active ✓ Waste segregation, minimization, collection, and disposal systems operational ✓ Inappropriate waste disposal sites in coastal areas identified with plans for mitigation and new site selection ✓ Waste disposal sites designated to minimize impact on coastal areas **Level 3: Solid waste management system effective and sustained with positive impacts** ✓ Waste segregation, minimization, collection, and disposal systems effective and monitored with measured reduction in waste generated and disposed ✓ Solid waste disposed in coastal areas minimized ✓ Compliance with solid waste management regulations
 **Upland/watershed management** ***Rehabilitation and protection of uplands and watershed areas and implementation of sustainable upland farming practices are important to minimize erosion that causes shoreline destruction and siltation of coastal habitats.***	**Level 1: Upland/watershed management program planned and initiated** ✓ Upland/watershed management issues affecting the coastal zone identified, including upland sources of siltation and other pollution carried by streams and rivers from deforestation, and domestic, industrial, and agricultural pollution ✓ Baseline conditions established ✓ Watershed management plan drafted through multisectoral consultations, public hearings, and if necessary, inter-LGU collaboration (such as in cases where the watershed system spans several LGUs) **Level 2: Upland/watershed management program adopted and implemented** ✓ Upland/watershed management plan adopted through local legislation (or through inter-LGU agreements, if necessary) after public hearings ✓ Reforestation projects implemented ✓ Pollution minimization and prevention programs adopted by industries ✓ Pesticide reduction program adopted by farmers ✓ Solid waste management system in place ✓ Water quality monitoring program implemented in rivers and coastal waters through multisectoral, inter-LGU, and interagency collaboration **Level 3: Upland/watershed management program effective and sustained with positive impacts** ✓ Measurable improvements in forest cover pollution reduction and quality of river and coastal waters
 **Coastal environment-friendly enterprise development**	**Level 1: Coastal environment-friendly enterprises that promote conservation and sustainable use of coastal resources planned and initiated** ✓ Fisherfolk/coastal communities targeted for employment in nonfishing livelihoods or low-impact mariculture. (Note: The following enterprises are not coastal environment-friendly: use of *payaws*, fish corrals, artificial reefs, and highly efficient fishing technologies; distribution of efficient fishing gear to small fishers; polluting activities.)

BENCHMARK AND RATIONALE	BENCHMARK DESCRIPTION
Coastal environment-friendly enterprises are implemented to augment income of the fishers while limiting their access to the sea. They also encourage stakeholder participation in different rehabilitation and conservation activities in the municipality/city.	**Level 2: Coastal environment-friendly enterprises successful and expanding** ✓ Livelihood and enterprise development programs employing fisherfolk/ coastal communities in nonfishing livelihoods or low-impact mariculture that promotes conservation and sustainable use of coastal resources **Level 3: Coastal environment-friendly enterprises providing measurable socioeconomic and biophysical benefits** ✓ Livelihood and enterprise development programs resulting in measurable socioeconomic benefits to fisherfolk/coastal communities and biophysical improvements in the condition of coastal resources
 **Local legislation** ***Local legislation, in the form of ordinances provide the local executive branch with necessary mandate, powers, and functions to properly manage coastal habitats and fisheries. Local legislation, together with national laws, provides the legal basis for regulations to protect coastal resources and enable coastal law enforcement.***	**Level 1: Local legislation reviewed** ✓ Local CRM-related legislation reviewed and revised consistent with national policies and laws ✓ Local ordinances proposed or drafted in support of multi-year CRM plan and specific regulatory and management measures ✓ Public hearings and community consultations conducted **Level 2: Local legislation enacted and implemented supportive of CRM plan** ✓ CRM-related local legislation enacted supporting CRM plan and regulatory and management measures ✓ Information campaign on local and national legislation conducted **Level 3: Local legislation promoting the common good** ✓ Legislation achieving its specified objectives ✓ Widespread knowledge of and compliance with local legislation among stakeholders ✓ Local legislation reviewed and revised as necessary to improve effectiveness and relevance
 **Coastal law enforcement** ***CRM cannot succeed without effective law enforcement. Coastal law enforcement units at the municipal/city levels must be formed and functional to promote voluntary compliance with national and local laws and regulations. Municipalities/ cities have the primary mandate to enforce fisheries and other CRM-related laws within their territories.***	**Level 1: Coastal law enforcement units formed and trained** ✓ Coastal law enforcement units formed and trained, composed of the Philippine National Police, with assistance from Bantay Dagat and deputized fish wardens **Level 2: Coastal law enforcement units operational** ✓ Operation plan developed and budget allocated for efficient conduct of coastal law enforcement ✓ Coastal law enforcement units equipped and conducting land and sea-based operations ✓ Apprehensions, cases filed, and convictions related to violations of coastal laws recorded ✓ Coastal law enforcement sustained for at least 2 years **Level 3: Coastal law enforcement units effective** ✓ Illegal activities in coastal areas and municipal waters minimized or stopped ✓ Regular training of coastal law enforcement units and monitoring of their activities ✓ Effective coordination mechanism established with other agencies with coastal law enforcement mandates ✓ Coastal law enforcement sustained for at least 5 years

BENCHMARK AND RATIONALE	BENCHMARK DESCRIPTION
 **Revenue generation** ***Municipalities/cities are responsible for generating revenue to support the continued implementation of CRM plans and programs. Revenues can be generated internally and externally through taxes, fines, fees for coastal resource use, grants and donations, and loans and other credit-financing schemes.***	**Level 1: Revenue-generating strategies for coastal resource uses developed and initiated** ✓ User fees and other revenue-generating mechanisms identified through barangay consultations and public hearings for various coastal resource uses and investments based on CRM plan and coastal zoning ✓ Revenue allocation to CRM and community projects identified **Level 2: Revenue-generating strategies for coastal resource uses finalized and adopted through public hearings** ✓ Revenue-generating mechanisms finalized and adopted through public hearings as a municipal ordinance or other means ✓ Revenue collection system established and implemented **Level 3: Revenue-generating strategies supporting CRM projects and programs** ✓ Revenue-generating mechanisms supporting CRM and community projects and programs
 **Multi-institutional collaboration for CRM** ***Although municipalities and cities are primarily responsible for CRM, they need to coordinate with other LGUs, NGAs, NGOs, academe, and other institutions involved in CRM. Through multi-institutional collaboration, municipalities and cities can tap technical and financial assistance and plan and implement effective CRM activities***	**Level 1: Multi-institutional collaboration planned and initiated** ✓ Potential collaborators from LGUs, NGAs, NGOs, academe, private sector, and funding institutions identified ✓ MOAs drafted defining inter-LGU collaboration in coastal law enforcement or other CRM-related activities; institutional roles and responsibilities and modes of collaboration and resource-sharing to provide technical and financial assistance, including training, M&E, livelihood, skills development, IEC support, and others **Level 2: Multi-institutional arrangements for collaboration formalized and strengthened** ✓ MOAs or other instruments adopted by municipal resolution or signed by collaborators ✓ Collaborative activities implemented **Level 3: Multi-institutional collaboration effective** ✓ CRM-related activities jointly implemented with measured success. ✓ Resource sharing mechanisms effective ✓ Terms and conditions specified in MOAs or other instruments reviewed and revised as necessary

IEC: information, education, and communication
LGUs: local government units
MAO: Municipal Agriculture Office
M/CFARMC: Municipal/City Fisheries and Aquatic Resource Management Council
M&E: monitoring and evaluation
MOA: memorandum of agreement
MPAs: marine protected areas
NAMRIA: National Mapping and Resource Information Authority
NGAs: national government agencies
NGOs: non-governmental organizations
POs: people's organizations
TWGs: technical working groups

Source: DENR-CMMO (Department of Environment and Natural Resources — Coastal and Marine Management Office). 2003. Monitoring and evaluating municipal/city plans and programs for coastal resource management. Coastal Resource Management Project of Department of Environment and Natural Resources, Cebu City, Philippines. 93 p.

Appendix 3. Project Staff

A. Organizations

	SERVICES
Adlay Fisherfolks Multi-Purpose Cooperative (AFMPC)	Strengthening the Management of Adlay Marine Protected Area/Marine Sanctuary, Surigao del Sur
Advocates for Policy Reforms and Development of Caraga, Inc. (APREDEC)	Strengthening Delivery Mechanism for Fisheries Management in Surigao del Sur
Balisungan Minorities Multipurpose Cooperative, Inc. (BMMPCI)	Strengthening the Management of the Balisungan Marine Protected Area (Calamianes)
Barangay Buenavista Fisherfolks Association (BUFISA)	Strengthening the management of the Buenavista Protected Area (Surigao del Sur)
Barangay Mabua Fisherfolks Association (MAFA)	Strengthening the management of the Mabua Protected Area (Surigao del Sur)
Barangay Uba Fishermen's Association (BUFA)	Strengthening the Management of Uba Marine Protected Area (Surigao del Sur)
Busuanga Employees Multipurpose Cooperative Inc. (BEMPCI)	Strengthening the Management of the Concepcion and Sagrada-Bogtong Marine Reserves (Calamianes)
Capandan Multi-Purpose Cooperative	Strengthening the management of the Capandan Marine Protected Area (Surigao del Sur)
DevGov Associates, Inc.	Policy study on "Funding Municipal Waters: LGUs' Incentive or Disincentive for Investing in Municipal Coastal and Fisheries Management Programs"
Environmental Legal Assistance Center (ELAC)	Fishery resource improvement through people's participation in law enforcement system in Calamianes
Environmental Legal Assistance Center (ELAC)	Review and revision of "Mending Nets"
Southeast Asian Fisheries Development Centre (SEAFDEC)	Evaluation of possible sites, suitable culture species and systems in FISH Project's focal areas
Talibon Credit Cooperative (TALCRECO)	Intensification of Management Aptitude in Marine Protected Areas (Danajon Bank, Bohol)
U. P. in the Visayas Foundation, Inc. (UPVFI)	Monitoring and baseline assessment of marine protected areas in FISH Project's focal areas

B. Individual Consultants

	SERVICES
Anda, Gerthie M.	Technical assistance as Legal Specialist
Armada, Nygiel B.	Senior Fisheries Management Specialist
Bacalso, Regina M.	Junior Fisheries Biologist
Balisacan, Caridad	Assistance as artist for various exhibits in Bohol
Barut, Noel	Technical assistance as Stock Assessment Specialist for NSAP
Basali, Abdullajid	Technical Assistant – Tawi-Tawi
Batongbacal, Jay	Technical Assistance as Policy Development Specialist

	SERVICES
Cafugauan, Howard	Policy Research Associate
Caño, Narciso	Technical assistance as Data Enumerator
Casiano, Jessa	Junior Fisheries Biologist
Crusio, Rosemarie	Technical assistance as Fisheries Data Encoder
Cruz, Ramon S.	Fisheries monitoring for Calamianes and Tawi-Tawi
Dizon, Conrado	Technical assistance as NSAP Assistant for fisheries assessment
Floren, Jessie O.	GIS Specialist
Fragillano, Joselito N.	Fisheries monitoring for Danajon Bank and Surigao del Sur
Francisco, Benjamin	Technical assistance as Mariculture Specialist
Gaitan, Chrismarie	Assistance as Encoder
Garcia, Sabino	Technical assistance as Data Enumerator
Gasalatan, Mario	Technical assistance as Social Mobilization Specialist
Guidote, Marlito N.	Senior Policy and Coastal Law Enforcement Specialist
Jatulan, William P.	Deputy Chief of Party
Jatulan, Ysolde C.	Computer Graphics Artist
Lim, Ariel	Technical assistance for flash movie animations of "Fish on the Net"
Lim, Astrid	Technical assistance as Training and Information Specialist
Maglinte Joeffrey	Technical assistance as Technical Coordinator
Martinez, Rafael T.	GIS Programmer
Martinez, Rommel	Technical assistance as Governance and Training Specialist
Mercado, Elmer	Technical assistance as Advocacy Specialist for the MoreFish program
Pantaleon, Victor	Technical assistance as Technical Coordinator in Surigao del Sur
Pestaño-Smith, Rebecca	Technical assistance as Senior IEC/Advocacy Specialist
Rabina, Menillo	Technical assistance as Community Organizer
Rosales, Rina	Technical assistance Resource Economist
Secuya, Modesto	Technical assistance for oneocean.org maintenance and "Fishes Feed Us" blog
Sia, Asuncion E.	IEC Specialist
Silvestre, Geronimo T.	Chief of Party
Tajonera, Ian	Technical assistance as Junior Fisheries Biologist
Tinapay, Leslie S.	Layout Artist
Villanoy, Cesar	Technical assistance as Oceanographer

C. Tetra Tech EM Inc.

	SERVICES
Avenido, Maylyn C.	Community Organizer - Bohol
Baluyot, Niño	IT Specialist – Manila Office
Cabungcal, Romeo	Site Manager - Calamianes

	SERVICES
Cerence, Katerina R.	Administrative Assistant
Cruz dela, Suzette	Administrative Support – Manila Office
Dalusong, Christina D.	Community Organizer - Calamianes
Dionisio, Sherlie	Project accountant – Manila Office
Felix, Aileen	Community Organizer – Tawi-Tawi
Felix, John	Community Organizer – Tawi-Tawi
Fontamillas, Ernie	Community Organizer – Calamianes
Gatus, Joey	Project Coordinator – Danajon Bank/Leyte side
Harun, Nur N.	Site Manager – Tawi-Tawi
Hilario, Vicencio	Driver/Messenger
Gulayan, Aniceta	Site Manager – Bohol
Irilis, Roger	Community Organizer – Tawi-Tawi
Llavan, Marivel J.	Community Organizer – Calamianes
Maraguinot, Gil	Community Organizer - Bohol
Melendez, Ma. Noella Q.	Administration & Subcontracts Manager
Ochea, Godofredo	Administrative Support
Omega, Ralph L.	Document Control/Librarian
Orevillo, Victor	Community Organizer – Bohol
Ortega, Glocel P.	Accountant
Pojas, Rodrigo V.	Driver/Messenger
Retubado, Ardale M.	Receptionist/Word Processor
Vargas, Albert	Policy Research Assistant

PART 2
In Focus

Coron Bay, Calamianes, Palawan
Keeping focus on fisheries management, page 127

Danajon Bank, Bohol, Leyte & Southern Leyte
Brighter prospects for a severely degraded resource, page 147

Lanuza Bay, Surigao del Sur
Banking on a strategic alliance for sustainable fisheries, page 183

Tawi-Tawi Bay, Tawi-Tawi
Building governance for sustainable fisheries, page 207

Calamianes Group of Islands, northern Palawan

Coron Bay: Keeping focus on fisheries management

Lead author: Romeo Cabungcal[1]. *Co-authors:* Nygiel Armada[2], Howard Cafugauan[3], Marlito Guidote[4], William Jatulan[5], and Rebecca Pestaño-Smith[6]

Siete Pecados Marine Park, Coron *(Photo: A. Sia / FISH Project, 2009)*

The Calamianes Group of Islands (CGI) in northern Palawan (shown on the opposite page) boasts wonderful seascapes and diving sites, as well as varied cultural and historical attractions that make it naturally suited to tourism development. It is not surprising therefore that the municipalities that administer the islands, particularly Coron, Culion and Busuanga which border the scenic Coron Bay, have aspirations to become major tourism destinations. And they certainly have been getting the attention of the tourism market: Visitor arrivals in Coron alone increased 178% between 2008 and 2009 (Coron MTO, 2010). But there are concerns that some local governments may be focusing too much on tourism at the expense of other sectors, in particular, the area's marginal fishers.

[1] Calamianes Area Manager, FISH Project
[2] Fisheries Management Advisor, FISH Project
[3] Policy Research Associate, FISH Project
[4] Policy & Enforcement Advisor, FISH Project
[5] Deputy Chief of Party for Field Operations, FISH Project
[6] IEC Advisor, FISH Project

Buoyed by tourism's bright prospects, the CGI municipalities (especially Coron) have spent millions to develop tourism infrastructure and services in the area, with encouragement from the provincial and national governments, which also contributed considerable amounts for the purpose. Questions have been raised about such spending, which naturally translates to less available funding for other important development programs. For the Fisheries Improved for Sustainable Harvest (FISH) Project back in 2004 when it began working in the area, the crucial issue was the lack of government investment in critical programs that supported coastal resource management (CRM), particularly fisheries management.

Amid the government's heavy investments in and bias for tourism development, FISH initially faced some difficulty in drawing attention to urgent fishery issues and introducing measures to manage the area's rich and infinitely valuable -- but highly threatened -- marine resources. Perforce, it framed its messages and aligned a few of its strategies with the government's tourism goals, while keeping its focus on its own fisheries management objectives. With perseverance and the emerging tourism potential of the marine protected areas (MPAs) it assisted, the Project slowly built an active constituency for sustainable fisheries in government and civil society that now offers hope for saving the fishery resources of Calamianes and the thousands of small-scale fishers and their families whose well-being depends on fishing.


Siete Pecados Marine Park, Coron (Photo: A. Sia / FISH Project, 2008)

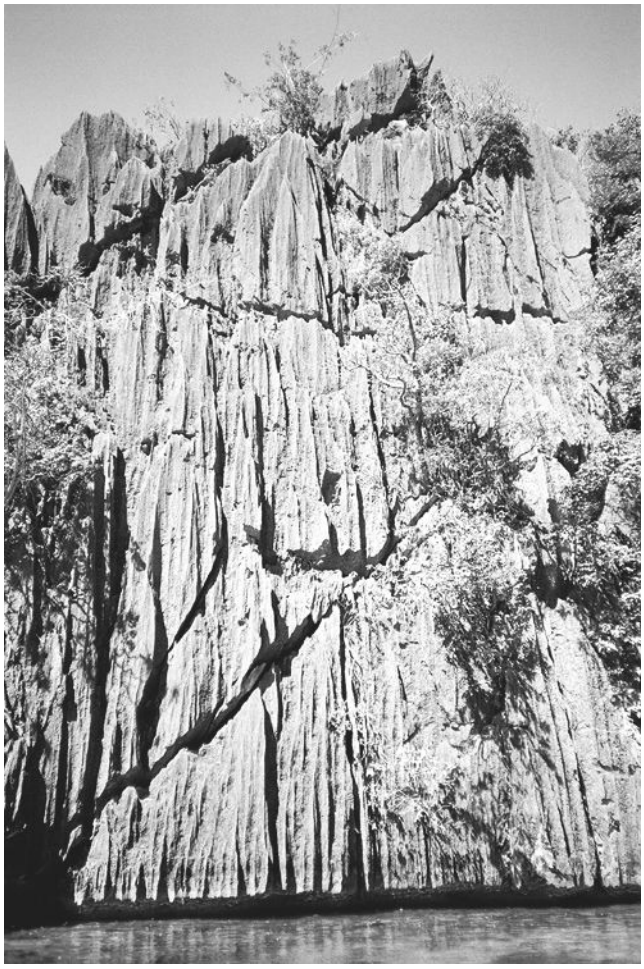
Challenge

The CGI includes the main islands of Busuanga, Coron, Culion, Calauit and Linapacan at the northernmost portion of Palawan province. (Table 1) The Agutaya and Cuyo groups of islands are sometimes considered part of the group although their affiliation is more with the northern Palawan mainland. All told, about 160 islands under four municipalities (Busuanga, Coron, Culion and Linapacan) comprise the CGI; together they cover a total land area of 1,600 sq km or 11% of Palawan Province.

The CGI represents one of the most biodiverse groups of islands in the Philippines. It is endowed with extensive fringing reefs, mangrove forests, seagrass beds, estuaries, sandy beaches, shoreline cliffs, protected bays, coves and inlets.

Coral reefs and seagrass beds border virtually all of the islands and contain some of the biggest numbers of coral and seagrass species recorded in the Philippines. These diverse marine habitats provide life support to a wide array of marine mammals, fishes, turtles, invertebrates and aquatic plants that contribute significantly to food security, employment, tourism development and livelihoods in the four municipalities.

Beautiful natural seascapes featuring tropical lakes and majestic vertical karst cliffs, especially around Coron Island, make Calamianes most attractive to tourism development. Also, the area has many cultural and historical attractions to keep visitors' interest. Culion, a leper colony for some 90 years and once the world's largest, teems with history, visible in old buildings that survived the ravages of time and war. The sea surrounding the islands is dotted by many World War II-era shipwrecks that are major tourist attractions in themselves.



Twin Lagoon, Coron (Photo: A. Sia / FISH Project, 2006)

Sadly, beneath the splendor lies a simmering cauldron of issues. The very natural assets that are indispensable to local residents and so attractive to visitors are at the center of manifold resource use issues that could imperil the future of the islands and its inhabitants.

Table 1. FISH Project focal and expansion areas in Calamianes, Palawan

Municipalities	Coastline (kms)
Busuanga (FA)	120
Coron (FA)	381
Culion (FA)	391
Linapacan*	196
	1,088

FA=focal area; *=expansion area

Rapid population growth. The CGI hosts one of the oldest tribes in the Philippines, the Calamian Tagbanwas, who are possible descendants of the Tabon Man and thus possibly among the original inhabitants of the country (Wikipedia, 2010). The Calamian Tagbanwas are a tribe that traditionally subsists primarily on fishing using hook-and-line, spears and nets, and on farming small *kaingin* (slash-and-burn) gardens. They have certain beliefs that influence their use and management of fishery resources.

These beliefs are primarily centered on the *imbakan tungian* (fish sanctuary) and *panyaan* (sacred place where giant, human-like octopus or *pugita* dwell), observance of *kustumbri* (customary laws) on resource access and use, and the role of *mamaepet* (elders) in implementing traditional laws as means of discipline (Mayo-Anda, et al, 2006). The inland lakes of Coron Island, one hour by outrigger motorboat from Coron town proper on Busuanga mainland, as well as deep areas in the sea are considered *panyaan*, and must be carefully avoided. (PAFID, 1999)

These traditional resource management practices have faced major challenges since deep-sea fishing was first introduced in the islands in 1947. At about this time, the area experienced an influx of migrants from Luzon and Visayas who worked either as fishers or miners (Mayo-Anda, et al, 2006). Since then, the population of the Calamianes has exhibited tremendous growth, averaging 3.4% in recent years, with growth from migration accounting for at least 15% of the increase in population in the last five years (FISH, 2005a). Business and employment opportunities in fishing, then pearl farming, live reef food fish trade and lately tourism have been the main magnet for many migrants.

Regrettably, these mostly resource-based industries have been allowed to grow with too little regard for sustainability, causing untold damage to vital resources that support fisheries. With about 72,000 (NSO, 2002) inhabitants and an average population density of only about 50 persons per sq km, the CGI as a whole remains one of the least densely populated areas in the Philippines, but human activities have impacted negatively on the island's natural resources. (FISH Project, 2005b)

Resource degradation. Some reefs remain in relatively good condition and impressive to the casual observer, but years of destructive human activities have exacted a toll on marine resources here. Live coral cover was found to be only 39% in 1998, and even lower at 18-25% in 2002 (MERF). Results of a participatory coastal resource assessment (PCRA) organized by FISH in 2005 in Coron Bay indicated even worse reef conditions, with live coral cover ranging from 5% and 30% (FISH Project, 2005a). Furthermore, surveys on reef fish biomass indicated that target species were severely depleted, especially groupers and Humphead wrasses prized by the live fish trade (MERF 2002).

The destruction of coral communities has been due to a multitude of reasons, including illegal and destructive fishing, sedimentation and erosion brought about by deforestation and *kaingin*, the many environmental impacts of various coastal developments, and the sheer pressure of a fast growing population.

Over the years, illegal fishing has been rampant throughout Calamianes, presumably even in some parts where the Tagbanwas exercise tribal jurisdiction over ancestral domain, a 22,400-hectare area that includes the 7,320-hectare Coron Island and 236-hectare Delian Island and the waters around them. In particular, the use of potassium cyanide and sodium cyanide associated with the live fish trade, as well as dynamite fishing and the intrusion of commercial fishing in municipal waters, have contributed significantly to the heavy exploitation of fishery resources.

Not surprisingly, these problems have hit local fishers hard.

Pearl farm off Culion (Photo: A. Sia / FISH Project, 2008)

Declining fisheries. Historically, Calamianes has drawn fishing boats from the Navotas Fishing Port in Manila and sustenance fishers from as far as Central Visayas. The islands' relatively shallow coastal waters serve as interface between the deep offshore waters of the South China Sea and Sulu Sea, and support one of the Philippines' most productive fishing grounds. Nearshore fisheries are primarily reef and mangrove-dependent and produce valuable catch for subsistence fishers and the live fish trade. Offshore fisheries target small pelagic species, including squid and octopus that seasonally migrate with the ocean currents of the South China Sea. (FISH, 2005a)

But local fisheries have declined tremendously. In the 1980s, fish catch was said to range from 10 kg to 25 kg per fisher per day; the 2005 PCRA showed an average catch of only 5.6 kg. The decline was also evident in the number of commercial fishing units operating out of Calamianes. In 1976, there used to be 115 bagnet units based in Coron (Baum and Maynard, 1976), and in 1994 there were only 42 units left (MERF, 2002). This number was further reduced to 10 in 1998, all before the prohibition on commercial fishing in municipal waters under the 1998 Philippine Fisheries Code came into full effect. In 2004, six years after the Fisheries Code was passed, there were only 5 bagnets operating in Coron and the once thriving *dilis-bahura* or anchovy fisheries had all but disappeared (FISH 2005a).

It is unlikely that the enforcement of the commercial fishing ban mandated by the Fisheries Code was a major factor in the continued decline of anchovy fisheries from 1998. Indeed, the absence of any sustained fishery law enforcement was the primary factor that caused the degradation of critical marine habitats and decline of fish stocks. The exploitation of fish stocks in the Calamianes Islands was never really controlled from the time bagnets from Manila came to the islands in the 1960s, through the boom years of trawling in the 1970s and Danish seines in the 1980s, to the entry of ringnets in the 1990s. By 1997, uncontrolled fishing by various gear (including *muro-ami* and subsequently *paaling*) reduced fish stocks to only 50% of their 1991 levels. (FISH, 2005a).

Unbalanced development. An assessment conducted by FISH in 2004 revealed many obstacles to the enforcement of fishery laws, ranging from practical concerns such as lack of patrol boats to systemic weaknesses like the very poor judicial service delivery -- at that time, a judge based in Puerto Princesa divided his time between multiple areas of assignment and could thus visit the CGI only 3 times a year (since 2008, a judge based in Coron has been serving the area). But for the most part, there was simply not enough attention given to fisheries management by local officials, preoccupied as they were with other "priority" concerns.

Typical of areas experiencing rapid population growth, the Calamianes LGUs faced heavy pressure to seek opportunities to expand their economies. Fisheries remained an important area for development that LGUs generally allowed to grow with little control or management amid increasing consumer demand for fishery commodities from both within and outside the CGI. Fueled by high demand (and high prices) for live food fish in the global market, the live fish trade, in particular, exploded in the last 10 years, and overall insatiable consumer demand for fish from both domestic and foreign markets only encouraged more frenetic exploitation of fishery resources. In 2002, Calamianes supplied 55% of the total volume of live fish produced in the Philippines, as well as 45% of all fish landed in Manila (Padilla et al. 2003).

There was also a rapid expansion of pearl farms in the area, especially around Busuanga. The first pearl farm was set up at Busuanga in 1952, and the second 35 years later in 1987; since then 3 more farms were established, bringing the total pearl farm area in the municipality to nearly 7,600 hectares. Pearl farms were also built at Coron, Culion and Linapacan.

And then there's tourism, which expanded by leaps and bounds in the last few years. The tourism office of Coron reported that visitor arrivals hit 38,489 visitors in 2009, up 178% from the previous year's total of 13,849; figures from January to June 2010 show arrivals hitting 29,525, a 41% increase from the 20,930 recorded in the same period in 2009 (Coron MTO, 2010). Hotels and similar establishments in Coron, CGI's tourist hub, reportedly enjoyed an occupancy rate of about 80% last year (The Palawan Times, 2009).

The promise of tourism was a major motivating factor for some of the LGUs' sometimes controversial investment decisions, particularly in Coron. With support from the Palawan provincial government's share of the Php150-billion Malampaya fund, Coron embarked on big-ticket infrastructure projects, including a 40-hectare reclamation project with at least 2 hotels, restaurants, souvenir shops, promenade park and other tourist facilities and amenities. (abs-cbnNews.com/Newsbreak, 2010; News Today, 2009)

Reclamation project, Coron (Photo: A. Sia / FISH Project, 2008)

Much of the controversy surrounding such developments centered on their impacts on the environment and the fact that they have caused displacement of small-scale fishers. Live food fish collectors gained notoriety for their use of cyanide, and pearl farms, while purportedly beneficial to the marine environment as de facto MPAs, limited the

small fishers' navigation lanes and fishing grounds. As for tourism, besides its potential to contribute to environmental degradation, there was much concern about the direction it was taking: "What was spoken of as ecotourism was, in reality, often coastal resort development – and it was pushing many coastal families off their land as well as squeezing them out of their fishing areas." (Fabinyi, 2010)

The primary concern for FISH when it started its field operations in the CGI was that the LGUs' seemingly singular focus on tourism development translated into ambiguous interest in addressing urgent fishery resource use issues that impacted small fishers the most. A lack of interest was apparent from a study of the LGUs' 2004 budget allocations: of the 4 CGI municipalities, only Busuanga allocated a budget for programs and activities that could be loosely described as supportive of coastal resource management (CRM) or fisheries management.

Objectives

The FISH Project was designed to bring to the next level the Philippine experience in CRM by building much needed fisheries management capacity especially at the local level. It officially started in September 2003 and had a total life of 7 years (2003-10). The Project was tasked to work with the Philippine government through the Department of Agriculture-Bureau of Fisheries and Aquatic Resources (DA-BFAR) and other concerned agencies to begin a process of reform from open access to managed resource use in fisheries.

Calamianes was one of 4 FISH target areas, which also included Danajon Bank in Central Visayas, Lanuza Bay at Mindanao's Pacific seaboard, and Tawi-Tawi Bay in the Autonomous Region in Muslim Mindanao. In Calamianes, FISH set out to build, particularly in 3 focal area LGUs bordering Coron Bay (Busuanga, Coron and Culion), local capacities for CRM and fisheries management based on the following specific objectives:

- To promote CRM as a basic service of LGUs through a participatory planning process;
- To establish a network of MPAs;
- To introduce appropriate effort restriction measures to protect maturation and spawning of fish stocks and conserve overfished species;
- To promote and implement fishery registration and licensing;
- To strengthen coastal law enforcement; and
- To introduce a framework for fisheries management.

Strategies & Actions Taken

Entry and baseline assessments. FISH launched its Calamianes operations in 2004 out of its field office in Coron, which covered all four CGI municipalities. That year, the Project implemented several simultaneous activities aimed primarily at introducing itself to local partners and setting up the mechanisms needed to begin the capacity-building process. Partners from various sectors were identified from among those who were working or

involved in CRM in the CGI and coordination arrangements were defined through a memorandum of agreement (MOA) signed by cooperating partners. At the same time, efforts were undertaken to engage the LGUs, resulting in a MOA with FISH to implement common CRM objectives.

Baseline assessments were also conducted in 2004 to gather initial information on the status of the CGI's fishery resources. Done primarily to track Project performance, these assessments were undertaken largely independently of local partners. However, in 2005, after the entry phase, the Project organized a PCRA activity involving members of fishing communities. The activity had three objectives: 1) to set baselines for CRM, 2) to train LGU staff as well as community members to monitor changes in the condition of fishery habitats, and 3) to begin building an active constituency for CRM.

Constituency-building outside the LGU, although part of the Project's overall strategy, was deemed a critical strategy after it became apparent that despite the adoption of MOAs between FISH and the LGUs, there was no real commitment on some of the LGUs' part to invest in CRM. Of the four partner LGUs, Busuanga and Linapacan manifested significant interest in supporting Project-assisted interventions, while Coron and Culion were far less supportive, having other perceived priorities. Because of its leadership position as the business and government center in the CGI, Coron in particular became the focus of the Project's constituency-building efforts.

Participatory coastal resource assessment workshop, Busuanga (Photo: FISH Project, 2005)

Participatory coastal resource assessment. PCRA is a social mobilization strategy that has proven particularly effective not only in promoting stakeholder awareness and understanding of the need for CRM but also in getting local communities actively involved in coastal protection and management. Through PCRA, participants from various community sectors in the CGI – including barangay officials, leaders and members of people's organizations (POs) and youth and women's groups, LGU staff, non-governmental organizations (NGOs), national government agencies (NGAs) and other stakeholders – learned how to conduct actual site assessments with different groups surveying mangroves, seagrass beds and coral reefs, and conducting interviews. They were also trained to gather secondary information useful to CRM, map resource use and issues, and identify fishing and other relevant trends.

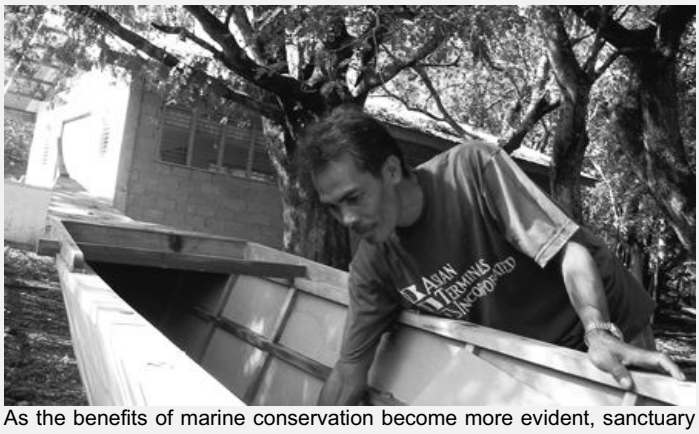
The PCRA data provided baseline information necessary for planning and future resource monitoring and assessment. They also proved useful for emphasizing the need for concrete actions to address the alarming decline of CGI's fisheries. Combined with the

more science-based baseline assessment results, they provided enough argument to convince some LGUs to invest in CRM, but other LGUs needed more prodding. Particularly in Coron, the Project had to build support for CRM from the ground up. Using participatory resource management approaches, adult education and various modes of information and communication, it cultivated advocates and champions in the communities first and worked its way up through the LGU ranks to the mayor's office, eventually generating much needed support for CRM.

Establishment and strengthening of MPAs. Another proven participatory strategy that the Project heavily relied on to engage stakeholders was the establishment of community-based MPAs. The Project facilitated the establishment of the Decalve Strict Protection Zone in Coron, Bugur Sand Island Marine Sanctuary in the municipality of Culion, and the Sagrada-Bogtong MPA and Concepcion Marine Reserves in Busuanga and Quaming Marine Reserve in 2004, 2005 and 2006, respectively. Starting in 2005, it also assisted the Siete Pecados Marine Park, which was earlier established under the USAID Sustainable Environmental Management Project (SEMP).

Reaping the Benefits of Conservation

Small fishers' catch increase at least 50%



As the benefits of marine conservation become more evident, sanctuary proponents like Ronelo Cabangon (above) have an easier time picking up support for their cause. (Photo: A. Sia / FISH Project, 2008)

Fishers operating around the Sagrada-Bogtong marine reserve reacted in a typical manner when the MPA was established in 2006: Fearing loss of income, they protested. And typically, many were converted after seeing the benefits of conservation.

Located at Busuanga, the MPA covers 390 hectares of mostly coral reef habitat. It is jointly managed by the neighbor villages of Sagrada and Bogtong.

Ronelo Cabangon was Bogtong's village chief when the MPA was proposed by FISH in 2005. "They explained to me that we needed a protected area to serve as breeding and nursery areas for fish," he told FISH in an interview. "The proposal made sense to me, so I supported it."

Others were not immediately convinced. "The restrictions made fishers nervous. They thought they would lose their livelihood," said Cabangon. "I told them what FISH told me. Some understood, others reserved judgment, the rest simply ignored me."

Today, more than 3 years after the sanctuary was established, fishers are reaping the benefits of protection. Cabangon noted, "In the past, the average fish catch here was not even 2kg. Now it's between 3 kg and 5kg, consisting of better quality and bigger size fish."

About 20-30% of fishers in Bogtong still try to poach on the MPA, Cabangon said. "Maybe the community will never be 100% behind us, but getting support for the MPA is easier now that there are many more of us. No matter what happens, we must keep educating the fishers, and we must continue protecting the sanctuary." *(Sia, 2010)*

Stakeholder participation was sought from the selection of MPA sites through planning all the way to the management and maintenance of the MPAs. For each MPA, the Project organized and trained a management board composed of community members who monitored MPA activities and made decisions about its management, and a special team that enforced MPA rules. In addition, the FISH Special Activities Fund (SAF) helped to purchase construction materials to build MPA guardhouses, patrol boats and monitoring and communication equipment, while participating communities contributed labor and other material support. Such highly participatory process engendered among members of each

community a sense of ownership, pride and responsibility over the MPA they were tasked to manage and motivated their continued involvement in managing it.

The establishment of MPAs also turned out to be the one activity that otherwise still ambivalent LGUs found easy to support. The tourism potential of MPAs helped to convince the LGUs that their support of CRM did not take away from their tourism development targets, but in fact contributed to them. This was especially true for Coron and to some extent Culion, where the Project began in 2005 to underscore the tourism benefits that could be generated by MPAs, after initial discussions on proposed fisheries management interventions failed to create enough LGU interest. User-fee systems instituted in MPAs with tourism potential provided another incentive to LGUs looking for ways to expand their revenue base.

All told, the Project assisted 8 MPAs in Calamianes, including the Balisungan MPA and Minugbay-Malbato-Tagpi MPA, which were established in Coron in 2007 and 2008, respectively, and the San Miguel MPA in Linapacan, which was established in 2008. These 3 additional MPAs were set up to complement the already existing MPAs. Combined, all MPAs covered nearly 1,378 hectares of municipal waters and formed an MPA network designed, based on a hydrodynamic and larval dispersal study commissioned by the Project in 2005, to regenerate fish stocks through the protection of spawning areas.

In Coron, the LGU's tourism objectives were also considered. In 2006, the first MPAs established – notably Siete Pecados and Decalve – were opened to tourism and marketed as major "ecotourism" sites, each with a user-fee system. In another two years, Siete Pecados was generating an average of Php300,000 per year in user fees.

To fishers in some of the well-managed MPAs, the benefits came within a year of MPA establishment, evident in visible positive changes in fish stocks within the MPAs or in some cases, increased fish catch for fishers operating near the MPAs. To LGUs, the potential of MPAs for tourism and revenue-generation became apparent a few months after the MPAs were opened to visitors. Early indications of the tourism potential of Siete Pecados and Decalve were clearly what prompted the Coron LGU to allocate for the first time a Php100,000 budget to CRM, a small amount that nonetheless helped carry the fisheries management planning process forward.

Fishery law enforcement. Illegal fishing was one of the first fishery issues that the Project attempted to address, primarily through the creation and training of municipal coastal law enforcement teams (MCLETs) composed of community members, the police, Coast Guard and other concerned agencies. Enforcement training was conducted in several stages, from the basic enforcement course to enhancement and specialization courses fitted to the peculiar needs of individual sites.

Basic enforcement training began as soon as the MCLETs were organized. The existence of enforcement units was required primarily because they would be the main focus of skills and capacity building. The basic course covered fisheries and maritime law enforcement topics and legal and tactical approaches to site-specific violations. Enhancement training focused on the enforcement of site-specific ordinances covering

such measures as temporal and spatial restrictions (including MPAs), registration and licensing, navigation, investigation and report writing, while specialization courses consisted mainly of the standard fish examiner's training course offered by DA-BFAR but also included plotting and chart work, media relations, and trainers' training.

IEC was also a key module in coastal law enforcement training courses, particularly in the aspects of prevention and detection in the law enforcement continuum. It covered relevant skills and methods that coastal law enforcers could use to "sell the law" and promote compliance, emphasizing the role of enforcers as "public educators" who could help transform community perception toward illegal fishing, especially cyanide and dynamite fishing, as highly undesirable and unacceptable behaviors.

Building multi-sectoral support for sustainable fisheries. As well as training its partners to "sell the law," the Project conducted its own information, education, communication and advocacy activities to promote new fishing norms among fishers and their regulators as well as the general public. The objective was to expand the support base for sustainable fisheries within and outside the fishing communities.

Special events were used to highlight fishery issues and showcase their solutions. Part of the strategy was to foster among locals a sense of pride in the CGI's natural environment, by emphasizing its importance and uniqueness, explaining the threats it faced and encouraging active involvement in the implementation of specific solutions. Various FISH-produced signboards, billboards, radio plugs and other information materials carried these messages and call to action.

To create a forum for civic action, the Project facilitated the organization of the *Tangay 'Y ang Laud Calamian* (Friends of the Calamian Sea), a volunteer group consisting of professionals, elected officials, youth leaders, and women leaders and fishers groups. This organization was registered with the Securities and Exchange Commission and accredited by the four CGI municipalities.

Other sectoral groups were also engaged in the advocacy effort, including the business and indigenous sectors. Working with the Philippine Coast Guard Auxilliary, Department of Environment and Natural Resources, and one *barangay* (village) in Coron, the Rotary Club of Makati-Salcedo provided funding support to a local PO for mangrove reforestation, identification of suitable MPA sites, various IEC activities and livelihood support. SARAGPUNTA, a Tagbanwa organization, was tapped to promote fisheries management in Coron Bay – given their jurisdiction over a large portion of

Public-private sector partnership (local PO, LGU, Rotary Club Salcedo-Makati, PCG Auxiliary, DENR and FISH Project), Coron (Photo: FISH Project, 2007)

the Bay, the Coron Tagbanwas are an important ally in the promotion of sustainable fishing practices in Coron.

Also, the Project's early interventions included reproductive health (RH) information and services, which involved the participation of health workers and community organizers. This RH component was implemented in 3 villages in Coron, where the Project assisted in the preparation of development plans that linked reproductive health objectives to CRM issues and trained community-based "peer educators" to promote awareness on the population-environment connection, or specifically in this case, the population-overfishing connection.

Standing Up for a Sustainable Future
Indigenous community takes charge of their sea

Viola Agondes, with fellow tribesfolk Job (middle) and Bienvenido (right) Paguia, leads her community's campaign to protect the sea. (Photo: A. Sia / FISH Project, 2008)

A Tagbanwa community in Coron is gaining ground in restoring the productivity of their sea.

"We have managed to control cyanide fishing since we began protecting our sea with the help of FISH," said Viola Agondes, who heads a people's organization tasked to manage a fish sanctuary near Marupo, a Tagbanwa village. "There are now obvious changes in the condition of our fishery resources. The fish are bigger, the corals are healthier. Our effort to protect the sea is benefiting our community in many ways."

Seaweed farmers Job and Bienvenido Paguia agreed, "Cyanide fishing harmed our seaweeds. Now that it's almost totally gone, our harvests have improved tremendously."

For Agondes, the most significant benefit has come in the way the community itself has changed. Many of the Tagbanwas' traditional beliefs have been lost with the influx and dominance of migrants in the CGI. Now, having embraced the responsibility to care for the sea, they are reminded of their elders' teachings. "My grandmother told me once that the sea will allow us to be greedy only three times. After the third time, it won't be so kind. Misfortune befalls those who abuse the sea."

It is a lesson the community is now trying to live by. "We used to care only about putting food on the table," said Agondes. "Now we also want to ensure that our resources are sustained through the next generations. We are willing to stand up for a sustainable future. Outsiders have come to respect us for this."*(Sia, 2010)*

Effort restrictions. To address overfishing, the Project encouraged the adoption of relevant effort restriction measures. One of the earliest policy studies that the Project assisted looked into policy options for the live reef fish trade (Table 2). Aimed primarily at addressing overfishing and habitat destruction, this policy study was used by the provincial government of Palawan as reference for the Palawan Live Reef Fish Ordinance of 2005. Earlier, the Project recommended minimum and maximum size limits for the harvesting of coral trout (suno) but dropped the proposal when this provincial ordinance was passed. The ordinance prohibited the use of compressors in all fishing activities and established a closed season and quota system for live reef fish. These restrictions were subsequently adopted by the four CGI municipalities and have been in effect since 2008.

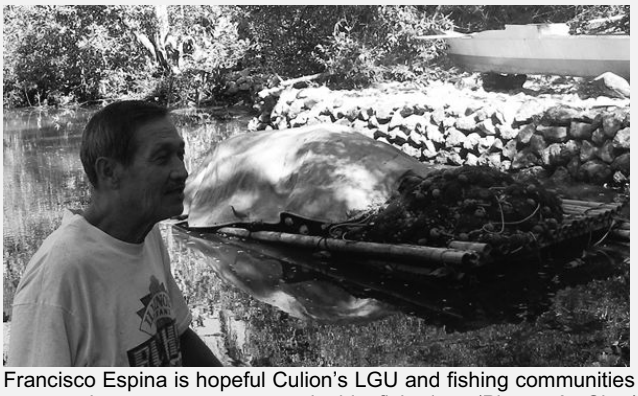
The Project also proposed closed seasons for siganid fisheries and size limits for blue crab fisheries, but these were not adopted. Despite their apparent readiness to address the issues related to the live reef fish trade and their support of MPAs, the LGUs were largely averse to introducing measures that directly addressed overfishing and resource use conflicts.

Table 2. Salient points of the policy study conducted by the FISH Project on the live reef food fish trade in Calamianes (Pomeroy, et al. 2005)

1. The policy goal is for a sustainable fishing industry in Palawan Province that ensures viable fish stocks, ecosystems and livelihoods for present and future generations.
2. The short-term (1-4 years) policy objective is the development of a sustainable live reef food fish (LRFF) industry in the province through the reduction of threats associated with destructive fishing and overfishing.
3. The long-term (5-10 years) policy objective is the protection and conservation of fish resources and marine ecosystems in Palawan through development
4. Policy options are based on three evaluative criteria, namely ecological, institutional and economic. Specific indicators and measures for each criterion are as follows:
    a. Ecological -- Two specific indicators are used: fishing activity – which is measured by CPUE and exploitation rates / yields per recruit of fish species targeted by the LRFF trade; and marine ecosystem condition – which is measured by percent of live coral reef cover.
    b. Institutional -- Four specific indicators are used, each of which could be measured as low, medium or high: political acceptability – which is measured by perceived and actual level of support of LGU for the policy; social acceptability – which is measured by perceived and actual level of support of the local community members, specifically fishers and their households, for the policy; industry acceptability – which is measured by the perceived and actual level of support by major industry players (traders / middlepersons, boat owners / operators, exporters) for the policy; and administrative feasibility – pertains to the existence of laws and policies to support the policy option and of a workable monitoring and enforcement system, and the cost of policy option.
    c. Economic -- Two specific indicators are used: private benefits and costs – which are measured as the benefits and costs that accrue to individuals and firms as a result of the policy option, such as income, livelihoods, food security and quality of life; society value – which is measured as the diverse social and economic values of coral reefs being provided to society as a whole, and to distant as well as adjacent communities. These include marketable values (associated with products, functions and services) and non-marketable values (associated with opportunity, cultural significance, bequest and simple existence).
5. Four policy options to address short-term objectives are presented:
    a. Maintenance of the status quo;
    b. Provincewide ban in LRFF trade;
    c. Regulated LRFF trade – 1 (ban compressor fishing, ban nonresident fishers from municipal waters, close spawning aggregations, impose size limitations on selected target species, set up a cyanide detection-testing laboratory in Coron, and establish a monitoring team and network); and
    d. Regulated LRFF trade – 2 (do not allow trade in municipalities with more than 50% coral reef cover in poor condition: Coron, Cuyo, El Nido and Taytay)
    e. Three policy options to address long-term objectives are presented: 1) Stimulation of sustainable live reef fish mariculture; 2) Ecolabeling; and 3) Community and economic development

All four LGUs did adopt their own comprehensive municipal fisheries ordinances (CFMOs), based primarily on the 1998 Fisheries Code and some provisions of the 1991 Local Government Code. The CFMOs provided some important guiding principles for fisheries management that the LGUs could apply as necessary, such as the use of fishing privileges to control fishing effort in municipal waters. Toward this end, the LGUs also supported fishery registration and licensing aimed at providing the information needed to regulate fishing activities: all four LGUs adopted the necessary ordinance to officially establish the registration and licensing system based on guidelines that FISH helped to formulate.

Working Toward Better Times
Measures installed to help sustain management effort



Francisco Espina is hopeful Culion's LGU and fishing communities can continue to promote sustainable fisheries. (Photo: A. Sia / FISH Project, 2008)

In the late 1960s when Francisco Espina set up his fish trading business in Culion, the best fish sold for no more than Php2 a kilo.

"The place was teeming with fish then," he related to FISH in an interview in 2008. "In fact, we have an island here that got its name from the smell of rotting fish. Back in the day, trawlers and other fishers were catching too many fish, which were dumped and left to rot on the island."

Over the years, more fishers flocked to Culion, the use of trawls and other efficient but destructive fishing methods became prevalent, and local fisheries declined significantly. "Fishers began to feel the decline only in the 1990s, but even then, not fully comprehending the situation, they simply shifted to even more efficient, and often more destructive, gear."

The fisheries have yet to fully recover, but Espina, who left the business years ago to become a minister and serve 3 terms as municipal councilor, expressed hope that the decline has been reversed. "We are grateful for the intervention of FISH, which showed us that the situation was critical and needed to be addressed urgently," he said.

"Thanks to the Project, we have the necessary skills in government, willing allies and champions among our fishers, and an integrated fisheries code to guide our leaders well into the future. If we do things right, maybe we can approximate those past years of bounty harvests without resorting to destructive fishing." *(Sia, 2010)*

Fishery registration and licensing. To assist the process of adoption and subsequent implementation of registration and licensing, the Project also provided training in fishing vessel admeasurement, fisheries database management and other skills relevant to vessel, gear and fisher registration and licensing. This was part of the effort of the Project to pilot Executive Order (EO) No. 305 series of 2004 which devolved the registration of municipal fishing vessels to LGUs. EO 305 was advocated by the National Anti-Poverty Commission Fisherfolk Sectoral Council and the League of Municipalities of the Philippines to facilitate the registration of municipal fishing vessels.

At the close of Project operations in 2010, registration was still ongoing, and there had been no attempt to use registration information to guide fisheries management planning and decision-making. Lack of compliance by fishers was the main reason cited by LGUs for the slow progress of the registration process.

Fisheries management planning. As the LGUs became more engaged in FISH interventions, they began to participate more closely in discussions leading toward the preparation of the Calamianes Integrated Fisheries Management Plan (CIFMP). The discussion took two years, as it was stalled by municipal water delineation issues for some time. The LGUs were unable to agree on an acceptable resolution to existing boundary disputes, and in the end agreed to set aside delineation issues and pursue co-management as an option.

The CIFMP was adopted by all four LGUs through a MOA signed during the Calamianes Fisheries Summit on May 23, 2008. It described the following fisheries management strategies (CIFMP, 2008):

- Management of fishing effort through the promulgation and adoption of fishing effort restriction measures for fishing gear that are considered detrimental to the integrity of resources and habitats;

- Protection of the sustainability of target fish stocks and intensively-fished species through the imposition of spatial and temporal restrictions such as closed seasons and closed areas to enable maturation and spawning of grouper and siganids that are intensively fished or rapidly declining;
- Protection of critical coastal habitats through the establishment of a network of MPAs;
- Strengthening of regional law enforcement initiatives; and
- Formulation of a zoning system for various uses in accordance with the existing Environmentally Critical Areas Network (ECAN) framework.

However, the plan contained very few specific provisions for the implementation of these strategies, generally only those related to law enforcement and MPAs. To support plan implementation, the Project initiated the preparation of a zoning scheme that identified existing and potential uses of coastal resources in the CGI. Fisheries use zone maps were drawn up for adoption by the municipal councils of the four LGUs.

Expansion. Despite limited resources, the Project managed to bring some technical assistance to other LGUs, including Araceli (PCRA), Puerto Princesa City (monitoring and evaluation), and several municipalities that participated in a training workshop on MPA planning, monitoring and evaluation organized by the Project in Narra in 2009. Such assistance resulted in the establishment of MPAs and CRM adoption by some LGUs.

Results & Impacts

The following results in Calamianes contributed to the FISH Project's overall performance indicators:

- All 4 CGI LGUs adopting fishery registration and licensing and implementing a coding system for municipal fishing boats;
- Law enforcement units, prosecutors, and judiciary trained and/or assisted in fishery law enforcement in all 4 LGUs;
- Effort restrictions introduced (1 for each LGU);
- Eight existing and new MPAs assisted, 5 of them functional (2 in Busuanga, 2 in Coron, 1 in Culion);
- Municipal CRM plans and the CIFMP adopted by all LGUs; and
- Reproductive health information and services linking population growth to environmental degradation delivered to 3 villages in Coron

With most management interventions only in their early stages of implementation well into the exit phase of FISH, these results did not necessarily translate to very significant impacts on fisheries management in the CGI. Of the many interventions introduced by FISH in the area, the establishment of MPAs generated possibly the biggest impacts on governance. Survey results from 2006 and 2008 did not show a clear trend of biophysical improvement: In 3 of the MPAs surveyed for which adequate data were available, live hard coral cover and species richness were mostly unchanged both inside and outside the MPAs (i.e., within natural variability), biomass conditions were mixed, and fish abundance generally increased inside the MPAs. (Tables 3 & 4) Nevertheless,

across all four CGI municipalities, the MPAs helped the Project gain the LGUs' cooperation. In the case of Coron, in particular, the initial success of a few of its MPAs motivated the LGU to support community-based management initiatives, as well as some of the Project's other interventions.

Table 3. Biophysical changes in 3 FISH-assisted MPAs, Calamianes, Palawan (2006-2008) (UPVFI, 2009)

MPA	Area (hectares)	Percentage change from 2006 to 2008							
		LIVE HARD CORAL COVER		SPECIES RICHNESS		BIOMASS		FISH ABUNDANCE	
		Inside	Outside	Inside	Outside	Inside	Outside	Inside	Outside
Bintuan	64.60	12.32%	6.44%	1.44%	10.53%	98.14%	-5.24%	62.84%	56.24%
Lajala	100.00	11.08%	14.18%	-5.79%	-12.21%	25.59%	-42.6%	51.15%	26.35%
Bugor	96.50	20.29%	31.69%	4.35%	8.23%	-47.76%	12.71%	147.29%	34.9%
Average	**47.17**	**14.56%**	**17.44%**	**0.00%**	**2.18%**	**25.32%**	**-11.71%**	**87.09%**	**39.16%**

Table 4. Average percentage change in biophysical conditions inside and outside 3 FISH-assisted MPAs monitored in 2006 to 2008 (UPVFI, 2009)

INDICATOR	% change 2006-08	
	Inside	Outside
Live Hard Coral Cover	14.56%	17.44%
Species Richness	0%	2.18%
Biomass	25.32%	-11.71%
Fish Abundance	87.09%	39.16%

Combined, the four LGUs' total investments in CRM and CRM-related activities increased more than 200% from Php400,000 at the start of FISH in 2004 to Php1.26 million in 2009. In 2004, only Busuanga had a budget allocation for CRM; in 2009, all four LGUs had such allocation, ranging from Php150,000 for Coron to Php540,000 for Busuanga. Although miniscule compared to the actual amount needed to fully implement the LGUs' CRM programs, it was tangible progress nonetheless – the LGUs' bias for tourism and other big-ticket development projects remained evident, but it had been tempered by a higher awareness among some decision-makers of the urgency of the local fisheries situation.

Reports on any direct economic benefits accruing to fishers from MPAs were mixed and anecdotal, with some fishers in Busuanga claiming higher fish catches and others saying their catches did not change. But even among stakeholders, the MPAs inspired profound changes in attitude and overall outlook on their capacity to effect change in their communities. Such attitudinal changes were most evident in community members who were directly involved in the management of MPAs. By the end of the Project's field operations, for example, the management board of the Sagrada-Bogtong MPA in Busuanga had a regular budget allocation for MPA maintenance, while deputy fish wardens at the Decalve MPA performed their patrol duties around the MPA on their own initiative, with virtually no prodding from their leaders.

To some extent, the participatory strategy employed by FISH also helped create some level of transparency in government. With the various stakeholders' involvement in fishery law enforcement, for example, there was a clearer understanding of the government's enforcement functions and authority, closer coordination among various agencies and sectors involved in enforcement and thus fewer occasions for graft and corruption.

Remaining Gaps & Recommendations

Tremendous effort went into the implementation of the FISH Project, but capacity-building in fisheries management in the CGI has only really just begun. The Project leaves behind at least two important documents that the four LGUs have already committed to implement: the CIFMP and fisheries use zoning plan. How well they deliver on their commitment could decide the future of fisheries in Calamianes.

To effectively implement the plans, the LGUs must formulate and adopt the appropriate implementing rules and regulations, and aid agencies and other organizations that are currently working or plan to work in the CGI might consider assisting the process. There are also specific action items in the plan that could be implemented immediately, two of which are the integration of the MCLETs into a Calamianes-wide law enforcement team and the unification of the different CFMOs.

The registration and licensing system must be fully implemented to serve the purpose for which it was designed – not to generate revenues for the LGU, which is only a secondary benefit, but first and foremost to provide the information needed to manage fishing effort. Fisheries management must be a continuing process that involves regular monitoring of fisheries activities and the condition of fish stocks, assessment and management of fishing effort, detection and identification of solutions, and adoption of new measures as needed. The CGI LGUs have yet to develop the full capacity to do all these, but they can begin with the tools that the FISH Project already equipped them with, so that any future technical assistance can focus on bringing the capacity-building process forward.

By encouraging the participation of community members in the management of the MPAs, the Project just managed to give small fishers a small role in the development of coastal tourism in the CGI. Burning questions about equity of access to coastal resources are answered in part by the fisheries use zoning scheme that FISH helped developed. The zoning framework plan must be implemented and remaining issues must be resolved -- and soon -- to prevent any further displacement of small fishers.

Considering the importance of the CGI as a source of fish for Metro Manila and other urban areas, the national government, through DA-BFAR, should put more resources into assisting the LGUs in the management of municipal fisheries and the enforcement of fishery laws. To address the perennial lack of personnel, the bureau should see about adapting the Department of Health's strategy of using roving specialists who pay regular visits to communities. For the long term, DA-BFAR, together with supporting organizations and the academe, should work toward fully capacitating LGUs in fisheries management by training local government personnel (including elected

officials) in enforcing fishery laws and managing fishing effort according to the principles of sustainable fisheries. This will help ensure effective and continuous implementation of programs that support sustainable and responsible fisheries, especially those that directly address crucial issues threatening the equity of access to fishery resources and preferential rights of small fishers.

With their growing environmental activism, newly minted advocacy groups such as the *Tangay 'Y ang Laud Calamian* could take a strategic and more active role in pushing forward a clear agenda for sustainable fisheries. The CGI still needs to develop a vigilant civil society that recognizes local leaders who strongly support sustainable fisheries and censures those that abandon or oppose it. By making their current leaders accountable for what happens to local fisheries, they could set the bar in fisheries governance for their future leaders and everyone else to follow.

A Fisheries Manager's Job is Never Done
Much has been accomplished, but the challenge remains

Busuanga municipal agriculturist Ma. Theresa Rabe (above) observes, "Illegal fishers are always up to something. But if they are persistent, so are we. We will never put our guard down." (Photo: A. Sia / FISH Project, 2008)

Having been involved in development work for many years, Ma. Theresa Rabe has faced many tough challenges, but none tougher than fisheries management. "It's a constant challenge, the pressure never ends," she said.

In 1997, when she became municipal agriculturist of Busuanga, Rabe's first order of business was to find out what she was up against. "I did an agri-fisheries survey, which showed that a big majority of the people here were dependent on fisheries. Fisheries had to be my top priority," she related.

Rabe, an agricultural engineer, said she had almost zero knowledge of fisheries. "But I didn't need a degree in fisheries to know that our fishing sector was in big trouble. Declining fish yields, illegal fishing, degraded habitats and poverty were just the more obvious issues that cried for attention."

She worked through each problem, consulting with experts along the way. "I gained proficiency, but it didn't make the job easier. A great chunk of my job involves regulating fisheries -- I realized early on just how tough that was."

Fighting off pressure from groups with interests in illegal fishing, she soldiered on. Assisted by FISH and working with fishing villages, she and her staff established MPAs managed by community members, who also helped in law enforcement. "We've had a few setbacks, but we've made great progress. To me, the best thing is seeing the communities transformed from indifferent observers or even participants in illegal fishing to active advocates and protectors of the sea."

But the challenge remains. "Illegal fishers are always up to something," Rabe said. "But if they are persistent, so are we. We will never put our guard down." *(Sia, 2010)*

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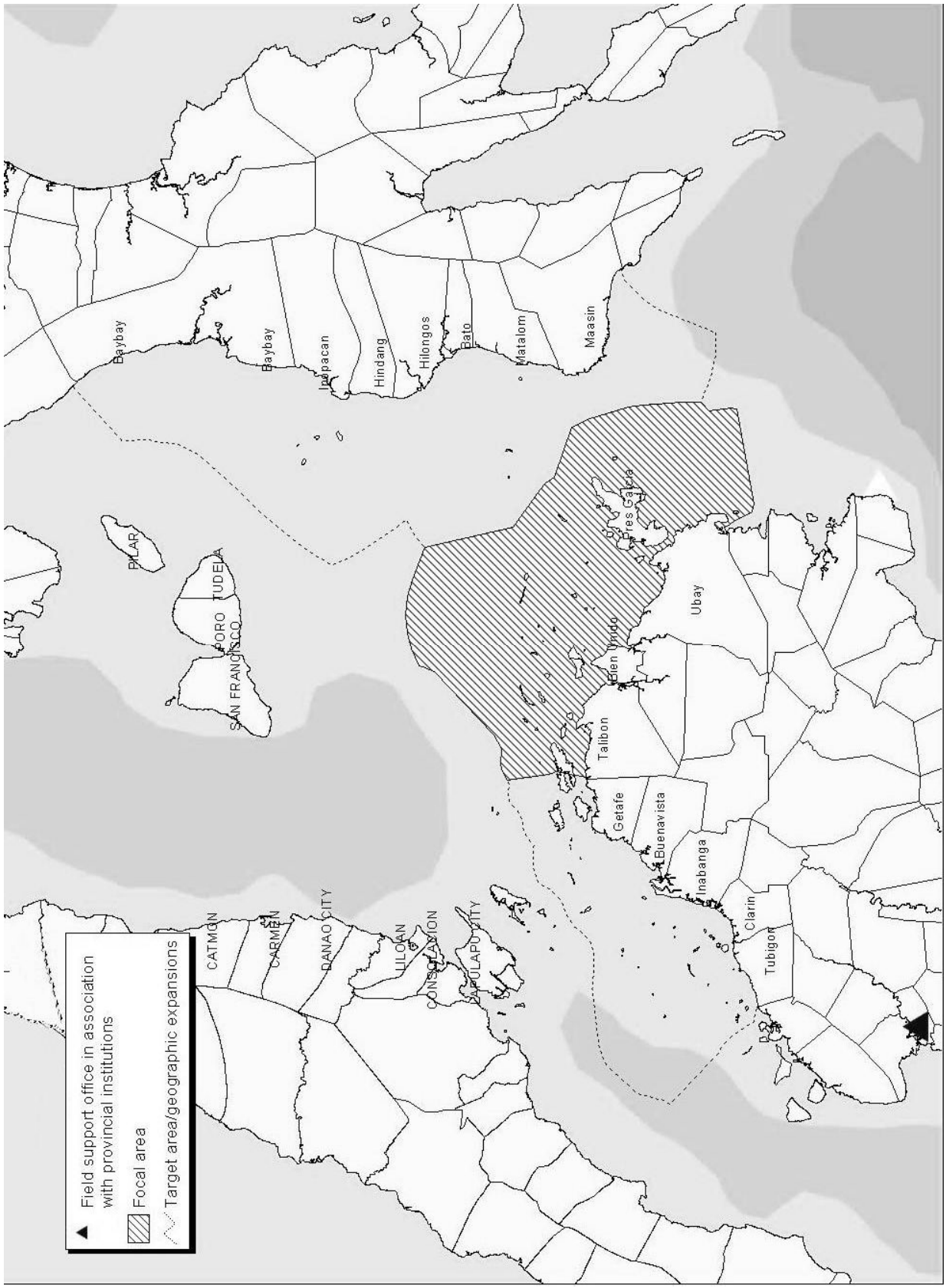

Danajon Bank, Central Visayas

Danajon Bank: Brighter prospects for a severely degraded fishery resource

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Seaport, Talibon, Bohol *(Photo: A. Sia / FISH Project, 2009)*

The most severely degraded of all fishery resources in the FISH Project sites were found in Danajon Bank in Central Visayas (shown on the opposite page), where a significant segment of the fishing population was engaged in illegal and destructive fishing activities. The Project worked alongside LGUs in Bohol, Leyte and Southern Leyte to begin the process of institutionalizing critical management interventions that directly addressed some of the most serious fishery resource use issues and resulted in a partial recovery of the fishery resources.

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The interventions could not have come at a more crucial time. At the start of the Project's field operations in 2004, Danajon Bank – the single biggest contributor of fish in the Province of Bohol and a major fishing ground for fishers from Cebu, Leyte and Southern Leyte – was estimated to have a standing biomass lower than the recorded biomass of traditional fishing grounds that were considered highly overfished. Fish catches were at an all-time low and still declining, even as an increasing number of resource users competed over both decreasing stocks and shrinking fishing grounds. Like elsewhere in the Philippines, subsistence fishers were barely getting by, desperately caught in a seemingly unending downward spiral of poverty and natural resource degradation.

As FISH set about addressing the problem, both fishers and their elected leaders were ready to listen, but not everyone agreed on the best course to take, and a pessimist few even suggested that the problem could not be solved. Seven years thence, there is no longer any question that the decline of fisheries in Danajon Bank can be reversed, and the only lingering question – can the recovery be sustained? – is answered by a hopeful, albeit qualified, "yes."

Challenge

Danajon Bank is historically the most important source of biodiversity in Central Visayas, having the largest areas of both coral reefs and mangroves in the region. The Bank has one of only six documented double barrier reefs in the world, called the Philippine Double Barrier Reef (PDBR).

Philippine Double Barrier Reef, Danajon Bank
(Photo: FISH Project/PAF, 2006)

The PDBR is a unique geologic structure that developed through 6,000 years of coral growth. Larger and better-defined than most other known double barrier reefs in the world, it is spread almost 80 nautical miles (148 km), with the outer reef lying 11 km offshore, composed of several units up to 23 km long each. The inner barrier is 2km wide and separated from the coast by an inshore channel 28 m deep at most. There is one reef (Calituban) in the inner region. The total reef area is about 46,380 hectares; Caubyan, the largest, covers about 14,300 hectares. The large reef structure relatively protected from strong currents and storms encourages a wide variety of micro-habitats to flourish inside and adjacent to the reef lagoons and slopes. It has a high degree of flora and fauna and is a critical part of the Asian southward bird migratory route.

Overall in Danajon Bank there are approximately 270 sq km of coral reefs whose productivity could be worth USD8 million annually if managed well (Christie, et al., 2005). In addition,

there are approximately 5,250 hectares of mangroves, more than 500 hectares of seagrass beds (some extending 700 m from the shore) and *Sargassum* beds, and muddy and sandy seabed communities.

The Bank itself has a total area of 214,268 hectares, including all shallow areas up to 40 m depth bounded by the Camotes Sea and Cebu Strait, and a coastline stretching 746 km, encompassing 19 municipalities and cities in four provinces (Bohol, Leyte, Southern Leyte and Cebu) and two regions (Central and Eastern Visayas). (Table 1)

Table 1. Municipalities and cities surrounding Danajon Bank

Province	Municipality	Coastline (kms)
Bohol	**Focal Area**	
	Bien Unido	45
	Ubay	61
	President Carlos P. Garcia	76
	Talibon	86
	Total coastline in focal area (km)	**268**
	Expansion Area	
	Clarin	29
	Inabanga	62
	Buenavista	32
	Getafe	77
	Trinidad	8
	Tubigon	28
Leyte	Matalom	14
	Bato	4
	Hilongos	12
	Hindang	7
	Inopacan	10
	Baybay City	37
Southern Leyte	Maasin City	25
	Total coastline in expansion area (km)	**345**
	Areas not covered by Project assistance	
Cebu	Lapu-Lapu City	112
	Cordova	21
		133
	Total coastline in all areas (km)	**746**

All these extensive habitats support a fishing industry that accounts for some 60% of the total fish catch in Bohol -- about 57% of the fishers, 47% of non-motorized boats and 66% of motorcrafts of the entire province are found in the 10 municipalities (excluding Trinidad) bounding the Bank (Table 2). In addition, fishers from Cebu, Leyte and Southern Leyte have for many generations relied on fishing in the area for subsistence and livelihood.

However, baseline assessments conducted by FISH between 2003 and 2005 revealed a severely stressed ecosystem, with many fish habitats and other fishery resources already highly degraded. Average living coral cover was estimated at less than

25% (FISH Project, 2005b), down from the 29.5% recorded in 1996 (Reboton, et al., 2002). In general across all the Project sites, the area was found to have the lowest fish biomass, lowest catch per operation, lowest species richness and lowest living coral cover. (FISH Project, 2005a)

A more recent study of 28 nearshore reef fishing grounds found benthic conditions in Danajon to be in even worse condition with 32% rubble, 28% sand or silt, 9% dead coral and only 12% live coral (Marcus, et al., in press). The study also observed low diversity and densities of macroinvertebrate fauna in the sample sites -- only a few sites had economically important species of sea urchins, sea cucumbers, mollusks and crabs.

Table 2. Number of fishers and boats in Danajon Bank municipalities and rest of Bohol
(based on Christie, et al, 2006)

Municipality	Counts						Density (count / km coastline)			
	Fishers		Non-motorized		Motorized		Fishers	Non-motorized	Motorized	Fisher to boat ratio
	n	%	n	%	n	%				
Danajon Bank										
Pres. C.P. Garcia	2,093	6.4	610	5.2	591	6.6	36.7	10.7	10.4	1.7
Ubay	1,492	4.5	406	3.5	380	4.2	38.3	10.4	9.7	1.9
Bien Unido	3,176	9.6	840	7.2	940	10.5	264.7	70.0	78.3	1.8
Talibon	3,476	10.5	750	6.4	1490	16.6	165.5	35.7	71.0	1.6
Getafe	2,170	6.6	700	6.0	664	7.4	127.7	41.2	39.1	1.6
Buenavista	1,000	3.0	492	4.2	159	1.8	125.0	61.5	19.9	1.5
Inabanga	2,281	6.9	874	7.5	629	7.0	162.9	62.4	44.9	1.5
Clarin	335	1.0	150	1.3	84	0.9	47.5	21.4	12.0	1.4
Tubigon	1,670	5.1	261	2.2	620	6.9	128.5	20.1	47.7	1.9
Calape	1,006	3.1	458	3.9	314	3.5	67.1	30.5	20.9	1.3
Subtotal Average	18,699	56.7	5,541	47.4	5,871	65.4	116.4	36.4	35.4	1.6
Rest of Bohol										
Subtotal Average	14,254	43.3	6,145	52.6	4,843	34.6	59.3	25.6	13.6	1.6

Fisheries decline. Trawl surveys conducted by FISH in 2004 as part of its baseline assessment showed a very low demersal biomass density of 0.45 tons/sq km for Danajon Bank, which was more or less the same as the demersal biomass density estimated for Manila Bay in 1992-1993 (Armada, 1994). The catch was composed mainly of low value species such as the slipmouths (*potpot*), pufferfish *(butete*), flat head (*sunugan*), goatfish (*timbungan*) and cardinalfish (*moong, pangan*), which would have been considered trash fish two decades ago (FISH Project, 2005b).

The results of bottom-set longline (*palangre*) survey conducted by the FISH Project also showed a very low catch rate in Danajon Bank with 4.77 kg per fishing operation despite the 1,000 hooks per unit gear used in the area. The catch was dominated by the crescent perch (*bugaon*g), emperor (*katambak*) and threadfin bream (*lagaw).* High value fishes such as groupers (*pugawo*) and snappers (*mayamaya*) were not well represented in

the catch. A survey of catch and effort also showed very low catch rates from many fishing gear types.


One of several densely populated islands off Bohol on Danajon Bank (Photo: FISH Project/PAF, 2006)

The causes of such extreme decline are manifold but quite common to coastal environments with a large, highly resource-dependent population, high coastal population densities and an overall lack of resource management. In addition to fishing-related disturbances, fish habitats have become degraded because of the following: 1) sediment accumulation prohibiting coral and seagrass re-growth; 2) conversion of land for human settlement, agriculture and landfills increasing the ocean's pollution load; and 3) removal of mangroves and their conversion to other uses resulting in increased sedimentation and terrestrial runoffs and the loss of critical nursery habitats and shoreline resilience to erosion and storms.

High coastal population densities. Based on the 2007 national census, annual population growth rates in Danajon Bank are lower than the national average of 2.16%, except in the island municipality of President CP Garcia and the highly urbanized Lapu-Lapu City, where the populations grew by 3.01% and 4.2% annually between 2000 and 2007, respectively. (NSO, 2008) However, densities of fishers per kilometer of coastline are high. In Bohol especially, communities on the outlaying islands are characterized by extraordinarily high population densities and an extremely high level of dependence on coastal resources.

In 1997, it was estimated that, on the northern coast of Bohol where Danajon is located, approximately 50% of local residents were fishers and only 5% of coastal inhabitants owned agricultural land (Calumpong, et al., 1997). In 2004, the area had a total of 18,699 fishers (compared to 14,254 in the rest of Bohol), with about 5,541 non-motorized boats and 5,871 motorized boats and a fisher-to-boat ratio of 1.6. Average fisher density per km of coastline was 116.4, nearly double the 59.3 fishers per km of coastline in the rest of the province. (Christie, et al., 2006)

Destructive fishing. Danajon's demographic profile was reflected in the state of its fisheries, which were characterized by extremely high levels of fishing effort and a high incidence of illegal and other destructive fishing methods. All fishery resources, even those outside of the shallow reef areas, were heavily exploited by a combination of small-scale locally based fishers and commercial fishing boats that poached on municipal waters.

Among small-scale fishers, dynamite fishing was the most preferred method because it yielded the highest average catch of about 17.5 kg per person per hour (ADB, 2003). The FISH Project's baseline assessment results indicated that catch per unit effort (CPUE) from dynamite fishing in Danajon Bank ranged from a low of 2.4kg to a high of 175kg per fisher per hour in 2004, the year the Project started.

Moreover, despite being expressly prohibited by law, the use of various active gear was rampant in the Bank's extensive (and mostly shallow) municipal waters. Notable among these were Danish seines (*liba-liba*), round haul seines (*lawag*) and baby trawls (*palakaya*). Their presence in shallow waters not only contributed to habitat destruction and overfishing, but also intensified the competition over an already much diminished resource, which – as well as putting small-scale fishers at a distinct disadvantage – only justified some fishers' continued use of dynamite, cyanide and other destructive fishing methods.

Poverty. Fishing communities are among the poorest and most marginalized sectors in the Philippines. It is reported that over 60% of the country's coastal population live below the poverty line of Php6,000 monthly for a family of 5-6 members, and Danajon Bank's coastal communities are no exception (Green, et al., 2002). The decline of fisheries and lack of economic opportunities translate to high underemployment and unemployment rates in the towns bordering Danajon Bank. In 2004, unemployment hit almost 20% in Ubay, one of Danajon's most populous municipalities (PATH Philippines, 2004).

A 1997 survey of 8,854 fishers in Bien Unido, Carlos P. Garcia, Talibon and Ubay recorded an average monthly income from fishing of approximately Php1,830 per month or USD69 (at 1997 exchange rates). More recent figures from Project Seahorse Foundation showed lantern fishers earning an average of Php120 per fisher per fishing trip (Barbon, 2005), or about Php3,600 per fisher per month (assuming they fished every day). This translates to about Php43,000 per fisher per year, way below the regional and national average family income of Php94,676 and Php88,782 in 2000, respectively, and lower even than the average family income in Bohol of Php77,291 (NSO, 2002).

A typical fishing community in Talibon, Bohol (Photo: J Unson, 2006)

The low incomes of fishers in Danajon Bank were manifested in the lower number of motorized boats in the area compared to the rest of Bohol. Despite having 13% more fishers than the 19 other Bohol

municipalities combined, the 10 Danajon Bank municipalities had only about 47% of the motorized boats in the province. (Christie, et al., 2006)

To the FISH Project, the high incidence of poverty in Danajon indicated that the options for management were limited and the stakes were high. If environmental degradation continued, the poorest and most dependent sectors would suffer the most.

Previous initiatives. Among all the Project sites at the start of field operations in 2003, Danajon Bank had the greatest combined experience in terms of addressing coastal and fishery issues. Before organized support from government, NGOs and donor agencies came to Danajon, there were private sector initiatives that significantly influenced resource use and management in the area, particularly on the outlying islands on the Bank under the jurisdiction of Bohol. A notable example is the mangrove plantation at Banacon Island, Getafe, which was started by a local resident more than 50 years ago – the 480-hectare "man-made forest" that grew from one man's backyard project to a community endeavor is now regarded as the largest mangrove plantation in Southeast Asia. Another example, an experimental seaweed farm set up about 30 years ago by the seaweed processing firm Genu Philippines, started the development of Danajon Bank as the one of biggest seaweed production centers in the country. (Sia and White, 2004)

External assistance from government, NGOs and donor agencies began to trickle in by the 1980s. Assisting organizations included the NGOs Local Government Development Foundation (LOGODEF), Project Seahorse Foundation, Haribon Foundation, and Feed the Children; donor agencies like the Southeast Asian Fisheries Development Center (SEAFDEC) and Japan International Cooperation Agency (JICA); the provincial government's Bohol Environment Management Office (BEMO); and a number of donor-assisted projects such as the Community-Based Resource Management Project of the Department of Finance (DOF) and World Bank, and the Coastal Resource Management Project (CRMP) of the Department of Environment and Natural Resources (DENR) and USAID. They introduced resource management measures such as resource assessment, coastal resource management (CRM) planning, mangrove reforestation, establishment of marine protected areas (MPA), formulation of fishery ordinances, coastal law enforcement, formation of Fisheries and Aquatic Resource Management Councils (FARMCs), installation of artificial reefs, and coastal tourism development. (FISH Project, 2005b)

Program sustainability was a major issue, however. For example, there were 27 MPAs that were established in Danajon prior to FISH, but very few were still functional in 2004. Also, fishery law enforcement was inconsistent and sporadic. There was a high overall awareness among LGUs on coastal issues and their solutions and a high level of appreciation for their role as the primary managers of municipal fisheries, but these did not often translate into concrete or sustained actions. As a result, unsustainable practices and resource degradation remained largely uncontrolled.

The challenge for FISH was how to harness the LGUs' recognition of the fisheries problem and their responsibility in solving it to build on past experience and develop local capacities that directly addressed the critical issues affecting the sustainability of Danajon's vital fishery resources.

Objectives

The FISH Project was designed to bring to the next level the Philippine experience in CRM by building much needed fisheries management capacity especially at the local level. It officially started in September 2003 and had a total life of 7 years (2003-10). The Project was tasked to work with the Philippine government through the Department of Agriculture-Bureau of Fisheries and Aquatic Resources (DA-BFAR) and other concerned agencies to begin a process of reform from open access to managed resource use in fisheries.

Danajon Bank was one of 4 FISH target areas, which also included the Calamianes Group of Islands in Palawan west of the country, Surigao del Sur on the Philippines' eastern Pacific seaboard, and Tawi-Tawi in the Autonomous Region in Muslim Mindanao. In general, the Project aimed to catalyze changes in exploitation patterns of fishery resources in a smaller "focal area" within each of its target areas that could be sustained and replicated beyond the life of the project. In Danajon Bank, the focal area included the municipalities of Talibon, Bien Unido, Ubay and President Carlos P. Garcia, all belonging to the second congressional district of the Province of Bohol. Through capacity development, policy reform and constituency building, the Project hoped to achieve the following specific objectives and begin the process of reversing the decline of Danajon's fisheries: (FISH Project, 2005b)

- To strengthen fishery law enforcement;
- To establish and strengthen MPAs to protect habitats and fish populations;
- To establish fisheries use zones for specific uses such as MPAs, fishing, fish culture, seaweed farming, tourism and recreation, navigation, fish landing and other uses as appropriate;
- To promote and implement fishery registration and licensing;
- To address the overharvesting of selected target reef fish and invertebrates species through the introduction of appropriate fishing effort restrictions;
- To delineate and enforce municipal water boundaries; and
- To introduce other strategies acceptable to stakeholders through localized planning.

In the focal area LGUs, the FISH package of assistance generally included the following activities: information-education-communication (IEC), MPA establishment, policy support, coastal law enforcement, CRM planning, fishery registration and licensing, municipal water delineation, identification and enforcement of fishing effort restrictions, and marine spatial planning.

In 2008, the Project expanded its field operations to include other Bohol LGUs bordering Danajon Bank, namely, Trinidad, Tubigon, Clarin, Inabanga, Buenavista and Getafe in Bohol with about 7,450 fishers. (Technically, Trinidad has no municipal waters but it was included as an expansion area because it is so close to the coast that many of its residents fish in Danajon Bank.) FISH also expanded into 5 municipalities and 2 cities in the Leyte provinces, namely, Baybay City, Inopacan, Bato, Hilongos, Hindang and Matalom in Leyte, and Maasin City in Southern Leyte with an estimated combined total of 4,265 fishers.

A key objective in expanding to these areas was to avoid any "threat transfer" from the FISH focal areas to other areas in Danajon Bank as well as to address illegal fishing by commercial fishers, fishers using active gear, and cyanide and dynamite fishers. Expansion activities were focused primarily on CRM planning, law enforcement, IEC and the strengthening of MPAs.

Strategies & Actions Taken

Entry and baseline assessments. The extremely poor state of Danajon Bank's fishery resources provided early impetus for many of the Project's initial interventions. The focal area LGUs were quite cognizant of their fisheries problems and willing to discuss possible solutions. Also thanks in part to the social capital built by FISH staff who previously worked in Danajon under CRMP, the requisite letters of intent and memorandums of agreement (MOAs) with the Provincial Governor and focal area municipal mayors were easily dealt with, which allowed the Project to immediately begin setting up its technical assistance delivery system.

Given the longer experience of the Danajon Bank LGUs in CRM, the Project expected the institutionalization of its management interventions to go farther than in the other sites. The interventions were similar across the different focal areas, but in Danajon Bank, there was some expectation that the LGUs would be more prepared to undertake crucial, but perhaps less popular (and even politically "risky"), management actions that directly addressed overfishing. In this sense, Danajon Bank was expected to set the benchmark and model the way for other focal areas to follow.

The Project conducted baseline assessments to gather initial information on the status of fishery resources in its focal area. These assessments were undertaken in 2004 largely independently of local partners because they were mainly employed to track Project performance relative to fish stock changes in the management sites, but they also proved useful in pushing the Project's sustainable fisheries agenda. In Danajon Bank, assessment results that showed the very low standing fish biomass in the area compared to other Project sites convinced the LGUs to step up their fishery law enforcement effort.

Participatory fishery and coastal resource assessment, Leyte (Photo: J Gatus, 2008)

No independent baseline assessment was conducted in Leyte and Southern Leyte, but other performance indicators of institutional development and constituency building were monitored and included in the Project's performance evaluation. In addition, participating LGUs were encouraged to set up a

monitoring and evaluation system to measure their own program performance, and were assisted in the conduct of participatory coastal resource assessment (PCRA), one of the first key steps in CRM planning.

The Project also offered to assist the Bohol LGUs in PCRA, but they declined the offer, saying they had recently completed their assessment; they would do another assessment later as part of their regular monitoring schedule.

Participatory coastal resource assessment. Generally, PCRA is undertaken for three reasons: 1) to set baselines for CRM, 2) to train LGU staff as well as community members to monitor changes in the condition of fishery habitats, and 3) to begin building (and mobilizing) an active constituency for CRM.

As a social mobilization strategy, PCRA has proven particularly effective not only in promoting stakeholder awareness and understanding of the need for CRM but also in getting local communities actively involved in coastal protection and management. Through PCRA, participants from various community sectors – including *barangay* officials, leaders and members of people's organizations (POs) and youth and women's groups, LGU staff, NGOs, national government agencies (NGAs) and other stakeholders – learn how to conduct actual site assessments with different groups surveying mangroves, seagrass beds and coral reefs, and conducting interviews. They are also trained to gather secondary information useful to CRM, map resource use and issues, and identify fishing and other relevant trends.

Having been beneficiaries of past CRM projects, the focal area LGUs in Danajon Bank were quite familiar with the PCRA methods used by FISH and conducted their own assessment in 2006 according to their monitoring schedule.

In the Leyte and Southern Leyte expansion areas, the Project introduced a modified PCRA method (participatory coastal and fisheries resource assessment or PCFRA) that included additional activities such as gear inventory and "market walks" which incorporated the collection of fisheries data that the LGUs could use in identifying resource use problems and developing issue-specific fisheries management interventions. The data collected included catch-and-effort information, historical catch trends, fishers' demography, and number of fishers, boats and gear operating in an area. They were used primarily in the preparation of CRM and MPA management plans.

CRM planning. The planning process employed by FISH was a capacity-building exercise anchored on participatory and experiential, learning-by-doing approaches that engaged stakeholders in the critical steps of planning and decision-making. The initial target output – a "coastal and fisheries resource management" or CFRM plan – was a framework plan that addressed the broad CRM areas of habitat protection, shoreline management, waste management, coastal tourism management, fisheries management and similar concerns rather than focusing specifically on fisheries management. It was only during its last two years of implementation that the Project began assisting the focal area LGUs in developing a framework plan for fisheries management that included a fisheries use zoning plan.

The decision to put fisheries-focused planning on hold was made based on the results of an ecosystem modeling workshop that was conducted early in Project implementation. Through this workshop, the Project attempted to engage stakeholders in determining the most appropriate fishing gear and effort configuration under current resource conditions. Information from a rapid appraisal conducted in 2004 and the base assessments were used to develop the ecosystem model, a simulation of various scenarios from which stakeholders could agree on one scenario that they regarded as the most appropriate for their situation and management objectives.

The ecosystem modeling exercise was undertaken to gauge stakeholder acceptance of a managed fishing regime where effort would be controlled and allocated among legitimate users. Decisions made at the workshop would have served as a basis for establishing sustainable levels of fishing in Danajon Bank. In the end, however, such intervention was deemed premature, because the workshop participants indicated they were less concerned about regulating lawful fishing than eliminating – or at least reducing – the still rampant illegal fishing activities happening in their fishing grounds, primarily cyanide, dynamite and commercial fishing and other fishing that used active gear.

To promote program sustainability, the Project encouraged each of the focal area LGUs to create a CFRM Technical Working Group (TWG) composed of elected local officials, municipal department heads, and representatives from government line agencies, FARMCs, POs and NGOs. Much of the Project's capacity building effort was focused on this TWG.

An important aspect of the planning process was the allocation of funds for implementation. This was usually an offshoot of the adoption by the municipal council of the CFRM plan, and the subsequent regular participation of members of the TWG in the LGU's regular budget programming. Generally, the Project encouraged the inclusion of the plan in each LGU's municipal development plan, which effectively integrated CRM into the local government system as an essential part of the governance process.

Additionally, the Project promoted local investment in CRM by inviting the LGUs and other partners to contribute financially to the capacity-building effort. In Bohol as well as in the Leyte provinces, the LGUs always paid for the daily remuneration and allowances of their representatives to various FISH trainings and meetings.

Establishment and strengthening of MPAs. A major strategy identified in practically all of the LGUs' CFRM plans was the protection of vital fish habitats, most often coral reefs. Most of the LGUs in Danajon Bank – including those in the expansion areas – were no strangers to the establishment of MPAs. Several MPAs already existed in the area even before FISH came in. Of the 24 MPAs

Bilangbilangan East Marine Sanctuary, Bien Unido, Bohol (Photo: J Unson, 2006)

in Bohol assisted by the Project, at least 15 were established before 2004. However, at the beginning of Project implementation in 2004, most of them were not being fully enforced (if at all), and so had to be reactivated and their management strengthened.

As with nearly everything else, the Project engaged local partners in the MPA planning process. Stakeholder participation was sought from the selection of MPA sites through planning all the way to the management and maintenance of the MPAs. For each MPA, the Project organized and trained a management board composed of community members who monitored MPA activities and made decisions about its management, and a special team that enforced MPA rules. Project assistance was also provided in the packaging and adoption of the management plan of each MPA, which was eventually incorporated in the municipal development plan.

A special activities fund (SAF) that FISH set up helped to purchase construction materials to build MPA guardhouses, patrol boats and monitoring and communication equipment, while participating communities contributed labor and other material support. The highly participatory process used engendered among members of each community a sense of ownership, pride and responsibility over the MPA they were tasked to manage and motivated their continued involvement in its management.

The availability of the SAF for MPA management also encouraged the participation of organizations that were not traditionally involved in environmental projects. Notable among these was the Talibon Credit Cooperative (TALCRECO), which used to focus mainly on micro-financing for livelihood development. Their participation, undertaken as part of their corporate social responsibility program, was their first exposure to administering a natural resource management project.

In 2006, hydrodynamic and larval dispersal studies commissioned by FISH were completed and provided new information on current and larval distribution patterns and potential ecological interactions in the focal areas. Based on these studies, the Project identified the 13 MPAs in the 4 focal area municipalities that would form part of a Danajon MPA network. Three of the 13 were new MPAs that the Project helped to establish. Beginning 2006, these MPAs, along with 3 others that were established earlier, were monitored every 2 years by a team from the University of the Philippines in the Visayas Foundation, Inc. (UPVFI) for changes in live hard coral cover, species richness, fish biomass and other parameters.

In the expansion areas, the Project assisted the establishment of 7 new MPAs in Bohol – 6 in Tubigon and 1 in Buenavista – and the strengthening of several existing MPAs in the Leyte provinces. In Tubigon and Buenavista, assistance was limited to underwater assessment, planning, and plan preparation, while in Leyte and Southern Leyte, the Project focused on improving local capacity to manage existing MPAs by developing LGU skills in PCRA and linking LGUs with the nearest source of expertise, in this case, the Visayan State University (VSU)-Marine Laboratory, which regularly monitored the MPAs in Baybay, Leyte as part of its outreach program. With encouragement from FISH, VSU expanded its outreach to include other MPAs in nearby towns.

Development of environment-friendly alternative livelihoods. Livelihood development was identified as a FISH objective under the SAF facility, but no livelihood development proponent passed the Project's screening criteria (proponents must be POs or NGOs – i.e., non-government – with a track record in managing environment-friendly livelihood projects). To fill the funding gap, the Project encouraged NGAs with a livelihood development mandate to direct some of their programs into the focal area LGUs. Consequently, DA-BFAR assisted the Talibon LGU in piloting a *bangus* (milkfish, *Chanus chanus*) production project that incorporated coastal tourism development and the protection of nearby mangrove, reef and seagrass habitats.


Sea-borne patrol, Talibon, Bohol (Photo: J Unson, 2006)

Fishery law enforcement. Illegal fishing was one of the first fishery issues that the Project attempted to address in all its sites. This was accomplished primarily through the creation and training of municipal coastal law enforcement teams (MCLETs) and special enforcement teams (SET) at the *barangay* level. At the minimum, each MCLET was composed of a navigator, investigator, fish examiner, police environment desk officer, GPS specialist, documenter, fishery technician and pollution officer. SETs were generally composed of community members and at least 1 member of the police.

The first major intervention undertaken by the Project was the formation of enforcement teams. This was required because the enforcement teams would be the main focus of skills and capacity building. Training was conducted as soon as the teams were organized and it continued throughout the Project in several stages, from the basic enforcement course to enhancement and specialization courses fitted to the peculiar needs of individual sites. The basic course covered fisheries and maritime law enforcement topics and legal and tactical approaches to site-specific violations. Enhancement training focused on the enforcement of site-specific ordinances covering such measures as temporal and spatial restrictions (including MPAs), registration and licensing, navigation, investigation and report writing, while specialization courses consisted mainly of the standard fish examiner's training course offered by DA-BFAR but also included plotting and chart work, media relations, and trainers' training.

The Project helped organize special operations such as "Operation Oceanic Storm" designed primarily to enhance deterrence through systematic monitoring and surveillance of municipal waters. Members of special operation teams came from the different enforcement agencies like the Philippine National Police (PNP), Philippine Army, Philippine Navy, PNP-Maritime Group, Coast Guard and the LGUs.

Community-based enforcement team, Bilang-bilangan East, Bien Unido,Bohol

As fishery law enforcement in the FISH focal areas gained ground, violators reportedly started moving to low enforcement environments both within and outside Danajon. Outside the Bank, some LGUs in southeastern Bohol reported the presence in their municipal waters of Danish seine boats and dynamite fishers who were suspected to come from the FISH focal sites of Talibon, Bien Unido and Ubay. Within Danajon, the transfer threat was reported in Leyte.

The Project sought to address the transfer threat within its target site by expanding to Leyte and Southern Leyte, which also turned out to be the home port of some violators that persisted on operating in the focal area. Like it did in Bohol, the Project focused on the institutionalization of the MCLET in each of its expansion area LGUs using a combination of training, constituency-building and policy development strategies. Complementing this, several LGU personnel from Leyte and Southern Leyte attended DA-BFAR's training program for fish examiners.

The difficulty of pursuing fishery cases in court was a common complaint in the Project sites, one that some LGUs chose to deal with using local ordinances to negotiate "out-of-court settlements" that were quite often not legally defensible. One important policy work that sought to directly address this was a study on the establishment of a municipal or city adjudication board to hear and resolve administrative cases involving violations of fishery laws in municipal waters.

Through the SAF, the Project subcontracted to the Environmental Legal Assistance Center (ELAC) a study to determine the constraints LGUs faced in administering fishery cases, examine their existing policies and practices in dealing with such cases, and devise local government administrative adjudication systems or models that are participatory and transparent, engender a sense of accountability among adjudicators and consider both practicality and due process. Based on this study, the Project developed a fisheries adjudication training course for LGUs interested in establishing their own administrative adjudication boards. Additionally, to promote better understanding of the special requirements of administering fishery cases, it organized a seminar for lawyers and judges and followed it up with several forums on issues related to the prosecution of fishery offenses.

IEC was a key module in coastal law enforcement training courses, particularly in the aspects of prevention and detection in the law enforcement continuum. It covered relevant skills and methods that coastal law enforcers could use to "sell the law" and promote compliance, emphasizing the role of enforcers as "public educators" who could help create community perception that illegal fishing, especially cyanide and dynamite fishing, are highly undesirable and unacceptable behaviors.

IEC, in fact, was a major part of nearly all of the Project's activities. As well as helping its partners gain competencies in the various aspects of CRM, the Project conducted many advocacy activities to promote good fishing practices and expand the support base for sustainable fisheries both within the fishing sector and the wider community.

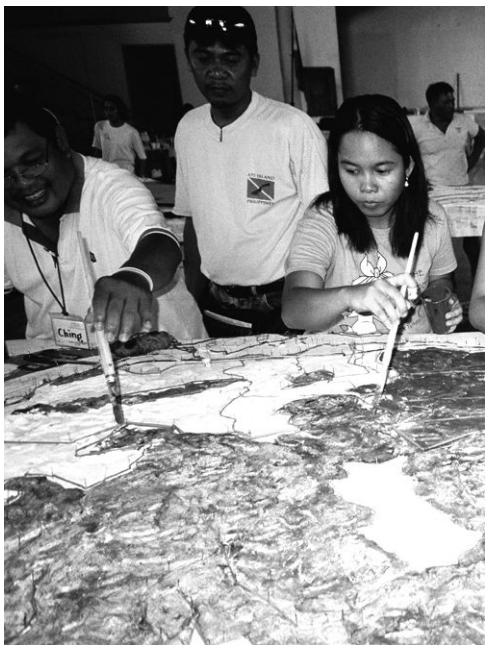
Building multi-sectoral support for sustainable fisheries. In Danajon, in addition to the LGUs and fishing communities, the Project engaged NGAs, schools, health workers, businesses and the religious sector to build an active constituency for CRM. Among the Project's early interventions were reproductive health (RH) information and services, which involved the participation of health workers and community organizers. This RH component was implemented in 2 villages in Talibon, Bohol, where the Project (through PATH Foundation) directly assisted in the preparation of development plans that linked reproductive health objectives to CRM issues and trained community-based "peer educators" to promote awareness on the population-environment connection -- or specifically in this case, the population-overfishing connection.

Through IEC, the Project tried to reach out to illegal fishers (both commercial and small-scale) using innovative non-confrontational ways to deliver its messages on responsible fishing and cultivate the social value that illegal fishing is an undesirable behavior from both the individual fisher's point of view and the collective view of society. Working with the Department of Education (DepEd), the Project organized several mural painting activities across the Danajon focal area municipalities to drum up students' interest in coastal and fishery issues.

DepEd, along with the San Jose National High School, was also a key partner in another school-based IEC program that the Project developed for Talibon with the help of a local art teacher. Using theater as a medium to communicate important lessons in coastal resource use and management, this program targeted out-of-school youth and students of a high school on Calituban Island, which is known around Danajon as a blast fishers' haven. Participants successfully staged multiple presentations of a one-act play depicting life on their island and the high cost of illegal fishing to environment and society.

Yet another major IEC activity that FISH staged in Talibon was the development of an interpretive center that highlighted Danajon Bank's fishery and coastal resources. This was preceded by a Project-sponsored visit to the Masbate City CRM Interpretive Center (the first such facility run by the LGU) that acquainted the Talibon TWG with the objectives and operation of an environmental interpretive center. The TWG came back from that visit determined for Talibon to have its own interpretive center. Subsequently the LGU invested Php1 million to renovate one of its buildings for the purpose.

The development of the center was made as participatory as possible, with concerned LGU staff and a number of direct fishery stakeholders involved in building the story of the center's permanent exhibit. The centerpiece exhibit, a 3 m by 6 m relief map of Danajon Bank, was produced in a 7-day workshop that included not only long-time



Participatory 3D mapping, Talibon, Bohol (Photo: A Sia, 2006)

residents of coastal communities but also those from the upland watershed areas of Ipil and Inabanga upstream of the Bank.

Bien Unido, meanwhile, was the main focus of several IEC campaigns, largely because of the presence there of a particularly recalcitrant group of trawl fishers. These fishers knew that trawling was illegal -- quite understandably they refused to attend training and IEC activities and indeed were openly hostile to any overtures of engagement or participation. Moreover they belonged to fiercely protective island communities where nearly everyone was a trawler, or was related to one.

In order to reach out to these fishers, the Project organized simultaneous IEC activities and medical missions involving the Philippine Navy and PNP, which provided doctors who offered medical services and worked alongside resource persons from FISH, BFAR and the LGU who talked about the importance of protecting fishery resources. On another occasion, the Project engaged select members of the Catholic clergy who initiated "ecological evangelization" activities aimed at conveying the message that illegal fishing is immoral in the eyes of the church. Bohol's two dioceses -- Tagbilaran and Talibon – and priests belonging to the San Jose Recoletos of Cebu and Augustinian Province of Sto. Niño de Cebu helped organize the ecological evangelization mission, which also included a medical team from the Philippine Navy, Bohol Provincial Health Office and Bien Unido Municipal Health Office.

To avoid any perception that the illegal fishers were being "rewarded," the medical team also visited island communities who were known for their good fishing practices and contribution to CRM.

In the expansion areas, constituency building was the Project's mode of technical assistance delivery from the outset. The Project had very limited funding for its expansion activities; by leveraging support from other groups already working in its target sites, it was able to aim for more breadth and depth in the implementation of management interventions. In Leyte and Southern Leyte, for example, the VSU, Save Ormoc Bay Aggrupation (SOBA), Integrated Municipal Fisheries and Aquatic Resources Council (IMFARMC) and German Society for Technical Cooperation (GTZ, or Deutsche Gesellschaft für Technische Zusammenarbeit) served as the Project's multipliers and "extenders" of technical assistance. In particular, the Project pursued a close collaborative partnership with the VSU and IMFARMC as possible institutional homes of its training and advocacy programs.

Fishing effort restrictions. To address overfishing, the Project encouraged the adoption of relevant effort restriction measures to stop the decline of certain species. As a

first step in Danajon Bank, it reviewed existing fishing effort ordinances for enforcement and compliance. Talibon enacted in 1998 an ordinance regulating the harvesting of gravid siganids, while Bien Unido had a closed season ordinance for siganids since 2002. If at all, these ordinances were never consistently implemented because of a lack of clear implementation guidelines and mechanisms.

There were also strong doubts among stakeholders that the regulations could be implemented in a fair manner. During consultations on the closed season for siganid fisheries, stakeholders showed they understood the benefits of management, collectively agreed on the actions and policies that needed to be taken, and vowed to comply and take part in enforcement, with one caveat: The closed season must be fair to all and not allow certain sectors or individuals to benefit more than the others, or they would refuse to comply.

To help allay their concerns, the Project invited a group of LGU officials and community leaders from all 4 focal area municipalities to visit Palompon, Leyte to observe that municipality's *Bantay Danggit,* a program that had successfully engaged villagers in the enforcement of periodic closed seasons for siganids. This visit provided the impetus for local officials and stakeholders to support a similar closed season in their municipalities. With the Project's help, the LGUs adopted new ordinances or amendments to existing ordinances and devised the implementation guidelines needed for the enforcement of a siganid management scheme that was essentially focused on closed seasons based on the lunar cycle, which influences the spawning cycles of many fish species, including siganids.

Heeding the Project's advice, Talibon also adopted an ordinance to manage the collection of blue crabs, primarily through mesh size regulation. In addition, all LGUs enacted a municipal fisheries ordinance patterned mostly after the 1998 Philippine Fisheries Code that set the basic premise, rules, regulations and guidelines for managing local fisheries. As a first step toward managing fishing effort, all 4 focal area LGUs, as well as the expansion LGUs in Southern Leyte and Leyte, adopted the necessary ordinance to officially establish a fishery registration and licensing system based on guidelines that FISH helped to formulate.

Fishery registration and licensing. The Project supported the institutionalization of fishery registration and licensing by providing the LGUs with skills training focused on fisheries database management, fishing vessel admeasurement, and the process of registering and licensing municipal fishers and their vessels and gear. This was part of the effort of the Project to pilot Executive Order (EO) No. 305 series of 2004 which devolved the registration of municipal fishing vessels to LGUs. EO 305 was advocated by the National Anti-Poverty Commission's Fisherfolk Sectoral Council and the League of Municipalities of the Philippines to facilitate the registration of municipal fishing vessels.

At the end of the 4th quarter of 2009, registration was still ongoing in all focal area LGUs with about 58% of fishers in the focal area registered. But there had been no attempt to use registration information to guide fisheries management planning and decision-making. This was a capacity gap that FISH was not able to fully address because

of initial difficulties that delayed the registration process. The non-compliance of fishers, in particular, was a major hurdle that most LGUs had to overcome. In Bien Unido, the LGU had to launch a village-to-village campaign to get the registration moving. The other focal area LGUs inspected boats and fishing gear and confiscated those that were not registered; habitual offenders were charged with violation of a local ordinance.

Fishery registration, Talibon, Bohol (Photo: J Unson, 2006)

The registration of fishers and their boats and gear was also underway in the expansion areas. In Leyte, the LGUs adopted a unified fisher and boat registration scheme through the IMFARMC. Data management was facilitated by the use of a tool called "FishReg" that FISH developed. FishReg is a computer application that allows easy storage, organization and retrieval of fisheries registration and licensing data as well as other data that DA-BFAR traditionally collects and additional information relevant to fisheries management.

Fisheries use zoning. One major strategy that the Project pursued to rationalize resource use and manage existing and potential use conflicts in Danajon was to divide the area into several zones based on the most appropriate use of the resources. Zoning mostly involved marine spatial planning (MSP) focused on fisheries resource use within defined ecosystems shared by the different LGUs in the focal areas to determine and evaluate the interactions among the various uses, identify multiple uses and resolve any existing or potential conflicts through proper allocation of space.

The planning exercise provided an opportunity for the LGUs and other stakeholders to define the overall objectives for each management area, for example, conservation, protection of spawning areas, maintenance and sustainability of traditional harvest practices, promotion of sustainable tourism, etc. It consisted largely of a series of consultation meetings with key stakeholders in Danajon Bank, including the different LGUs represented by their municipal agriculturists, municipal planning and development coordinators, and members of the *Sangguniang Bayan* or SB (usually the chairs of the committees on laws and fisheries and environment), as well as fishers' representatives.

FISH promoted fisheries use zoning around the 3rd or 4th year of its 7-year implementation period, but issues related to the delineation of municipal waters dragged out the process well into its last 2 years of implementation. In Danajon Bank, boundary disputes involving Talibon and Bien Unido were not resolved. To get around this, the Project persuaded concerned LGUs to set aside the debate about who had jurisdiction over the disputed areas (or pursue it in other forums) and focus instead on the fisheries

resource uses they shared with neighboring municipalities. This allowed FISH to begin the zoning exercise in the last two years of Project implementation.

Support from the National Mapping and Resource Information Authority (NAMRIA), DENR and DA-BFAR allowed FISH to expand the delineation exercise to other LGUs in Danajon Bank, including Tubigon, Clarin, Inabanga, Buenavista and Getafe in Bohol, and its expansion sites in Leyte and Southern Leyte. This resulted in the adoption by Tubigon, Clarin, Inabanga and Buenavista of their respective municipal waters technical descriptions.

Inter-LGU collaboration. From the implementation perspective, the biggest challenge in managing fisheries in the Philippines is that fishing activities here are traditionally quite diffuse with very few limits to their movement. Delineation and zoning help define jurisdictional boundaries and the spatial limits of specific resource uses, but they can only truly work where there is a strong collaboration among stakeholders and regulators across the different zones and boundaries. In Danajon Bank where resources are shared across multiple jurisdictional and ecological boundaries, collaboration is even more crucial.

Collaborative arrangements were initiated first in the Bohol focal area LGUs, primarily through the multi-level composite team called "CLEC-2" (Coastal Law Enforcement Council of Bohol's 2nd congressional district) composed of mayors, vice mayors, chairs of the SB fisheries committee, FARMC chairs, fish warden leaders, NGOs, BEMO, PNP, Philippine Coast Guard, DENR, DA-BFAR, PNP-Maritime Group and DILG. The CLEC was created (one for each of Bohol's 3 congressional districts) to provide a venue for LGUs to discuss and address trans-boundary issues related to coastal law enforcement.

As the expansion area LGUs came on board, the collaborative arrangements were expanded. In Leyte, collaboration was undertaken primarily through the IMFARMC; at the close of the Project in 2010, the LGUs were discussing plans to include Maasin City in the Council to allow the LGUs to pursue seamless law enforcement operations across their borders. Meanwhile, the Project assisted the creation of the Bohol Local Government Unit Big Brother Teams (LUBB Teams), a consortium of the Bohol-Leyte municipal enforcement units. An alliance of the different MCLETS from Bohol, Leyte and Southern Leyte participated in a joint operation called Operation *Sandagat* that allowed them to work together in a practical setting alongside the Philippine Navy.

The Project also supported the strengthening of the Coastal Law Enforcement Alliance in Region 7 (CLEAR7) and Bohol's CLEC-1 and CLEC-3 as partners and service providers of the Danajon Bank alliances.

Part of the mandate of the project was to attempt to lay the foundation for an inter-LGU collaboration mechanism that could in the future be a venue for ecosystem approach to fisheries (EAF). Toward this end, the Project facilitated the issuance of EO 13-2005 by the Provincial Governor of Bohol, which created the TWG on inter-LGU fisheries management that would assist in the preparation of an inter-LGU fisheries management plan for Danajon Bank.

The Project also participated in consultations related to an initiative of the Provincial Government of Bohol to take inter-LGU collaboration to a higher level through the planned creation of an inter-provincial management body for Danajon Bank called CELEBOSOLE, an acronym derived from the first two letters of the four provinces bordering Danajon Bank (Cebu, Leyte, Bohol and Southern Leyte). However, FISH support for this initiative was limited to providing advice when requested, because the Project had to focus its resources on capacity building at the municipal and community levels.

Results & Impacts

The Project recorded the following institutional gains in the Danajon Bank focal areas (FISH Project, 2009):

- All 4 Danajon Bank focal area LGUs adopted fishery registration and licensing and implemented a coding system for municipal fishing boats;
- Law enforcement units, prosecutors, and judiciary trained and/or assisted in fisheries law enforcement in all 4 focal area LGUs and 13 expansion area LGUs;
- 6 effort restrictions introduced (2 for Bien Unido, 2 for President Carlos P. Garcia, 2 for Talibon, 2 for Ubay);
- 24 existing and new MPAs assisted, 5 of them functional (3 in Bien Unido, 1 in President Carlos P. Garcia, 1 in Talibon);
- CRM adopted in all 4 focal area LGUs;
- 1 inter-LGU agreement adopted; and
- Reproductive health information and services linking population growth to environmental degradation delivered to 12 villages in Talibon.

In addition, the Project's interventions in its expansion areas in Bohol (Trinidad, Tubigon, Clarin, Inabanga, Buenavista and Getafe), Leyte (Baybay City, Inopacan, Bato, Hilongos, Hindang and Matalom) and Southern Leyte (Maasin City), resulted in significant improvements in the LGUs' capacity particularly in CRM planning, law enforcement, IEC and MPAs. Indeed, of the many interventions introduced by FISH in Danajon Bank, coastal law enforcement, MPAs, CRM planning and IECs were evidently the most deeply institutionalized in the local governance system – these were the areas where LGU personnel were most confident of competently performing.

Coastal Enforcement and Protection Office, Ubay, Bohol

Based on a scoring system devised by FISH for a capacity review of Project-assisted LGUs, the 16 LGUs in Danajon Bank scored about 67% in terms of their capacity to coordinate 10 basic CRM functions, and 66% on implementing these functions. Reflective of the Project's longer presence there, the Bohol LGUs

scored higher than their counterparts in Leyte and Southern Leyte (Table 3). Furthermore, the Bohol LGUs scored 80% on understanding the mandate of the designated CRM offices as the primary implementor and coordinator of CRM, compared to the LGUs in the other sites that scored less than 50%. In coastal law enforcement, the Coastal Enforcement Protection Unit (CEPU) of Ubay, Bohol demonstrated the highest level of competence, with members of the team often serving as resource persons for basic enforcement trainings and operations planning workshops within and outside the FISH sites.

Table 3. Capacity scores of LGUs in FISH Project sites relative to coordinating and implementing 10 basic CRM functions based on a capacity review conducted by the Project in 2009

Site	# of LGUs assisted	Capacity score	
		CRM coordination	CRM implementation
Bohol	**9**	**84%**	**89%**
Leyte/ Southern Leyte	**7**	**49%**	**42%**
TOTAL	**16**	**66.50%**	**65.50%**

Table 4. LGU budget allocations for CRM in Danajon Bank (2004-2009)

Focal/Target/ Expansion Area Municipality	LGU CFRM Budget from the Annual Investment Plan*						
	2004	2005	2006	2007	*2008*	*2009*	*2010*
Bohol							
Bien Unido			966,000	510,000	150,000	537,000	537,000
Carlos P. Garcia		100,000	563,377	810,500	1,700,000	765,000	765,000
Talibon	787,000	787,000	2,091,200	2,368,200	2,191,200	3,325,482	2,714,927
Ubay		100,000	950,000	400,000	1,000,000	2,340,000	2,340,000
Trinidad					100,000	100,000	110,000
Getafe					3,500,000	300,000	300,000
Buenavista					150,000	400,000	150,000
Inabanga					500,000	1,000,000	1,220,000
Clarin					200,000	200,000	200,000
Tubigon					1,500,000	3,000,000	1,500,000
LEYTE							
Bato					220,000	220,000	220,000
Baybay					500,000	500,000	500,000
Hilongos					100,000	100,000	100,000
Hindang					110,000	110,000	110,000
Inopacan					72,276	72,827	100,000
Matalom					100,000	300,000	300,000
SOUTHERN LEYTE							
Maasin City					1,000,000	1,000,000	1,000,000
TOTAL: Focal Area	**787,000**	**987,000**	**4,570,577**	**4,088,700**	**5,041,200**	**6,967,482**	**6,356,927**
TOTAL: Expansion Area					**8,052,276**	**7,302,827**	**5,810,000**

*As reported by each LGU in the FISH Project Performance Monitoring Data Form.

As expected, coastal law enforcement, MPAs, CRM planning and IEC were the activities that the LGUs were most heavily invested in. Combined, the total budget for CRM and CRM-related activities in the 4 focal area LGUs increased by more than 780% from Php787,000 at the start of FISH in 2004 to almost Php7 million in 2009, but fell to about Php6.3 million in 2010. In 2004, only Talibon had a budget for CRM; in 2009, all focal area LGUs had a CRM budget, ranging from Php537,000 for Bien Unido to Php3,325,482 for Talibon. Talibon's 2010 budget went down by 18% compared to 2009, accounting for the overall decrease in CRM allocations in the focal area in the last year of Project implementation. (Table 4)

Beginning 2008, the Project also tracked CRM investments in its 13 expansion LGUs, which started out strong in 2008 at almost Php620,000 per LGU but dropped to about Php445,000 per LGU in 2010, largely because of a significant decrease in the CRM budget of the municipality of Buenavista. (Table 4) This marked decrease in Buenavista's CRM budget, which was limited to begin with, raises concern about that LGU's commitment to sustaining its CRM program. Even so, the gains achieved across the Project's focal and expansion areas might have already created an impetus for fisheries reform that would be difficult for any political leader to completely ignore.

Planning for the Long Term
Talibon LGU adopts institutional remedies to reverse fisheries decline

The late Nestor Cruda (right) managed Talibon's environment office until his untimely passing in 2009. Fisheries officer Geoffrey Villamir (left) is now the head-designate of the office (Photo: A. Sia, 2008)

When Nestor Cruda was designated head of the proposed environment and natural resources office of Talibon, he had high hopes that the CRM program that his municipal government was implementing with help from the FISH Project would be sustained. After 25 years in government, he had seen many externally funded projects come and go, but he believed this time things were different.

"What we did in the past was simply to go along with what the projects were doing. We had no budget earmarked specifically for the programs, we had no long-term plan to implement specifically those programs, and we did not have the right systems in place to run those programs," Cruda told FISH in an interview in 2008.

"Now, with FISH, we created an office tasked with CRM, and assigned people to focus on coastal and fisheries concerns," he said. "We have a plan, we have ordinances, and we have a regular budget to implement the program."

The Talibon LGU responded to FISH's call to begin the institutionalization process initially by organizing a coastal law enforcement team, and subsequently by instituting systemic reforms aimed at enabling itself to remedy the decline of local fisheries as well as other CRM issues.

"We've been at this for 5 years, and we're happy with the results," said Cruda. "Even fishers who used to resist our anti-illegal fishing drive are now willingly helping us enforce the law. They come to our office to register and get their fishing licenses, and they happily pay all the fees. They think it's worth it, now that fish stocks have improved and they're catching more fish. Institutionally, we are taking important steps to equip ourselves so we can manage our coastal resources for the long haul. If we stay on track, this is one program we can and will sustain." *(Sia, 2008)*

Within the bureaucracy, the Project not only trained new CRM managers, but also developed and nurtured advocates and champions of sustainable and responsible

fisheries. The Project also built a constituency for sustainable fisheries outside government, even in the non-fishing sectors. A notable example was the SAF grantee TALCRECO – buoyed by their meaningful involvement in assisting several MPAs in Talibon, the cooperative vowed to continue their advocacy work for CRM and even adopted marine conservation as a part of their organizational mission.

Stricter fishery law enforcement, IEC and the emerging benefits from habitat protection and effort restrictions all contributed to bring about small but nonetheless already discernible changes in resource conditions in Danajon Bank, particularly around the MPAs. Based on the results of the 2008 MPA monitoring activity (Table 5), protection appeared to have generated overall positive biophysical changes, but the results were mixed across the different MPAs and showed a "lack of any clear pattern," indicating not only "high variation in abundances in reef assemblages," but also that protective management might not yet have a significant impact on the reef habitats and their assemblages. (UPVFI, 2009)

Table 5. Percentage changes in biophysical conditions in 6 FISH-assisted MPAs monitored in 2006 to 2008 (UPVFI, 2009)

MPA	Area (hectares)	Percentage change from 2006 to 2008									
		LIVE HARD CORAL COVER		SPECIES RICHNESS		BIOMASS		No. of INDICATOR SPECIES		FISH ABUNDANCE	
		Inside	Outside	Inside	Outside	Inside	Outside	Inside	Outside	Inside	Outside
Bilangbilangan E.	44.80	-11.45%	-26.12%	10.48%	18.61%	25.97%	-35.94%	-18.67%	-42.50%	49.85%	9.45%
Bantigue	18.90	1.74%	15.09%	1.95%	5.71%	14.04%	46.43%	12.14%	33.06%	-23.54%	-10.33%
Hingotanan W.	72.00	-3.04%	-16.46%	-4.28%	-4.59%	91.72%	2,066.15%*	-56.11%	50.00%	-15.16%	-38.13%
Cataban	20.00	-14.21%	2.29%	6.32%	-18.79%	-10.29%	-21.74%	22.95%	33.33%	-28.64%	-10.91%
Pinamgo	37.80	30.92%	-15.00%	9.77%	-17.21%	20.00%	-16.67%	13.33%	-76.32%	-45.84%	130.45%
Sag	33.50	-8.61%	-17.29%	27.33%	-22.04%	138.78%	-11.63%	-36.23%	-43.48%	139.44%	-16.07%
Average	**37.83**	**-0.78%**	**-9.58%**	**8.60%**	**-6.38%**	**46.70%**	**337.77%**	0.01%	-14.41%	**10.83%**	**17.24%**

**This unusually high increase in biomass recorded in Hingotanan was due to occurrences during the survey of schools of barracuda at 2 stations outside and 1 station inside the MPA. If the barracuda were excluded, fish biomass in this MPA would actually show a decrease of more than 45% from that recorded in 2006, which would lower the overall average percentage change in biomass inside all MPAs to about 24% and that outside the MPA to (-14%), as shown in Table 6.*

Table 6. Percentage change in biomass (excluding barracuda) inside and outside 6 FISH-assisted MPAs monitored in 2006 to 2008 (UPVFI, 2009)

MPA	% change 2006-08	
	Inside	Outside
Bilangbilangan E.	25.97%	-35.94%
Bantigue	14.04%	46.43%
Hingotanan W.	-45.86%	-46.62%
Cataban	-10.29%	-21.74%
Pinamgo	20.00%	-16.67%
Sag	138.78%	-11.63%
Average	23.77%	-14.36%

Table 7. Average percentage change in biophysical conditions inside and outside 6 FISH-assisted MPAs monitored in 2006 to 2008 (UPVFI, 2009)

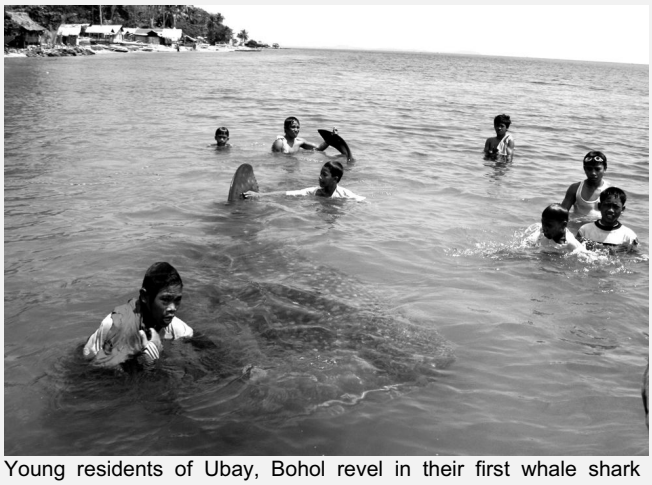
INDICATOR	% change 2006-08	
	Inside	Outside
Live Hard Coral Cover	**-0.78%**	**-9.58%**
Species Richness	**8.60%**	**-6.38%**
Biomass*	23.77%	-14.36%
Number of Indicator Species	0.01%	-14.41%
Fish Abundance	**10.83%**	**17.24%**

*Average biomass taken from Table 6, which does not include the schools of barracuda observed in Hingotanan West during the survey.

One site (Hingotanan) recorded an unusually high increase in biomass because of occurrences during the survey of schools of barracuda. As shown in Table 6, if the barracuda were excluded, fish biomass in this site would have actually shown a decrease of more than 45% from that recorded in 2006, which would lower the average percentage change in biomass inside the MPAs to about 24%, and bring the average percentage change in biomass outside the MPAs to (-14%). (UPVFI, 2009)

The barracuda were counted in the total biomass because "they are major predators on reefs and should be considered as integral members of reefs." (UPVFI, 2009) In fact, their presence could be taken as a sign of the beginning of resource recovery, small in relative terms but encouraging nonetheless given how highly degraded the reefs in Danajon Bank were to begin with. Discounting the barracuda, the MPA monitoring results might not have revealed dramatic changes in the reef habitats and their assemblages, but taken together (Table 7) they still pointed out the relatively better biophysical conditions inside the MPAs (no-take zones) and more importantly, the critical, continuing need to sustain management.

Rare Whale Shark Sighting at Ubay
Residents report first whale shark sighting in 80 years



Young residents of Ubay, Bohol revel in their first whale shark encounter.

In the early hours of September 16, 2009, Eustaquio Amolat was out fishing in his small boat when his net caught a very large fish. Sensing it was impossible to lift the catch out of the water by himself, he towed his net to shallower waters and waited for daybreak to have a clearer view of the fish. To his astonishment, he discovered he had caught a whale shark, which until then he had only seen in pictures.

Estimated to be 500 kg and 22 feet from head to tail, the whale shark was caught in the waters of Ubay town in Bohol, and released 9 hours later in the presence of local officials.

This was the first known whale shark encounter in the area in 80 years, Alpios Delima, Ubay's CRM coordinator, told FISH shortly after the incident.

Last July 2009, a Hawksbill turtle was also caught here; it was subsequently released after tagging. *(Guidote, 2009)*

To a certain extent, the results of the MPA surveys reflected the state of management of the individual MPAs and the threats they continued to face. Only two of the MPAs – Hingotanan West and Cataban – were managed by the community; the rest were protected by one *barangay tanod* (village watchman) assigned to each MPA, who received allowances from the government. The level of protection therefore varied across the MPAs with each *tanod*'s level of competence and dedication to his job. All *tanod*s claimed they were constantly guarding the MPAs, but also admitted that they were unable to fully control poaching, especially at night, by possibly armed persons. Cyanide fishing was reported to be the most common violation inside and around the MPAs.

On the other hand, community engagement could also not guarantee full protection of an MPA. The Cataban Marine Sanctuary had one of the most active and best organized management councils in Danajon Bank, but it showed a decline in live hard

coral cover, biomass and fish abundance from 2006 to 2008. Interviews with community volunteer guards in 2009 revealed that the MPA had become a target of poaching by cyanide fishers, allegedly from the nearby island of Nocnocan. Despite their best efforts, the community was unable to stop poachers who entered the MPA at night, when it was left unguarded (reports that the poachers were armed deterred volunteers from keeping watch on the MPA after dark). The community requested police presence around the MPA especially at night, but citing lack of personnel, the municipal LGU said they could only respond to specific cases of violation. Eventually, the community's persistence in guarding their MPA paid off -- more recent reports (2010) from the site suggested that poaching had been significantly reduced because of increased volunteer presence in the area.

Notwithstanding the setbacks, one of the most lasting impacts of the Project's interventions in Danajon Bank – at least in Cataban, Hingotanan West and the few other villages where meaningful community engagement in resource protection actually happened -- was on the community stakeholders' perception of their role as custodians of the resource and their ability to protect it, or if need be, turn to their partner organizations for assistance. In the long run, this new-found sense of self-efficacy among stakeholders, combined with their development partners' new perspective on their role as service providers to the fishing communities, could be more important than the measurable biophysical results that were achieved in the last 7 years.

What was encouraging in the FISH experience was the emergence of a new ethic on fishing in its sites, especially among some individuals in both government and the fishing communities that directly participated in the capacity-building effort. There was, for example, a perceptible change of outlook among some of those who have been through at least one of the Project's many law enforcement trainings and IEC activities. In the past, even law enforcers sometimes tended to dismiss illegal fishing as a minor misdemeanor or breach of law that harmed nobody, or an "act of necessity" when committed by marginal fishers that just got by with their meager income from fishing. Through their participation in FISH activities, they claimed to understand the dangerous and far-reaching consequences of illegal fishing. Some even went farther and said that in fact every act of "bad fishing" was a serious offense, even when there was nothing in the law that said it was, because it had serious immediate and long-term impacts not only on fishers' incomes and livelihoods but also on the overall present and future well-being of coastal communities and the entire nation.

Cataban MPA, Talibon, Bohol (Photo: J Unson, 2006)

Beyond the Call
Soil technologist finds a rewarding career as a fish examiner

As a fish examiner, DA-BFAR's Roselle Hilot (right) responds 24/7 to the call of duty. (Photo: A. Sia, 2008)

Early in her career, Roselle Hilot, who trained as a soil technologist, chose to work with the DA-BFAR, "mainly because the office was only a short distance from my house." Since then, however, she has been totally "fisherized," as she puts it. "The job is demanding, but it's satisfying, especially now that all our hard work has begun to benefit the small fishers."

As a fish examiner, Hilot assists several towns in Bohol, Philippines. Since participating in several trainings organized by the FISH Project, she has been closely involved in coastal law enforcement in Danajon Bank, and even joins sea patrols.

What she learned cemented her commitment to the enforcement effort. "The coastal law enforcers' job is difficult and risky," she told FISH in 2008. "The least I can do is support them. When they call, I must respond, 24/7."

The program's success in controlling illegal fishing has become psychologically rewarding to law enforcers. "In the past, coastal law enforcers were openly called 'sneak patrols,'" Hilot said. "Not anymore. For many people, but especially for the small fishers, they have become real sea guardians doing a good job for the community." *(Sia, 2008)*

During the Project's term, BEMO was named to the Hall of Fame of the Galing Pook Award for its coastal law enforcement program. This earned for the province major recognition as a study destination for other LGUs and organizations looking to learn about CRM. Visits by study tour groups from across the country and overseas gave affirmation to those involved in the effort to promote sustainable fisheries that they were doing something right. Even media came to visit, including the *Voyage to the Future,* an international educational project of the Asia-Pacific Broadcasting Union (ABU), which brings together teenagers from the ABU member-countries and territories to have them think about the future of the global environment. Talibon's interpretive center, in particular, became an important information hub for those wanting to learn about Danajon Bank – in all, the Center served nearly 5,000 visitors since it opened in 2007.

Emerging norms were further affirmed and strengthened by the participation of the church in the campaign against unsustainable fishing, which added a moral dimension to local advocacy efforts. In two island communities in Bien Unido, Bohol where the Project's partners from the Catholic clergy brought their ecological evangelization mission, some members of the illegal fishers' families later expressed "shame" and remorse for their involvement in illegal fishing. They did however insist that it would be difficult for them to shift to other livelihoods without government support. Because illegal fishing originating in these two communities caused major enforcement problems to the 4 LGUs in the Danajon focal area, all mayors concerned worked together to get the Technical Education Skills and Development Authority (TESDA) to open training opportunities not only to families of fishers who had given up their illegal fishing gear, but also to members of POs who had supported the LGU's CRM program from the outset.

The development of technical staff members was remarkable in some LGUs, and their commitment to the job appeared to grow as they gained more competence and understanding of the issues involved and what it entailed to

address them. The latter was particularly evident by the way they shared their own realizations of the value of CRM in interviews and other forums, or worked long hours performing various tasks related to coastal law enforcement or CRM, even if they were not formally educated or officially designated to do these tasks to begin with – many times, in the face of serious threats to their physical well-being. In various interviews with FISH, they professed getting a sense of accomplishment simply from hearing small fishers say that their catches were improving.

Throughout its implementation, FISH strived to create a collaborative setting to encourage LGU staff to work hand in hand with coastal law enforcers, community stakeholders and CRM advocates from different sectors to promote "good fishing" and deter illegal fishing, with commendable results in those communities that chose to cooperate. With FISH assistance, Danajon Bank's multi-level CLEC-2 became the most active among Bohol's enforcement teams at the district level. In 2009, CLEC-2 recorded 154 apprehensions and filed 106 cases in court compared to CLEC-1 with 50 apprehensions and 38 cases, and CLEC 3 with 11 apprehensions and 10 cases. Although not totally eliminated, Danish seine, trawl, and dynamite fishing in the area were considerably reduced. In the focal area, particularly, the number of Danish seines and trawls dropped 46% and 55%, respectively. Correspondingly, as indicated by an assessment conducted by the Project at the beginning of 2010, the incidence of illegal fishing decreased significantly across all 4 focal area LGUs, although law enforcers still reported a high degree of threat particularly from dynamite fishing. (Table 8)

Table 8. Degree of threat from illegal fishing activities in Danajon Bank (2010)

Location	Degree of Threats						
	Ring Net	Purse Seine	Danish Seine	Using Dynamite	Selling Dynamited Fish	Selling blasting Caps	Fine Mesh Nets
FOCAL AREA							
Talibon, Bohol	Low	Low	Low	High	Low	High	Low
Bien Unido, Bohol	Low	Low	Low	High	Medium	High	High
Ubay , Bohol	Low	Low	Medium	High	Low	Low	Medium
Carlos P Garcia, Bohol	Low	Low	Medium	High	Low	Low	Medium
EXPANSION AREA							
Matalom, Leyte	Medium	Low	Medium	High	Medium	Medium	Medium
Maasin, Southern Leyte	Low	Low	Low	Low	Medium	Low	Low
Baybay, Leyte	High	High	Low	Low	Medium	Low	Medium
Inopacan, Leyte	Medium	Medium	Low	Low	Low	Low	Medium
Hindang Leyte	High	High	Low	Low	Low	Low	High
Hilongos, Leyte	Medium	Medium	Medium	Low	Low	Low	Medium
Bato, Leyte	Low	Low	High	High	High	High	Medium

However, overall, the reduction of illegal fishing incidence did not translate to a meaningful decrease in fishing pressure on Danajon Bank. In many areas, there was an apparent shift to other illegal fishing practices that were not as strictly monitored as trawling or the use of dynamite, and might actually have been tolerated by LGUs. Or – as was evident especially in the focal area -- violators simply moved their operations from a regulated fishing ground to other areas where enforcement was lacking.

The use of fine mesh nets in impounding gear (mainly fish corrals) increased by 32% between 2004 and 2008 in Danajon Bank. In addition, the number of stationary lift nets multiplied more than five-fold from only 4 units in 2004 to 22 units 4 years later. Although a passive gear, the stationary lift net proved to be overly efficient for use in an area where major fish stocks were overfished to begin with and the competition for fishery resources quite intense. Data from Project monitoring activities indicated that stationary lift nets captured a disproportionate amount of the benefits that might have been generated by MPAs, law enforcement and other measures to protect fishery resources in the area. While CPUE were mostly down or increased only slightly for gillnets and lines (except for troll, which rose more than 150%), stationary lift nets registered a whooping increase in CPUE of about 361%, despite the substantial increase in the number of units.

Furthermore, round-haul seines were allowed to operate in municipal waters, especially in Talibon. Round-haul seines are active gear that use fine mesh nets, and therefore illegal on 2 counts. Overall in Danajon, their number nearly tripled from 13 to 34 between 2004 and 2008, with CPUE also rising by nearly 90% from 100 to about 190 during the period.

Such developments underscored the need to continuously regulate fishing effort through regular monitoring and adaptive management of the various fisheries, and this was one area that the Danajon Bank LGUs still have to address. FISH did not make much headway in instituting catch-and-effort monitoring as a regular function of the LGUs. Furthermore, while most of the CRM offices in the focal and expansion areas said they had installed a fishery registration and licensing system, they were clearly not equipped to fully administer the system, much less utilize it for fisheries management. At best, they performed only the administrative functions of recording fishers' names, boats, gear and other information and collecting registration fees when required by local ordinance.

Round haul seines, Talibon, Bohol (Photo: A. Sia, 2009)

The Project developed a standard computerized database management system for the LGUs' use to facilitate the

storage and retrieval of their fishery registration and licensing records. The system was well-accepted by most LGU staff, who welcomed its time-saving and data processing efficiency features. But the LGUs still lacked the capacity to utilize the fisheries information they generated for managing fishing effort. In fact, most of them regarded fishery registration and licensing as primarily a mechanism to generate revenue, rather than a tool for fisheries management.

There is never enough technical or financial assistance to go around, so it is not surprising to hear LGUs say they do not get the support they need when they need it. The 2009 capacity review of the Project sites gave the Bohol LGUs a score of 53% and the Leyte and Southern Leyte LGUs 34% on access to funding support from traditional sources – mainly, the province, NGAs, NGOs and academic institutions. (Table 9) In Bohol, available assistance was limited to certain aspects of CRM planning, MPA establishment and law enforcement (through the CLECs), which were already being provided by the Bohol Environment Management Office (BEMO) well before FISH came in. In the other sites, stakeholders indicated that there was virtually no institutional support system that they could depend on for funding support outside of the LGUs themselves.

Table 9. Capacity scores of Danajon Bank LGUs relative to access to external sources of support after FISH Project completion based on a capacity review conducted by the Project in 2009

Sites	# of LGUs	Capacity score		
		Funding Support	Policy Support	Technical Support
Bohol	9	34%	42%	53%
Leyte/So. Leyte	7	14%	19%	34%
Calamianes	4	3%	8%	8%
Surigao del Sur	6	6%	31%	41%
Tawi-Tawi	3	7%	6%	16%
PROJECT TOTAL	29	20%	33%	47%

Even so, albeit limited, progress was achieved in developing institutional arrangements that could help further develop local capacities in CRM. The participatory process that the Project promoted and the sheer necessity of coordination opened up opportunities to establish formal and informal linkages with external partners that could serve well the LGUs that decide to pursue collaborations for CRM. In the Leyte provinces, for example, VSU's partnership with Baybay City was expanded to include the other expansion area LGUs, ensuring that the LGUs could continue to access at least some types of technical assistance. Media was also an important partner. The VSU-DYHP radio advocacy and Leyte Periodico were passionate advocates of marine conservation, ably stopping the conversion to housing of a 4.9-hectare century-old mangrove forest and a mining exploration project in a 4,800-hectare area encompassing the towns of Inopacan, Hindang, Hilongos, Mahaplag and Baybay City in Leyte, and Sogod and Bontoc in Southern Leyte. Media also helped campaign against an oil exploration project in Camotes Sea and Danajon Bank.

Remaining Gaps & Recommendations

Among all FISH-assisted LGUs, the focal area LGUs in Bohol combined are without a doubt the most mature in terms of level of experience and capacity in CRM. But even here, capacity levels are still way below what is needed to fully address the many difficult issues that continue to hound the fisheries sector and threaten its sustainability.

To promote a common framework for management and guide future capacity building initiatives, Bohol's inter-LGU TWG must complete the Danajon Bank-Bohol inter-LGU fisheries management plan and pursue its adoption, along with the zoning draft plans prepared by the LGUs. To effectively implement the plans, the LGUs must formulate and adopt the appropriate implementing rules and regulations, and aid agencies and other organizations that are now currently working or plan to work in the area might consider assisting the process. More importantly, the plans must be used to guide management decisions and future development initiatives. For example, a proposal to set up an industrial-scale seaweed farm off Talibon should be closely examined against the principles of sustainable fisheries, the fisheries management framework plan and the zoning plan to ensure that it does not run counter to the LGU's development objectives, or create any more ecological, social and economic problems than are already bearing down on Danajon Bank.

Below are the major issues and specific action items that must be addressed to promote program sustainability.

MPA network. The establishment of MPAs based on their biological interconnections was intended to support a faster and more robust recovery of fishery resources. However, full and sustainable recovery can only happen if management is consistently strong across the network.

In Bohol, the various management groups formally banded together to form a "network alliance" and subsequently adopted mutually reinforcing policies and enforcement protocols. Their primary motivation, however, was to gain access to DA-BFAR's funding facility for livelihood development, which required organizations to have a legal personality. As results of the 2008 MPA monitoring survey would suggest, there is a lack of consistency in the management of the different MPAs, which indicates lack of collaboration among the groups managing the network.

To maximize the benefits of the network, the so-called "mutually reinforcing policies and enforcement protocols" must be implemented and collaborative mechanisms strengthened. To promote sustainability, the support base for each MPA must be widened, and the LGUs must take the initiative to engage the stakeholder communities in the management process more than they have been thus far. Regular funding to support protection is very critical to ensure that the gains achieved will not be lost.

Personnel and budgetary issues. One major obstacle to program sustainability is that not all of the LGU staff members that were trained under FISH were personnel with security of tenure. A significant number in fact were casual employees under "job order" contracts and therefore vulnerable to retrenchment. But while expenditure limits on

personnel services might constrain LGUs from hiring permanent staff for CRM, LGUs can take the first critical step to promote program sustainability by ensuring that specific action items in their CRM plans are at least adequately funded under their annual investment plans. In Talibon, the interpretive center's strategic and operational plan should be integrated into the municipal development plan to ensure that it gets an annual budget allocation.

Talibon Fisheries and Coastal Resource Management Interpretive Center, Bohol (Photo: A. Sia, 2007)

Law enforcement. The Provincial Government has provided a patrol boat manned by a 2-man crew to help in patrolling the waters of Danajon Bank, but it can do more to assist the CLEC by also addressing other issues related to enforcement. For example, it might consider setting up a fish testing facility for purposes of collecting evidence of fisheries violations and provide regular funding for the CLECs' operations.

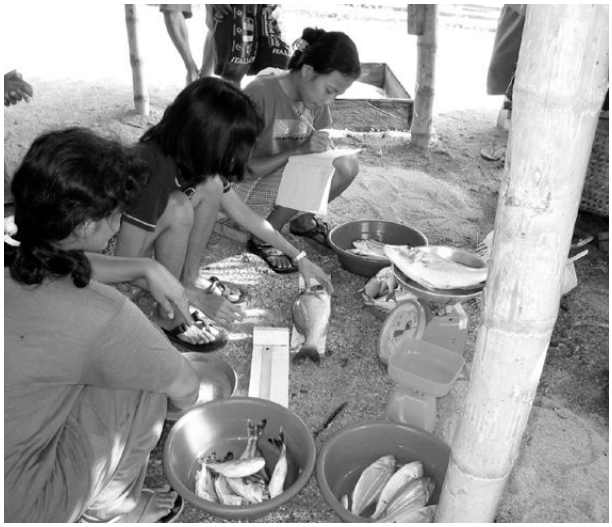
The enforcement of effort restrictions on blue crabs and siganids is being challenged with practical problems. The continued operation of fish corrals using fine mesh nets may very well be voiding any gains that are being achieved from enforcing the closed season for spawning siganids. Meanwhile, the restrictions on blue crabs are rendered practically unenforceable without adequate monitoring and the high (and still growing) market demand for blue crabs. The DA-BFAR should look into providing the LGUs technologies to support these effort restrictions, and LGUs should consider adopting new strategies to improve enforcement. For example, sustainable livelihood opportunities can be opened up to crab fishers as an incentive for them to comply with the law. In addition, crab processors must be compelled to cooperate with the LGUs in monitoring and assessing the crab suppliers' compliance with the law, under pain of penalty if necessary.

Fishing effort management. Results from the Project's catch-and-effort monitoring activities indicated a significant decrease in dynamite fishing, trawl fishing and Danish seine fishing in the Danajon Bank focal areas, but there are other threats that have emerged that must be addressed quickly before they become intractable. The use of fine mesh nets, while illegal, is generally tolerated and this has led to a sudden increase in the number of fish corrals and even round-haul seines in some areas.

In addition, the LGUs have allowed highly efficient modified gear such as the stationary lift nets called "new look" to operate without much control. Studies are ongoing to assess the impacts of these types of gear, but even now there are clear signs that their continued operation in the area at the current level of fishing effort cannot be sustained

much longer. LGUs must seriously reexamine their fisheries permitting and licensing policies and shift their perspective from revenue generation to regulation of fishing effort.

Registration and licensing. The registration and licensing system must be fully implemented to serve the purpose for which it was designed – not to generate revenues for the LGU, which is only a secondary benefit, but first and foremost to provide the information needed to manage fishing effort. Fisheries management must be a continuing process that involves regular monitoring of fisheries activities and the condition of fish stocks, assessment of fishing effort level and management, detection and identification of solutions, and adoption of new measures as needed. The Danajon LGUs have yet to develop the full capacity to do all these, but they can begin with the tools that the FISH Project already equipped them with, so that any future technical assistance can focus on bringing the capacity-building process forward.



Fish catch monitoring, Danajon Bank (Photo: R Bacalso, 2004)

Fish catch monitoring. The Project's effort to institute a fish catch monitoring system in its focal area did not prosper, but the effort must not be abandoned, given how crucial this type of monitoring is to fisheries management. In Leyte, the VSU-Marine Laboratory has committed to consolidate and analyze fish catch data collected by the LGUs and report its findings to the LGUs to inform fisheries management. In Bohol, if given the expertise, BEMO would be best suited to undertake this function, and DA-BFAR would be its main source of technical assistance.

In Southern Leyte, LGUs are urged implement a shark fishery monitoring program toward regulating shark fishing, which is reportedly catching sharks by the hundreds each year.

Inter-LGU, inter-agency and public-private collaboration. Given their tremendous need for technical assistance in CRM and fisheries management, the LGUs must continue to be supported by national government and other sectors. The national government should encourage State universities and similar institutions to integrate capacity building for LGUs in their research and extension program and institute a feedback mechanism so that stakeholders are given access to information relevant to their CRM work.

Government should also promote public-private partnerships by offering business incentives to lending institutions and private sector groups such as TSKI (Taytay sa

Ubay's CRM coordinator Alpios Delima (third from right) has served under two mayors supportive of CRM

Conservation Gets the Vote

Resource management gains help local execs win elections

Not long ago in Bohol, few politicians pushed for the strict implementation of resource management programs during an election year. In particular, many regarded the enforcement of coastal and fishery laws as political suicide because it was seen as "unfavorable" to fishing communities. But in Ubay town, local officials have since taken the opposite view: many voters would actively oppose anyone who proposed a return to the old days, when illegal fishers lorded over the sea.

"People now know the benefits of CRM," said Ubay's CRM coordinator Alpios Delima in an interview with the FISH Project in 2008. "It's not just awareness, it's actual experience with CRM – they've seen and shared in its benefits. They are not willing give that up."

Delima has been involved in Ubay's CRM program since 1998, and has seen the program survive a change of administration. "I was appointed by and therefore associated with the former mayor, who was the current mayor's political rival. I wasn't sure I would be able to continue my work when the new mayor assumed office, but he realized the program's importance and allowed it to continue."

Indeed, the mayor took it further: He strengthened the CRM office headed by Delima, and supported the creation of a coastal enforcement and protection unit. In 2004, FISH began assisting the LGU through a comprehensive training program for its CRM staff. This paved the way for an intensive coastal law enforcement campaign that soon controlled illegal fishing in Ubay waters, especially Danish seine and dynamite fishing. "Initially, there was strong resistance from illegal fishers and their political allies," Delima said. "But we mustered enough support to put together a CRM legislative agenda."

Today, Ubay's strong CRM attracts visitors from other towns looking to learn from the experience. But the biggest affirmation comes from the local stakeholders themselves, including those who used to actively resist the program. "Fishers, especially those using hook-and-line, say catching fish is so much easier now that there's hardly any illegal fishing in our waters," said Delima. "And some politicians who used to be our biggest critics now tell us we're doing a good job."

In fact, few politicians would now directly oppose CRM initiatives, and this is a lesson Delima often shares with others. "When politicians come to visit, I tell them, 'If you're afraid of losing votes because of CRM, don't. People may initially buck CRM, but within two years, they will see its benefits. Start early in your term, then you will have a great program that can carry you through the next election to a second and even a third term.'" *(Sia, 2008)*

Kauswagan, Inc.) and Economic Venture that provide soft loans for the development of sustainable enterprises that coastal communities can engage in.

Meanwhile, the LGUs must continue to leverage their resources through collaboration. In the Leyte provinces, the harmonization of municipal fishery ordinances must be completed to strengthen institutional support for management initiatives; the IMFARMC and VSU can be key players in this initiative. In Bohol, CLEC-2 will continue to be an important venue for inter-LGU collaboration. The idea of a "unified CELEBOSOLE" has yet to prosper, but it remains a viable option for scaling up management to a larger, Danajon-wide scale.

Ultimately, the biggest lesson generated from the FISH Project experience in Danajon Bank is that even the most severely degraded fishery resources can recover,

given enough time and proper management. But for resource recovery to take hold, the management effort must not only be sustained. It must be enhanced, intensified and constantly adapted to the highly dynamic setting that characterizes fisheries.

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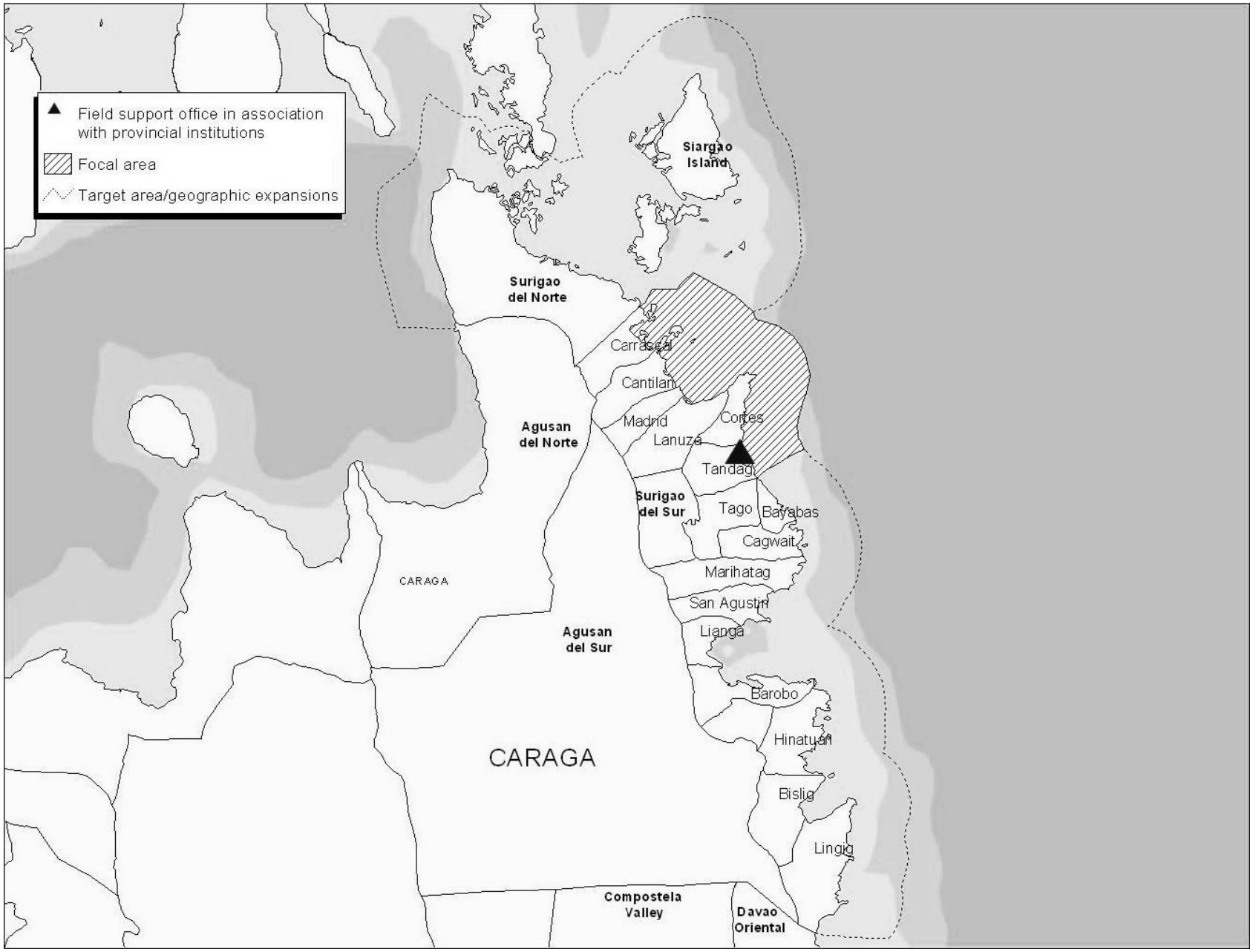
Mindanao's Pacific seaboard in the Surigao provinces



Lanuza Bay: Banking on a strategic alliance for sustainable fisheries

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Mabua, Tandag, Surigao del Sur *(Photo: A. Sia / FISH Project, 2008)*

As a FISH Project target site, Surigao del Sur stood out for having the biggest number of LGUs in a focal area, totaling 7 in all – Carrascal, Cantilan, Madrid, Carmen, Lanuza, Cortes, and Tandag. There is a special reason for such distinction: These municipalities all belonged to the Lanuza Bay Development Alliance (LBDA), an association of LGUs working together to address development issues affecting Lanuza Bay, a biodiverse fishing ground on Mindanao's Pacific seaboard (shown on the opposite page).

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LBDA started in 1998 as a collaborative arrangement between the municipalities of Lanuza and Cortes aimed primarily at eradicating illegal fishing in their municipal waters. At the start of the FISH Project's field operations in 2004, LBDA had grown to include all five municipalities bordering Lanuza Bay, as well as Carmen and Tandag. Carmen, situated less than 1km inland from the Bay's coastline and having no coastal waters, and Tandag, which is outside the Bay area, were included in the Alliance because of their catchment influence on the Bay. Furthermore, Tandag is Surigao del Sur's seat of government and therefore an important contributor to development initiatives in the area.

But the LBDA then was still only a young organization, having just been formally organized on March 1, 2004 based on its members' shared objective to ensure "unified, integrated, judicious and wise utilization, protection, conservation and management of [the Bay's] coastal and fishery resources." (Eugenio, 2007) It was therefore not entirely equipped with the technical skills and human and financial resources necessary to fully carry out its objectives.

FISH focused on building the capacity of the LBDA and its member-LGUs in key aspects of CRM, particularly those concerning the fisheries sector. With substantial assistance from the Project, important CRM policies and programs have been formulated and implemented, offering hope that through the LBDA sustainable fisheries can be achieved in Lanuza Bay.

Challenge

Lanuza Bay is situated in the northernmost section of Surigao del Sur. It extends from Carrascal in the north and encompasses the municipalities of Cantilan, Madrid, Carmen, Lanuza, Cortes and Tandag with a combined land area of 1,436.10 km^2. Tandag, Carrascal, Cantilan and Lanuza occupy more than two-thirds of the total land area while Madrid, Carmen and Cortes share the rest. Together, the six municipalities bordering the Bay have a total of 147,238 hectares of municipal waters and a coastline stretching to 126km, with Carrascal having the longest coastline (74km), then Cortes (35km) and Lanuza (21km). (Table 1) Out of 99 *barangays* in the Lanuza Bay management cluster, 42 are considered coastal *barangays* and economically highly dependent on coastal and marine resources. Lanuza, Cortes and Tandag have the largest percentage of coastal barangays, and are the potentially primary impact areas of any resource degrading activities in the uplands. Carmen does not

Lanuza Bay, Surigao del Sur (Photo: A. Sia, 2009)

have a coastline, but because of its location very near the coast of Lanuza Bay, it is an integral part of the Bay's ecosystem.

Table 3.1. FISH Project focal area municipalities in Surigao del Sur

Municipality	Coastline (kms)
Cantilan	19
Carrascal	74
Cortes	35
Lanuza	21
Madrid	3
Tandag	14
Carmen	-
	166

The Lanuza Bay ecosystem is counted among the most biologically diverse and productive marine habitats in the northern part of Surigao del Sur and holds some of the richest fishing grounds of the Caraga region. The actual extent and coverage of seagrass beds have not been fully determined in Cortes, but the town's seagrass area is reportedly extensive, with an average cover of 68%. Carrascal, Cantilan and Lanuza have a combined seagrass cover of about 1,001 hectares made up mostly of *Enhalus, Cymodocea*, *Syringodium*, *Halodule* and *Halophila* spp. (FISH Project, 2005a)

Coral reefs are most abundant along the eastern coasts of Cortes, between General Island, Ayoke Island and Uyamao Island in Cantilan and around Ludguran Island in Carrascal. Patches of small reefs can be found throughout the Bay, notably in Lanuza, Cortes and Carrascal. The total coral reef area in Lanuza is around 3,785; in Cortes, 2,000 hectares; and Carrascal, 1,245 hectares.

Mangroves cover about 1,945 hectares, with most of the large forests occurring in Carrascal and Cantilan and smaller patches distributed in various parts of the Bay. The most common mangrove species and associates are *nipa* (Nypa fruticans), *pedada* (Sonneratia caseolaris), *piapi* (Avicennia lanatu), *Bakawan laki* (Rhizophora apiculata), *miambago* (Hibiscus tiliaceus), *saging-saging* (Aegiceras corniculatum), and *gapas-gapas* (Camptostemon philippinense).

Among the traditional fishing grounds in the Bay are the areas near the villages of Nurcia, Sibahay, Habag, Zone 1 and Zone 4 Bunga in Lanuza; Panwaswasan, Tugas, Dijo, Kapagihan, Ali-as and Kandido in Carrascal; and Sabang, Huyamao and Whale Rock in Cantilan. The Bay supports a variety of commercial activities and generates livelihoods for the communities bordering it and others in nearby towns. Tuna ranks as the leading fishery product, with annual harvests hitting 4,000 metric tons. Reef fisheries are abundant within municipal waters. (MEDCO, 1998) Coral reefs thrive in the bays and inlets protected from the Pacific Ocean swell. Mangrove forests are well-developed on the coast (especially in Carrascal) and support significant areas of wetland and nearshore fisheries, such as crustaceans and finfish.

But in 2004 when FISH started, such abundance and diversity were under increasing threat from destructive fishing activities, encroachment of commercial fishing

on municipal waters, siltation and habitat degradation due to upland activities particularly logging and mining operations.

Fisheries decline. Baseline assessments conducted by FISH indicated that, compared to the other Project sites, fishery resources in Lanuza Bay were in relatively good condition. While fishery production in Lanuza was still increasing, however, a downward trend was observed in Cantilan and Tandag. In addition, from 1997 to 2001, a generally decreasing trend in fishpond production was noted in Cantilan and Carrascal. (FISH Project, 2005b)

The decline was due to very common reasons: overfishing and habitat destruction caused by illegal and destructive fishing, mining, deforestation, improper disposal of waste, and other human activities. By far the biggest impacts on fisheries productivity came from the encroachment of commercial fishing on municipal waters and the use of destructive means of fishing such as *liba-liba* (Danish seine), dynamite, fine mesh nets and poisonous or noxious substances. But simply because of their growing numbers, there was also increasing pressure from small-scale fishers using otherwise passive gear.

Despite such fishing patterns, fish stock assessments conducted by the Project in 2004 showed that Lanuza Bay still generally supported a healthy diversity of pelagic and demersal species, perhaps because of its proximity to the Pacific Ocean and the presence of coral reef systems in its shallower coastal areas. Also, the northeast monsoon directly affects the area, making fishing difficult (if not practically impossible) at least 5 months during the year. This effectively translates to a natural closed season that could be keeping the Bay's biomass at a viable enough level to sustain fish stocks.

Fisheries-dependent surveys of aggregate catch conducted in Lanuza Bay from July to October 2004 found that pelagic species like Stolephorus spp (*bolinao* or anchovy) as well as high trophic level demersal species such as Serranids (*pugapo* or groupers) and rays dominated the catch composition. In addition, test fishing conducted by FISH in 2004 showed that *Nemipterus* spp (*sagisi*) and *Euthynus affinis* (*bulis*) comprised the biggest portion of catch from bottom-set longline and bottom-set gillnet, respectively, followed by other carnivores like snappers (*Lutjanus* spp.), rays and eels (Tables 2 and 3). (FISH Project, 2005b)

Table 2. Top 10 species caught from experimental bottom-set long-line fishing in Lanuza Bay, 2004 (FISH Project, 2005b)

Species	Local name	% Weight	% Number
Nemipterus spp.	*sagisi*	11.4	22.6
Lutjanus lineolatus	*saging saging*	7.5	14.2
Lethrinus lentjan	*katambak, kilawan*	7.3	2.3
Plectorynchus pictus	*lipti*	6.9	1.1
Nemipterus peronii	*sagisi*	6.7	8.1
Lutjanus vitta	*puga*	4.7	5.8
Lutjanus malabaricus	*maya maya*	4.4	0.6
Priacanthus tayenus	*wakwak, wakwak lawihan*	3.9	5.8
Etelis coruscan	*sagisi*	3.5	1.5
Priacanthus sp.	*wakwak*	3.3	1.3
Others		40.4	36.7

Table 3. Top 10 species caught from experimental bottom-set gillnet fishing in Lanuza Bay, 2004 (FISH Project, 2005b)

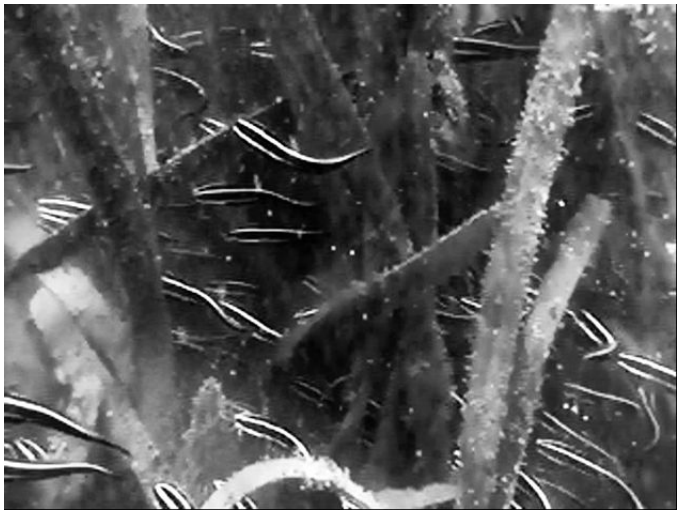
Species	Local name	% Weight	%Number
Euthynnus affinis	*bulis*	18.3	2.4
Dasyatis kuhlii	*pagi*	9.1	1.2
N/A	*hawig*	5.8	0.2
Myripristis amaena	*baga*	5.8	13.6
N/A	*barong*	2.7	0.2
Seriolina nigrofasciata	*maru*	2.6	0.8
Carcharhinus dussumieri	*pating ilagan*	2.5	0.3
Rastrelliger faughnii	*anduhaw*	2.4	3.0
Lutjanus vitta	*puga*	2.2	2.3
Portunus pelagicus	*lambay*	1.7	1.4
Others		46.9	74.6

Poverty. The combined population of the Lanuza Bay focal area was estimated at 145,072 in the 2007 government census, with an average annual growth rate in 2000-07 of 1.23%; of the 7 focal area municipalities, only Carrascal, Cantilan and Tandag recorded a population growth rate of more than 1% (1.14%, 1.06% and 1.8%, respectively). This was lower than the national average of 2.04%. However, up to at least 2000, the local population was growing at a much faster rate. Results of the 1995-2000 census showed the combined Lanuza Bay-Tandag population growing annually at 2.19% and at least 4 municipalities (Carmen, Lanuza, Cortes and Tandag) registering an annual population growth rate higher than the national average of 2.36%. (NSO, 2008) And even when the population growth rate slowed down, in an area where generally low-income fishers and farmers comprised the vast majority (more than 70%) of a highly-resource dependent population (LBDA, 2005), any increase in population would translate to increased pressure on the area's already diminishing natural resources.

There are no available data on the poverty incidence in the Lanuza Bay municipalities, but overall in Surigao del Sur, poverty incidence was estimated at 55.1% in 2006, much higher than the national average of 32.9%. In the Caraga region where the province belongs, the poverty incidence among fishers was recorded at an even higher 66.7%. (NSCB, 2007)

There were approximately 14,340 fishers in Lanuza Bay in 2004, with the number of full-time and part-time fishers estimated at 6,046 and 8,294, respectively. The fisher-to-boat ratio in the area was nearly 2:1, and more than half of the fishing boats were non-motorized.

Cantilan fishing community (Photo: A. Sia, 2009)



Seagrass bed, Cortes (Photo courtesy of Cortes LGU)

Habitat destruction. Like its fishery resources, Lanuza Bay's diverse habitats, including beaches, seagrass beds, coral reefs and mangroves, have also been under tremendous pressure from human activities. In a participatory coastal resource assessment (PCRA) conducted in the Bay in 2001, live hard coral cover was estimated at less than 25% in Lanuza and 46.5% in Cantilan. Signs of destruction were highly evident -- in Cantilan, 19.9% of the area surveyed consisted of coral rubbles, indicating damage from dynamite fishing, and 13.2% were dead standing corals, likely the result of cyanide use and contamination by agricultural and chemical wastes in the area. (FISH Project, 2005a)

Beach ecosystems were also found to be under constant threat from the illegal cutting of coastal trees, conversion of foreshore areas to human settlements and other uses, improper waste disposal, and beach sand quarrying. Seagrass beds were shown to be degraded by siltation and pollution caused by various human activities, including deforestation, mining and improper disposal of domestic waste. And mangrove forests were threatened by the continued illegal cutting of trees, conversion to human settlements and fishponds, improper waste disposal, and siltation.

Management issues. There were a number of initiatives prior to FISH that attempted to address the problems hounding Lanuza Bay's fisheries. LBDA started out as one such initiative: in 1998, the municipality of Lanuza, along with some NGOs, church leaders, academe and other stakeholders, launched a campaign to convince other LGUs to collectively address illegal fishing in the Bay. Lanuza was soon joined by Cortes, and, after the conduct of integrated coastal management training by the USAID/Department of Environment and Natural Resources (DENR)-Coastal Resource Management Project (CRMP) in 2000, by the other LGUs. Through the years, LBDA developed into the formal association of 7 LGUs that it has become today.

Other CRM programs that sought to address fisheries issues in Lanuza Bay included a number of externally assisted projects. For example:

- The Community-based Resource Management Project (CBRMP) supported by the World Bank through the Department of Finance assisted LGUs with resource management by providing small loans and grants; and
- Green Mindanao, Inc. and Cantilan Baywatch Foundation, Inc. (CBFI) provided training and technical assistance in the development of an integrated CRM plan for Lanuza Bay.

LBDA itself was the focus of one such program: the Philippines-Canada Local Government Support Program (PC-LGSP) supported by the Canadian International

Development Agency (CIDA), which in 2000-04 facilitated various organizational development activities that resulted in the adoption of the LBDA Covenant on the conservation and management of the Bay's coastal and fishery resources, LBDA manual of operations, unified fisheries ordinance (UFO) and environmental management plan (EMP) framework.

However, as a young organization, LBDA lacked the technical skills, manpower and financial resources to carry out the CRM objectives of its member municipalities. Coastal law enforcement became a major problem area when some sectors questioned the legality of LBDA's jurisdiction over the so-called Lanuza Bay "alliance waters" as defined in its UFO (national law does not recognize "alliance waters," only "municipal waters," which are under the jurisdiction of the individual LGUs). Questions raised about LBDA's legal personality hampered the prosecution of violations of the UFO, and in some cases resulted in countersuits being filed against the LBDA Council chair and program manager. *Liba-liba*, for example, proved to be a particularly difficult problem, because operators that faced charges of fishery law violation generally had the wherewithal to challenge the LGUs – and LBDA – in court. Furthermore, only a few of the LBDA member-LGUs were seriously attempting to implement the terms of their Covenant, while the rest – constrained by limited resources, technical knowhow or just a simple lack of political will – generally just paid it lip service.

Objectives

The FISH Project was designed to bring to the next level the Philippine experience in CRM by building much needed fisheries management capacity especially at the local level. It officially started in September 2003 and had a total life of 7 years (2003-10). The Project was tasked to work with the Philippine government through the Department of Agriculture-Bureau of Fisheries and Aquatic Resources (DA-BFAR) and other concerned agencies to begin a process of reform from open access to managed resource use in fisheries.

The province of Surigao del Sur on the Philippines' Pacific seaboard was one of 4 FISH target areas, which also included the Calamianes Group of Islands in Palawan west of the country, Danajon Bank in Central Visayas, and Tawi-Tawi in the Autonomous Region in Muslim Mindanao. In general, the Project aimed to catalyze changes in exploitation patterns of fishery resources in a smaller "focal area" within each of its target areas that could be sustained and replicated beyond its lifespan. In Surigao del Sur, Lanuza Bay and Tandag served as the focal area. Through capacity development, policy reform and constituency building, the Project hoped to achieve the following specific objectives and begin the process of reversing the decline of Lanuza Bay's fisheries:

- Build on LBDA's Bay-wide management plan to institute effective management systems at the LGU level;
- Strengthen the role of LBDA in CRM and fisheries management;
- Assist the management of existing marine protected areas (MPAs) and the establishment of new MPAs;
- Institute within each LGU a fishery registration and licensing system;

- Build local capacities in CRM, with focus on coastal law enforcement, information-education-communication (IEC) and policy support;
- Introduce fishing effort restrictions;
- Strengthen the role of DA-BFAR, the province and the LBDA Council's technical working group (TWG) in conducting regular fish catch monitoring activities; and
- Establish a network of marine protected areas.

In the focal area LGUs, the FISH package of assistance generally included the following activities: IEC, MPA establishment, policy support, coastal law enforcement, CRM planning, fishery registration and licensing, municipal water delineation, identification and enforcement of fishing effort restrictions, and marine spatial planning.

The Project also opened some of its training programs to other Surigao del Sur LGUs, including Tago, Marihatag, San Agustin, Bayabas, Cagwait, Lianga, Barobo and Bislig City, which participated in coastal law enforcement and assessment training and deputy fish warden training. In addition, the Project assisted the nearby province of Surigao del Norte in municipal water delineation.

Strategies & Actions Taken

As an overall strategy, FISH worked closely with LBDA to provide technical assistance to its individual focal area municipalities. This approach allowed the Project to simultaneously build capacity at both the LGU and LBDA levels. Much of the focus of technical assistance at the LBDA level was on coastal law enforcement coordination, policy development and organizational development. Done in coordination with LBDA, technical assistance at the LGU level emphasized coastal law enforcement, MPA establishment and management, CRM planning, IEC, and policy and institutional development. These technical assistance components were specified in the memorandum of agreement (MOA) entered into by the Project and LBDA at the start of implementation. The MOA covered the following activities:

- Biophysical assessment of existing MPAs in Lanuza Bay;
- Community organizing in support of MPA management;
- Fish stock and habitat assessments;
- Organizational development for municipal enforcement teams;
- CRM planning and preparation of multi-year municipal CRM plans;
- Coastal and fisheries profiling of Lanuza Bay; and
- Formulation of the coastal component of the Lanuza Bay Environmental Management Framework Plan.

Entry and baseline assessments. As a first step, the Project did an organizational assessment of LBDA's bay-wide enforcement action team (BEAT). This led to the identification of the BEAT's training needs and the establishment of coordination protocols for the municipal enforcement action teams (MEATs) operating within the Bay, which were integrated into the operations of the Surigao del Sur provincial office of the Philippine National Police (PNP) and its municipal police stations.

Meanwhile, the Project conducted baseline assessments to gather initial information on the status of fishery resources in each of its focal area municipalities. These assessments were undertaken in 2004 largely independently of local partners because they were mainly employed to track Project performance relative to fish stock changes in the management sites, but they also found use as input to IEC to support constituency building for sustainable fisheries.

At the community level, the entry strategy was focused mainly on assessing the management of existing MPAs. Several MPAs had been officially established in Lanuza Bay prior to FISH but their enforcement was short-lived. Initial assessments of the MPAs indicated that community support for the MPAs was very weak if at all present, and this was apparently because community members were not consulted before the MPAs were established.

MPA planning and implementation. Following consultations with LBDA, the Project deployed community organizers to the different *barangay*s tasked to manage the existing MPAs that were selected for assistance. Seven of these *barangay*s were in Cortes, namely Burgos, Balibadon, Tigao, Capandan, Poblacion, Mabahin, and Tag-anongan, sites of 7 MPAs established between 1996 and 2003; 2 other *barangays* were in Lanuza, namely Nurcia and Sibahay, which were responsible for the 155-hectare Lanuza Marine Park and Sanctuary established in 2002.

General Island MPA, Carrascal (Photo: A. Sia, 2008)

In addition, baseline assessments were conducted in 6 existing and proposed MPAs that would be tracked as part of Project performance monitoring. These MPAs included 1 existing MPA, the Capandan Fish Sanctuary, which was established in 2004, and 5 MPAs established under FISH, namely, Carrascal MPA and Adlay MPA in Carrascal, Ayoke MPA and General Island MPA in Cantilan, and Uba MPA in Cortes. A few of these "new" MPAs were under some form of management prior to FISH, but had to be reconstituted and officially established to improve management and overall resource recovery.

For example, what became known as the Ayoke MPA and General Island MPA under FISH used to be at a 320-hectare contiguous area that was informally declared as a fish sanctuary by the Cantilan LGU in 2003. The sanctuary was allotted an annual budget of Php400,000 and put under the joint management of 4 people's organizations (POs). However, lacking a legal mandate, the POs had no real authority to restrict access to the area, which was furthermore in a coral-poor site not suitable as a sanctuary.

After an assessment of the area showed that only a small part of the sanctuary had coral cover, the Project organized a series of stakeholder meetings to develop a consensus strategy for management that led to the identification of 3 new smaller sites, where good coral cover and fish stocks were observed (besides Ayoke and General Island, a third site at *barangay* San Pedro was deemed suitable as sanctuary). The Project then trained the LGU and community stakeholders in the management of the MPAs and enforcement of sanctuary rules.

In 2006, 3 new MPAs were also established at Adlay in Carrascal, and Mabua and Buenavista in Tandag based on a hydrodynamic and larval dispersal study that the Project commissioned to determine potential ecological interactions between MPAs. The study also served as a basis for the creation of the CarCanMadCarLanCorTan-Nagpakabanang Mananagat nga Nag-amping sa Kadagatan (NAMANAKA), a group of POs mandated to coordinate the management of the MPAs as a network. NAMANAKA was recognized as an official NGO partner of LBDA, with its chair serving in the LBDA Council in an advisory capacity.

The Project also assisted each PO in the formulation of a plan that would serve as the PO's guide to managing the MPA. To generate support for MPA management, the plans were submitted to the concerned municipal councils for policy-making, budget allocation and eventual inclusion in *barangay* or municipal development plans.

Some of the MPAs were supported by the Project's Special Activities Fund (SAF), which provided financial assistance that the POs used to purchase materials for the construction of their guardhouses and various commodities for MPA enforcement (marker buoys, telescopes, patrol boats, GPS receivers, etc.).

CRM planning and implementation. The MPA plans were generally based on the CRM component of the Lanuza Bay Environmental Management Framework Plan, which guided the formulation by each LGU of a multi-year CRM plan. Working closely with LBDA, FISH facilitated a series of stakeholder consultations aimed at collecting baseline fisheries information and the identification of priority issues and concerns related to CRM in general and fisheries in particular.

CRM planning by Lanuza Bay LGUs, Cantilan (Photo: R Mancao, 2004)

As expected, illegal fishing – primarily commercial fishing in municipal waters and the use of fine mesh nets, dynamite and poisons – emerged as the top-of-mind issue and therefore became a major focus of discussions during CRM planning. However, the plan itself addressed in broad

terms not only coastal law enforcement but other CRM concerns as well, such as habitat protection, shoreline management, waste management, coastal tourism management and fisheries management.

The plans were presented to the municipal fisheries and aquatic resources management and municipal development councils for review, approval and funding, and the status of plan implementation was reported and reviewed collegially during coordination meetings of the LBDA Council and CRM coordinators.

Enforcement, policy reform and organizational development. As a priority concern, coastal law enforcement received high-level attention and was a major focus of LBDA. Enforcement activities were undertaken alongside policy reform and organizational development to improve enforcement policy and build enforcement capacity at both the local (LGU) and coordinative (LBDA) levels.

Initially, FISH supported the operation of the BEAT, which was created under the PC-LGSP to address the different LGUs' common coastal law enforcement concerns. In its early years, responding to LBDA's expressed need, the Project focused on strengthening the BEAT through numerous trainings and other capacity-building activities.

Enforcement training was conducted in several stages, from the basic enforcement course to enhancement and specialization courses fitted to the peculiar needs of individual sites. The basic course covered fisheries and maritime law enforcement topics and legal and tactical approaches to site-specific violations. Enhancement training focused on the enforcement of site-specific ordinances covering such measures as temporal and spatial restrictions (including MPAs), registration and licensing, navigation, investigation and report writing, while specialization courses consisted mainly of the standard fish examiner's training course offered by BFAR and also included plotting and chart work, media relations, and trainers' training.

In the field, the BEAT proved to be quite effective in neutralizing the cat-and-mouse tactics used by *liba-liba* operators to evade (and torment) law enforcers. But inherent defects in LBDA's UFO stalled the BEAT's progress, and after legal challenges frustrated the law enforcers' effort to prosecute illegal fishers under LBDA's UFO, the BEAT became inactive.

In 2006, through its SAF, the Project engaged the Advocates for Policy Reform and Development in CARAGA (APREDEC) as a service provider to the LGU. APREDEC, whose lawyer-members advocated sustainable development, had previously provided legal counsel to some Lanuza Bay LGUs that were subjected to countersuits filed by *liba-liba* operators that they tried to prosecute. With FISH support, APREDEC tackled key policy issues that hampered LBDA's effectiveness. This resulted in the amendment of LBDA's Covenant and Manual of Operations and refocused the Alliance role from law enforcement to policy formulation and program coordination. From having a broad-based membership that included numerous *ex-officio* members from various NGOs, the LBDA Council was reconstituted to limit its membership to local chief executives representing the municipalities, with NGOs and other groups serving in a purely advisory capacity. This

effectively removed any apparent "veto power" the NGOs might have had on the mayors' decisions that caused confusion in the past.

Simultaneously, FISH encouraged LBDA to set up a permanent secretariat headed by a coastal and fisheries resource management program director that would be responsible for the overall coordination and monitoring of the implementation of CRM and fisheries management programs and projects in the 7 LBDA municipalities. The director, whose salary was taken out of the yearly contributions of member-LGUs, worked with municipal CRM coordinators to generate a monthly report on the status of program implementation by each LGU.

While LBDA was being strengthened, FISH through APREDEC also helped the LGUs reestablish their primacy as enforcers of coastal and fishery laws. Technical assistance shifted to capacitating the MEATs, and strengthening institutional support for local coastal law enforcement initiatives. For example, the Project facilitated the organization of the Provincial Coastal Law Enforcement Coordinating Council (PCLECC) through the PNP Provincial Director who ordered the municipal police environmental desk officers (MPEDO) assigned to the different police stations to coordinate their operations so that violators could not evade police pursuit across jurisdictional boundaries. It also assisted LBDA in providing legal assistance to law enforcers and LGUs in the prosecution of fishery cases. Specifically, the Project worked with the Department of Agrarian Reform-International Fund for Agricultural Development (DAR-IFAD) and Provincial Fisheries and Aquatic Resources Office (PFARO) to organize a Bench, Bar and PNP dialogue between judges, prosecutors, Public Attorney's Office (PAO) and APREDEC lawyers to tackle issues and share lessons on the prosecution of illegal fishing cases.

The Project also assisted Cortes in reviewing and revising an ordinance banning the harvesting of siganid fry that was enacted in 1996 but not implemented because of a lack of clear implementation guidelines. With the Project's help, Cortes adopted appropriate mechanisms to improve enforcement of siganid management. The mechanisms were patterned after the experience of Palompon, Leyte, which was part of a study tour that the Project organized for its Lanuza Bay partners. The new management scheme consisted primarily of a closed season on the collection of siganids based on the lunar cycle, which influences the spawning cycles of the species.

In Cantilan and Carrascal, FISH sought to address issues related to by-catch from the traditional pink shrimp fishery using beach seine. Based on research on the seasonality of the pink shrimp, the Project worked out a solution that reduced by-catch by limiting the operation of beach seines to a specified time during the year when the pink shrimp was most abundant.

Fishery registration and licensing. As a first step toward fishing effort management, the Project supported the institutionalization of fishery registration and licensing by equipping the focal area LGUs with relevant skills in fisheries database management, fishing vessel admeasurement, and the process of registering and licensing municipal fishers and their vessels and gear. This was part of the effort of the Project to

pilot Executive Order (EO) No. 305 series of 2004 which devolved the registration of municipal fishing vessels to LGUs. EO 305 was advocated by the National Anti-Poverty Commission Fisherfolk Sectoral Council and the League of Municipalities of the Philippines to facilitate the registration of municipal fishing vessels.

Data management was facilitated by the use of a tool called "FishReg" that FISH developed. FishReg is a computer application that allows easy storage, organization and retrieval of fisheries registration and licensing data as well as other data that DA-BFAR traditionally collects and additional information relevant to fisheries management.

Constituency building. A major strategy to support fisheries reform in general was to build an active constituency for sustainable fisheries from across different sectors. This was accomplished through participatory approaches to capacity building, as well as extensive IEC and advocacy activities. Academic institutions, in particular, were key partners in the constituency-building effort.

In Tandag and Cantilan, the Project launched in 2006 a Saturday morning radio show called "FISH Forum: *Ang Dagat Atong Kinabuhi"* (The Sea is Our Life). Hosted by two environmental lawyers from APREDEC, the show tackled a wide range of fishery issues from law enforcement to specific provisions of local fishery ordinances. When warranted, it also addressed any political issues that hindered the concerned LGUs' performance of their mandate to protect the welfare of small fishers and farmers. The show was patronized by LGUs and fishers for the insightful legal and technical advice it offered. Local CRM champions from various stakeholder groups – mayors, fishers leaders, NGOs, etc. – were featured as guests to share their insights on relevant topics and advocate sustainable fisheries programs.

Ang Dagat Atong Kinabuhi on air (Photo: R Mancao, 2006)

Numerous IEC materials produced locally and in the Project's operations center in Cebu were used to support the constituency-building and advocacy effort. For example, flipcharts showing various cause-and-effect diagrams were used in orientation briefings with fishers to point out that illegal and destructive fishing was the cause of poverty and not its effect. Posters that showed top fishery law violations were developed for use as "prompts" by the LGUs and local police – displayed at strategic spots such as fish landing sites, public markets and municipal halls, these posters carried the contact addresses and phone numbers of LGUs and local police stations and exhorted the public to report any observed fishery violations.

In 2009, the Project produced with the ABS-CBN News Channel (ANC) a video documentary that was partly filmed in Lanuza Bay. The documentary depicted the state of Philippine fisheries, issues threatening its sustainability, current actions and recommended solutions. Specifically in Lanuza Bay, it looked into the problem of commercial fishing intrusion, LBDA's experience in dealing with it and various stakeholders' views on still persistent issues.

Validation of coastal terminal points in preparation for the delineation of municipal waters

Municipal water delineation and fisheries use zoning. Also crucial to law enforcement was municipal water delineation, which determines the extent of the management and jurisdictional area of each LGU. This intervention became particularly critical after technicalities forced the LBDA municipalities to set aside their UFO as the primary basis for fishery law enforcement and revert to the 1998 Fisheries Code. With LBDA as coordinator and arbiter, municipal water delineation was completed in 2009 in all Lanuza Bay municipalities, except in Tandag which had a still unresolved boundary dispute with the municipality of Tago.

Working with the National Mapping and Resource Information Authority (NAMRIA) and local partners, the Project also assisted the Provincial Environment Management Office (PEMO) of Surigao del Norte in facilitating the delineation of all municipal waters in the province, except for those around the municipalities bounding Mainit Lake that had boundary disputes with their neighbors in the adjoining province of Agusan del Norte.

Meanwhile, in Lanuza Bay, FISH also promoted fisheries use zoning to determine and evaluate, through marine spatial planning, the interactions among various uses within defined ecosystems, identify multiple uses and resolve any existing or potential conflicts through proper allocation of space. The Project employed a participatory zoning process that included orientation training, fisheries mapping and consultations with local stakeholders to determine and propose solutions to existing or potential use conflicts. The solutions were added to each municipality's zoning map, which was validated through a series of community-level meetings with municipal and *barangay* officials in the different focal area LGUs; as of July 2010, 3 LGUs – Carmen, Tandag and Cantilan – had adopted their zoning maps.

Parallel executive-legislative consultations were also conducted and municipal zoning maps were consolidated into a Bay-wide fisheries zoning map to be presented in a public hearing before adoption by the LBDA Council through a resolution, which would

then be affirmed by each member-LGU through a municipal ordinance or other appropriate policy instrument.

Scaling up and replication. As lessons were generated in the focal area, opportunities emerged to expand the Project's sphere of influence to other LGUs. Initially, the Project invited participants from the municipalities of Tago, Marihatag, San Agustin, Bayabas, Cagwait, Lianga, Barobo and Bislig City – all within Surigao del Sur – to participate in its coastal law enforcement and assessment training, deputy fish warden training, fishery ordinance formulation and municipal water delineation. It also responded to a request from Bislig City for technical assistance in the implementation of their CRM program.

Over time, LBDA gained recognition as a model for inter-LGU collaboration for bay management, which opened opportunities for sharing its experience with other provinces and bay management bodies. Cortes Mayor Pedro Trinidad Jr. was invited as a resource speaker by the Movement for Responsible Fisheries (MOREFISH) of the League of Municipalities of the Philippines to discuss the LBDA scheme and how it was being implemented. On another occasion, responding to a request from the NGOs for Fisheries Reform, the Project used the LBDA experience to orient fisheries stakeholders in General Generoso, Davao Oriental, on the development of an institutional arrangement for an ecosystem approach to fisheries management.

Results & Impacts

Over seven years of field implementation, the Project achieved the following success indicators from its effort to develop LBDA as the primary coordinator and integrator of CRM and fisheries management initiatives in Lanuza Bay:

- Forging of an amended covenant and manual of operations that spell out the reciprocal obligations of the LBDA members as partners for sustainable development in Lanuza Bay. To support the future growth of LBDA as an organization, the covenant was also expanded to include, besides CRM, other development concerns, such as forest resource management, ecotourism development, agriculture and enterprise development, and local governance and administration development. Underlying these amendments was the LBDA members' deeper understanding of the inherent value of collaboration in pushing local development under a decentralized system of government.
- Widespread recognition of LBDA as a model for inter-LGU collaboration. The Alliance has been accredited by the *Sangguniang Panlalawigan* (provincial board) and played an integral role in municipal water delineation and fisheries zoning in Lanuza Bay.

At the LGU level (except in Carmen), indicators of institutional development that the Project tracked as part of its performance monitoring also showed significant improvements:

Changing Norms
Illegal fishers losing social and political clout in Lanuza Bay

Liba-liba (Danish seine) operators used to be a politically influential group in some LGUs around Lanuza Bay. (Photo: A. Sia, 2008)

In his nearly 3 decades in government service, Edgardo Intano has not seen as much support for CRM as in the last 6 years. "It's been a long, often frustrating battle," he told FISH in an interview in early 2008. "It's only when I look back that I realize how far we have come, that we've actually moved forward."

Intano is the municipal agriculture officer (MAO) of Carrascal. Having previously worked with DA-BFAR, he has always had a bias for fisheries, but back when he started as MAO, his office had a total budget of only Php200,000. That was hardly enough to cover their programs for agriculture, let alone fisheries, he said.

Things have changed significantly since then. Now the MAO has Php500,000 to spend on CRM alone. "Our budget for CRM has increased steadily in the last 6 years, from Php180,000 to Php300,000 and now Php500,000," Intano said. "This means we actually have a program for fisheries and coastal management. I have, for instance, been able to provide incentives to encourage good performance in the enforcement of fishery laws."

Illegal fishing has been one of Carrascal's biggest, and most persistent, fisheries problems – and one of Intano's biggest frustrations. "After all these years, we're still running after illegal fishers, so yes, this job can be frustrating," he remarked. "But as big as the problem still seems to be, I also know we have made tremendous progress. For one, there is hardly any dynamite fishing here anymore."

The high visibility of law enforcers has been a major factor, but so have the public's high level of awareness of the harmful effects of illegal fishing and the fishing community's active involvement in resource management. All these came about because of an intensive IEC, capacity-building and training program for stakeholder communities undertaken by the FISH Project between 2003 and 2008.

Intano believed the "balance of power" has shifted from the illegal fishers to the proponents of sustainable fisheries. Illegal fishers used to seem untouchable, he said. "Not anymore. Now they are not only scared of getting caught, they are also afraid of public censure." *(Sia, 2009)*

- Fishery registration and licensing system instituted by municipal ordinance in 6 focal area LGUs (except Carmen);
- Law enforcement units established and trained in 6 LGUs;
- 19 existing and new MPAs assisted, 14 of them functional and adequately enforced (3 in Cantilan, 2 in Carrascal, 6 in Cortes, 2 in Tandag, 1 Lanuza);
- CRM adopted in 6 focal area LGUs;
- 1 inter-LGU agreement adopted; and
- Reproductive health information and services linking population growth to environmental degradation delivered to 6 villages.

Based on a scoring system devised by FISH for its capacity review of assisted LGUs in 2009, the Lanuza Bay focal area LGUs scored about 42% in terms of their capacity to coordinate 10 basic CRM functions, and 45% on implementing these functions. These scores were lower than those observed in the FISH focal area in Danajon Bank, Bohol, but higher overall than the Project's 2 other focal areas in Calamianes, Palawan and Tawi-Tawi. The Lanuza Bay LGUs also scored below 50% on understanding the mandate of the designated CRM offices relative to implementing and coordinating coastal and fisheries-related programs.

LGU personnel were most confident in their capability to perform the basic functions related to coastal law enforcement, MPA management,

CRM planning and IEC. As one might expect, these were the same areas that the LGUs were most heavily invested in.

Combined, the investments in CRM and CRM-related activities of the focal area LGUs (except Carmen) amounted to over Php3.8 million in 2010, about 200% more than the Php787,000 at the start of FISH in 2004 (Table 4). In 2004, the LGUs' average annual CRM budget was just about Php250,000; in 2009, it was nearly Php650,000. There was also a marked increase in the proportion of the LGUs' development fund allocated to CRM. For example, budget records from 2006 showed that Cortes allocated to CRM only 6% of its Php4.5 million development fund; in 2010, the municipality reported a CRM budget amounting to more than 16% of the total budget in its annual investment plan (AIP). Part of the budget went to an incentive package for law enforcers that included allowances and health insurance.

Table 4. LGU budget allocations for CRM in Danajon Bank (2004-2009)

Focal/Target/ Expansion Area Municipality	LGU CFRM Budget from the Annual Investment Plan*						
	2004	2005	2006	2007	*2008*	*2009*	*2010*
Cantilan			90,000	130,000	225,000	302,000	225,000
Carrascal	430,000	430,000	430,000	500,000	340,000	400,000	445,000
Cortes	95,000	95,000	509,920	1,319,920	945,000	851,000	1,949,560
Lanuza	400,000	400,000	400,000	517,680	769,448	1,166,000	814,122
Madrid	230,000	230,000	230,000	130,000	150,000	200,000	150,000
Tandag	80,000	80,000	110,000	150,000	210,000	205,000	300,000
Total	**1,235,000**	**1,235,000**	**1,769,920**	**2,747,600**	**2,639,448**	**3,124,000**	**3,883,682**

*As reported by each LGU in the FISH Project Performance Monitoring Data Form.

Correspondingly, the annual contribution of each of the 7 member-LGUs of LBDA increased from Php50,000 in 2003 to Php150,000 in 2009. The fund was intended primarily for the LBDA secretariat's operating expenses and various program implementation activities. It must be noted that the individual LGUs used part of their municipal CRM budgets to meet their financial obligations to LBDA. While this may seem to be a case of transferring money from the left pocket to the right, it did allow the LGUs to leverage their resources and accomplish more for the same amount of money.

Among the 6 LBDA members with municipal waters, Cortes and Lanuza consistently allocated the top 2 highest annual CRM budgets from 2006 to 2010. This was not surprising, considering the leadership role that both LGUs traditionally played in the combating illegal fishing in the Bay. Both LGUs also played a key role in the creation and development of LBDA.

The LGUs' increased investment in CRM reflected attitudinal changes across the bureaucracy, especially among political leaders. In particular, there was greater acceptance by elected officials and technical personnel of CRM as an essential strategy to improve the welfare of their communities, and they embraced CRM as a mandatory duty vested on them by the Local Government Code and Fisheries Code.

Take-Charge Stakeholders
Community groups put their training in CRM to good use

Residents of Barangay Uba in Cortes celebrate the success of their MPA. (Photo: A. Sia, 2008)

Among the most active constituencies for sustainable fisheries in Surigao del Sur were the many POs tasked to manage FISH-assisted MPAs in the Lanuza Bay focal area municipalities. Trained in the various aspects of community-based CRM, they not only proved to be able protectors of the MPAs, but also effective advocates of sustainable fisheries, unafraid to approach their leaders and speak openly about what they believed the government should do to support their cause.

This was not always the case. When FISH first engaged stakeholder communities in discussions about local fishery issues, even the village leaders and elders were too shy and timid to speak out. Their training with the Project, as well as the sense of accomplishment they got from seeing their MPA succeed, has given them the confidence in their ability as MPA managers, which has spilled into other aspects of their lives.

Now they no longer wait for their leaders to come to them with the promise of aid – they actively seek out local officials and politicians to lobby for support for their MPAs and livelihood projects. They have forged partnerships with the private sector, bagging some funding for fish farming, backyard gardening, fruit tree farming and similar enterprises. And they have initiated talks with various national government agencies to generate additional support for their communities. By their own initiative, some communities have also devised creative ways to make the most out of the capital assets and other materials their organizations already own, such as guardhouses, patrol boats and snorkels, which they sometimes rent out to beach goers.

In particular, those who have been directly involved in MPA management have found their experience to be transformational, completely changing their self-perception. During an exit interview with FISH, one woman said her experience with the MPA has turned her, from a "nobody" with very little say in her community's future into a "somebody" with a voice that meant something to others. (Her exact words were "*Tungod ani nga programa nahimo mi ug tao,"* which literally translates to "Because of this program, I became a person.") *(Lim, 2010)*

Outside the LGUs, the most active constituency for sustainable fisheries came from the communities tasked to manage the MPAs. Supported by the SAF, community-based POs devised innovative ways to improve their management of the MPAs under their care. Surigao del Sur had the biggest number of SAF-assisted organizations among the Project sites – out of the 22 organizations that were supported through the SAF, 11 were in Surigao del Sur, and 9 of them were POs. One of these POs, the Capandan Multi-purpose Cooperative, managed a fish sanctuary in Cortes that was named a national finalist in the search for the 10 most outstanding MPAs in the Philippines conducted in 2007 by the MPA Support Network (MSN). PO members deputized as fish wardens also helped out in the enforcement of fishery laws outside the protected areas. In Cortes, the deputy fish wardens were particularly motivated because of the incentives they got from the LGU.

Stricter fishery law enforcement, IEC and the emerging benefits from habitat protection and effort restrictions all contributed to bring about small but nonetheless already discernible changes in resource conditions in Lanuza Bay, particularly around the MPAs, where management efforts were coordinated through Lanuza's Bay network of MPA managers, NAMANAKA.

The 2008 MPA monitoring activity showed mixed results across the different MPAs (Table 5) but overall indicated some positive biophysical changes inside the MPAs compared to 2006 (Table 6). Three areas (Carrascal, Ayoke and General Island) were surveyed in 2004, but the MPAs were not legally established until

2005. Between the time of the survey and the official establishment of the MPAs, some of the boundaries were adjusted, which required a corresponding adjustment in the locations of the survey stations. (UPVFI, 2009) As a consequence, changes in biophysical conditions at these MPAs during the period from 2004 to 2008 could not be computed with any appropriate degree of accuracy. The tables below are therefore based only on surveys taken in 2006 and 2008, and include 3 additional MPAs that were monitored during these surveys.

Table 5. Percentage changes in biophysical conditions in 6 FISH-assisted MPAs monitored in 2006 to 2008 (UPVFI, 2009)

MPA	Area (hectares)	Percentage change from 2006 to 2008							
		LIVE HARD CORAL COVER		SPECIES RICHNESS		BIOMASS		FISH ABUNDANCE	
		Inside	Outside	Inside	Outside	Inside	Outside	Inside	Outside
Carrascal	75.00	56.54%	37.87%	-18.03%	-16.39%	-35.98%	31.25%	12.28%	14.01%
Ayoke	25.00	11.95%	0.37%	6.64%	13.51%	47.46%	26.83%	10.97%	-32.18%
General Island	31.00	28.81%	9.32%	9.19%	17.65%	50.65%	1.85%	-38.61%	-6.63%
Adlay	84.00	-10.88%	3.77%	-12.84%	-23.90%	27.59%	-11.76%	-12.63%	-60.86%
Capandan	43.00	9.36%	-15.63%	-12.87%	-7.36%	-28.09%	-35.14%	59.29%	11.01%
Uba	25.00	-16.27%	4.15%	-5.14%	-27.64%	122.73%	-30.00%	16.00%	246.83%
Average	**47.17**	**13.25%**	**6.64%**	**-5.51%**	**-7.36%**	**30.73%**	**-2.83%**	**7.88%**	**28.70%**

Table 6. Average percentage change in biophysical conditions inside and outside 6 FISH-assisted MPAs monitored in 2006 to 2008 (UPVFI, 2009)

INDICATOR	% change 2006-08	
	Inside	Outside
Live Hard Coral Cover	13.25%	6.64%
Species Richness	-5.51%	-7.36%
Biomass*	30.73%	-2.83%
Fish Abundance	7.88%	28.70%

Four out of 6 MPAs surveyed (Carrascal, Ayoke, General Island and Capandan) showed overall positive changes in live hard coral cover, indicating a fairly significant improvement in reef conditions from 2006. Four of the MPAs (Ayoke, General Island, Adlay and Ubay) also recorded higher overall biomass. In the Adlay and General Island MPAs, biomass increase was accompanied by a decrease in fish abundance, which indicated an increase in bigger-sized fish. This might also have been the case in the Uba MPA, which recorded a 122% increase in biomass and a much lower 16% increase in fish abundance.

Outside the MPAs, Carrascal showed a significant increase in hard coral cover but overall reef conditions across the 5 other MPAs appeared largely unchanged compared to 2006. Also, except for Carrascal and Ayoke, biomass was significantly lower or unchanged outside the MPAs, and except for Uba, fish abundance was mostly down or not significantly changed. This could mean that destructive fishing outside the MPAs was well

under control, but protection had not yet produced any significant spillover effect. Or it could also mean that spillover did happen, but there was also increased fishing effort outside the MPAs. These assumptions were supported by fishers' observations. In interviews conducted by the FISH Project in 2008, fishers reported seeing "many more fishes inside the MPAs" but claimed that their fish catch had not significantly improved. (FISH Project, 2010) They surmised it was because, as word about the MPAs got around, the number of fishing activities near the MPAs increased dramatically. Indeed, catch-and-effort monitoring conducted by FISH in 2008 indicated that, although overall the number of gear did not change significantly, there were significant increases in the use of trammel net, hand spear, hook-and-line and scoop net, which are used near or over reef areas, as well as beach seine, which is used in shallow areas.

These results underscored the crucial need for fishing effort management that addresses issues related to overfishing. This requires regular monitoring and adaptive management of the various fisheries, and this was one key competency that the Lanuza Bay LGUs still lacked. Unfortunately, FISH did not achieve much progress in instituting catch-and-effort monitoring in the local government system, primarily because the LGUs balked at taking on the task, claiming lack of financial and human resources. Furthermore, while most of the LGUs had installed a fishery registration and licensing system, they were still not equipped to fully administer the system or utilize it for fisheries management. At best, they performed only the administrative functions of recording fishers' names, boats, gear and other information and collecting registration fees when required by local ordinance.

The Project introduced a standard computerized database management system for the LGUs' use to facilitate the storage and retrieval of their fishery registration and licensing records. The system was well-accepted by most LGU staff, who welcomed its time-saving and data processing efficiency features. But the LGUs still lacked the capacity to utilize the fisheries information they generated for managing fishing effort.

Uba MPA, Cortes (Photo courtesy of Cortes LGU)

Looking ahead to the future, FISH established coordination mechanisms that would link its LGU partners with possible sources of technical or financial assistance. For the first time since it was created in 1996, the Provincial Fisheries and Aquatic Resources Office (PFARO) in Surigao del Sur channeled assistance through the LGU for the maintenance of some MPAs and livelihood development training for MPA managers; it also began to conduct coordination meetings with all LGU fisheries technicians to find ways to complement local initiatives. However, even after such initiatives, the PFARO had yet to establish a tangible enough

field presence in the Lanuza Bay municipalities. Generally among LGUs, there was still a perceived lack of access to support from external sources. In the 2009 capacity review of Project-assisted LGUs, Lanuza Bay LGUs scored only 6% in terms of their capacity to access external sources of funding for CRM after the completion of FISH, and less than 50% on access to external sources of policy and technical support.

One valuable NGO partner that the LGUs relied on for policy support was APREDEC. Being the main partner of FISH for Lanuza Bay, APREDEC beefed up its capability to assist LBDA and its members in the technical aspects of CRM, including resource assessment, community organizing, law enforcement and IEC. The group has continued many of the technical assistance services that it used to provide under FISH (including its weekly radio program) and is now setting its sights on expanding its operations to areas outside Surigao del Sur through the CARAGA Lawyers Network.

Remaining Gaps & Recommendations

Considerable progress was achieved in capacitating the Lanuza Bay LGUs in CRM both individually and as a collective body through LBDA. But for sustainable solutions to take hold, LBDA and its partners in development must continue to pursue the path to sustainable fisheries. In the short- to medium-term, the Alliance would do well to push the following action agenda:

Institutional development. Despite impressive increases in the LGUs' budget allocations for their CRM programs, continuity remains uncertain. Tremendous effort and resources went into training LGU personnel to undertake key CRM functions, but not all of those trained were tenured government employees. Some of the most hardworking CRM "champions" that the Project nurtured were in fact casual employees with "job order" contracts that could easily be separated from their jobs. Expenditure caps on personnel services are real obstacles to the full institutionalization of CRM and fisheries management in the LGU, but they should not prevent LGUs from taking steps to ensure adequate funding for their CRM programs by including the necessary provisions in their annual investment plans. LBDA should constantly encourage its members to create permanent CRM offices and personnel positions at the first opportunity. Additionally, it must continue to seek technical assistance from PFARO, DA-BFAR and other sources toward strengthening its CRM program as well as institutionalizing CRM and fisheries management in the Lanuza Bay LGUs.

Coastal law enforcement. LBDA proved to be an effective coordinator of coastal law enforcement in Lanuza Bay. It must continue to perform this function, as well as provide policy directions to ensure that fishery laws, rules and regulations remain relevant and responsive to the constantly changing regulatory requirements of sustainable fisheries. To support sustained coastal law enforcement, it must continue to work with the PNP Provincial Director to ensure that the PCLEC and MPEDOs are put into full operation.

MPA network strengthening. Early indications of positive biophysical changes in the MPAs monitored by the Project should motivate the LGUs to continue investing in habitat protection. However, during exit assessment surveys, the POs managing the MPAs

A Long-Term Solution
LBDA tackles illegal fishing

Working together helps the Lanuza Bay LGUs to address common CRM issues more effectively.

Former Mayor Algerico Irizari of Lanuza, Surigao del Sur was certain about what he would first focus on when he first assumed office in 1995.

"Small fishers were constantly telling me they were barely catching anything because of commercial fishers poaching on our waters," Irizari told FISH in 2008.

Irizari, a medical doctor, said he knew he was on the right track when he attended a two-week training course in CRM organized in 1996 by the USAID/DENR CRMP. "That training gave me the confidence to pursue my campaign against illegal fishing," he said.

With most violators coming from outside, Irizari realized that without the cooperation of the other Lanuza Bay municipalities, his town would continue to be hounded by poachers. "What the other municipalities allowed fishers to do in their waters also affected us."

Working alongside Cortes Mayor Pedro Trinidad Jr., who was then the municipal planning and development coordinator of Cortes, Irizari persuaded the other towns to form LBDA, primarily to harmonize and coordinate a Bay-wide campaign against illegal fishing. With help from FISH and other partners, LBDA has solidified its position and strengthened its capacity to address various resource use issues affecting the Bay.

Irizari, who ended his last term as mayor in 2010, expressed confidence in the capacity of the Alliance to outlast its founders' terms of office. "LBDA still faces many challenges, but it has made a difference that is visible. It may not be a perfect model, but it has evolved, it is growing, and I believe it is moving toward its goals." *(Sia, 2009)*

expressed concern about their capacity to sustain protection without adequate support from external sources, implying that they were uncertain of continued support from their local governments. LBDA must encourage its members to allocate regular funding to support protection, so that the gains achieved so far can be sustained. At the same time, it must continue working with the POs to strengthen their ranks and promote more collaborative activities. The creation of the NAMANAKA was a step in the right direction, but the network still needs assistance and guidance to sustain its operations.

Fishery registration and licensing. The Lanuza Bay LGUs have yet to complete the registration and licensing of fishers, fishing vessels and gear operating in their municipal waters. As an essential first step toward managing fishing effort, this process must be completed so that it can inform the CRM and fisheries management planning process, both at the local and Bay-wide scale, with LBDA taking an active role in providing the Bay perspective.

Fish catch monitoring. Fish catch monitoring is a crucial component of fisheries management and must be pursued, despite lingering doubts about the LGUs' capacity to do it. LBDA must work with DA-BFAR and PFARO to provide the LGUs with the necessary skills and resources to undertake monitoring. Subsequently, it must take on the responsibility for consolidating and analyzing fish catch data and feeding back its findings to the concerned LGUs for appropriate action.

Fishing effort management. Results from the Project's catch-and-effort and MPA monitoring activities indicated a still high level of fishing effort – and perhaps overfishing – in Lanuza Bay. Unless this issue is addressed, real sustainability cannot happen. LGUs must reexamine their fisheries permitting and licensing policies to ensure that they support fishing effort management. As a first step, LBDA should encourage its members

to adopt their respective comprehensive fishery and aquatic resources management (CFARM) ordinances and ensure that they comply with the provisions of the Lanuza Bay fisheries zoning plan.

As a young organization, LBDA demonstrated the power of collaboration to reform governance practices, especially in the context of enforcing fishery laws in municipal waters where jurisdictional boundaries are often obscure and easily questioned. In the years that it worked with the FISH Project, it deepened and expanded its influence on the policy directions of its member-LGUs with respect to achieving sustainable fisheries in Lanuza Bay. Today, the Alliance has every opportunity to play an even bigger role in pushing forward the sustainable fisheries agenda that it has worked so hard to put together. Much will depend on how well its members can stay committed to the task of reversing the tide of exploitation that still looms over Lanuza Bay's coastal communities and the vital resources that support them.

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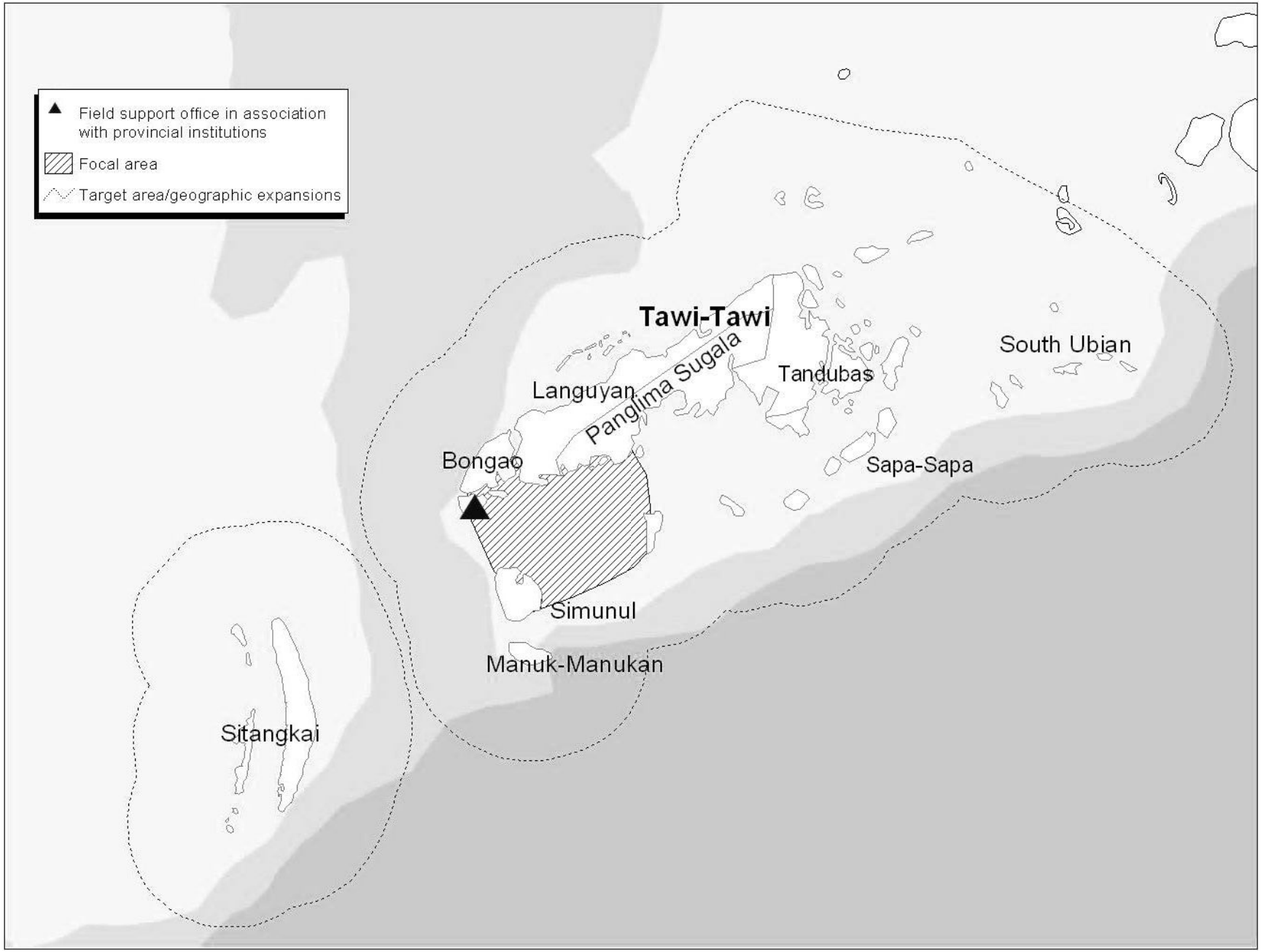
FISH Project target and focal areas in the Province of Tawi-Tawi



Tawi-Tawi Bay: Building governance for sustainable fisheries

Lead author: Moh. Nur Harun[1]*; Co-authors:* Nygiel Armada[2], Marlito Guidote[3], William Jatulan[4], and Rebecca Pestaño-Smith[5]

As a capacity-building initiative, the FISH Project's primary focus at the local level was to put in place the knowledge and skills base needed by LGUs to effectively administer, manage and regulate all activities that directly or indirectly affect fisheries sustainability and the natural resources that support it. In this regard, Tawi-Tawi proved to be a particularly difficult challenge for the Project. Lack of capacity was a common problem across the FISH target areas, but compared to the other sites, Bongao, Panglima Sugala and Simunul – the three municipalities that comprised the Tawi-Tawi focal area (shown on the opposite page) – were incipient political institutions. To catalyze capacity development, the Project relied heavily on a collaborative approach that soon encouraged its focal area LGUs to take the first crucial steps toward instituting basic fisheries governance functions in their respective bureaucracies.

Dried fish vendor at Chinese Pier, Bongao, Tawi-Tawi *(Photo: A. Sia/FISH Project, 2009)*

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Challenge

Tawi-Tawi is the southernmost province of the Philippines, bordering Sabah and East Malaysia. It is under the political jurisdiction of the Autonomous Region in Muslim Mindanao (ARMM), which was created in 1989 by virtue of Republic Act (RA) 6734 "providing for an organic act" for the region. ARMM has its own Local Government Code (Muslim Mindanao Autonomy Act [MMMA] No. 25) which was adopted by its regional government in 1995.

In 2004, when FISH started its field operations in its Tawi-Tawi Bay focal area (Table 1), it had been nearly 10 years since the Local Government Code was enacted, and in fact, RA 6734 had already been amended by another law (RA 9054) that took effect in 2001. But in the FISH focal area in Tawi-Tawi, the LGUs were still only in the early stages of setting up their governance systems, as the powers and functions – not to mention financial and personnel resources – vested on them by law had yet to be fully transferred to them by the regional government. Absenteeism rates among LGU employees were high, and even the mayors rarely reported to work in their town halls.

Table 4.1. Municipalities in the FISH Project Tawi-Tawi focal area

Municipalities	Coastline (kms)
Bongao	20
Panglima Sugala	94
Simunul	29
	143

Not surprisingly, government services were patchy at best and, in the case of fisheries services, almost non-existent. No one paid much attention as dynamite, cyanide, Danish seine and other destructive fishing ran rampage in the Bay – the townspeople were either engaged in illegal fishing themselves, or were ignorant about what was happening in their coastal waters. Government regulation of fishery activities was hardly discernible, and resource management, if at all present, was limited and uncoordinated.

Prior to FISH, government interventions were largely done through the Department of Agriculture-Bureau of Fisheries and Aquatic Resources (DA-BFAR), which performed mainly monitoring functions by documenting the status of fisheries and coastal resources using marine surveys and some limited collection of data on fish catch. Seaweed farming, one of DA-BFAR's earliest initiatives, developed into a major economic sector and one of the biggest contributors to the local economy. (DA-BFAR, 2000)

A few external assistance projects had been implemented in the area: the Canadian International Development Agency's Local Government Support Program, which initiated some capacity-building for LGUs in coastal resource management (CRM) focused on specific activities, particularly the establishment of marine protected areas (MPAs); the Foundation for the Philippine Environment, which funded research and conservation in Tawi-Tawi Bay; and the Muslim Upliftment Association, which assisted institutions for CRM. In terms of the overall implementation of the LGUs' CRM mandate, there was still a general lack of direction setting and planning, which manifested itself in poor service

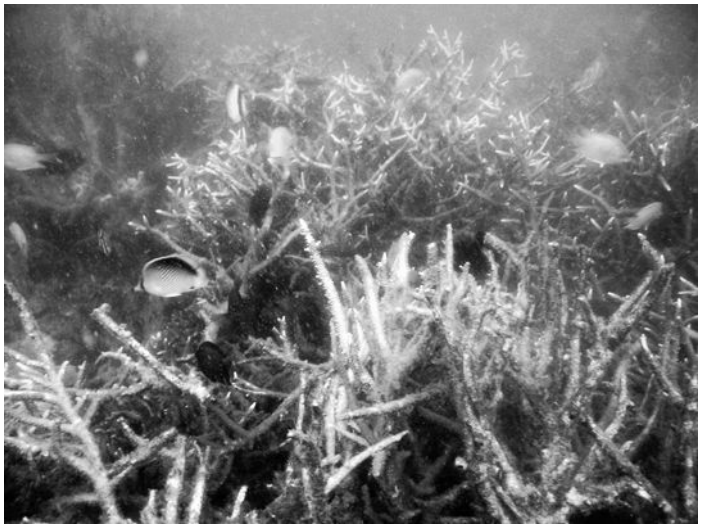
delivery, resource use issues, a declining natural resource base, and weak socioeconomic fundamentals.

Poor service delivery. Service delivery was severely hampered by institutional weaknesses within the LGUs and the provincial, regional and national government agencies mandated to support them. At the start of FISH in 2004, not one of the focal area LGUs had personnel or an office to handle CRM or fisheries matters. Few local officials were even aware that ARMM had its own fisheries code (MMAA 86). Fishery laws were not enforced because political leaders were concerned that their constituents would be deprived of livelihood if they stopped illegal fishing, or simply because they regarded fishery violations as less important than other criminal offenses. Moreover, the municipal legislative councils that could have put pressure on the local chief executives to implement their mandate were themselves indifferent, or in not a few cases, even non-functional. Council members rarely held office much less meet in session, if at all; local legislations only got signed into law by having them delivered "door-to-door" to each council member's residence.

Other concerned government agencies were also largely absent at the local level, as their officials equivocated about jurisdictional issues. The Department of Environment and Natural Resources (DENR) claimed that they had no authority over community-based forest management because it had been devolved to the LGUs. In the same vein, DA-BFAR averred they had no mandate to regulate municipal fisheries because, under the law, LGUs held jurisdiction over municipal waters. But in fact, while indeed the functions had been devolved, the personnel and funds corresponding to such functions were never transferred to the LGUs. With the LGUs therefore greatly constrained by lack of capacity and resources from discharging their mandatory duty to manage municipal waters, there was little being done to address the growing issues of destructive resource extraction and resource degradation that were increasingly hounding Tawi-Tawi's coastal communities.

Resource degradation. Tawi-Tawi Bay sits between two marine biodiversity centers: Sulu Sea and Celebes Sea. The Bay is listed among the major biodiversity areas in the Philippines being an important corridor for a wide variety of marine life, including small pelagic fishes passing through it from the Sulu and Celebes Seas. These pelagic fishes comprise 75% of fish landed in the province.

Surveys of fish density and abundance conducted by the FISH Project in 2004 showed that Tawi-Tawi's fishery resources were in relatively better



Coral community at Barangay Batu-Batu, Panglima Sugala (FISH Project file photo)

condition compared to other Philippine fishing grounds. But there were increasing signs that even here, fish stocks were in decline, primarily because of destructive fishing by dynamite, cyanide, fine mesh nets and other gear used to collect fish and other commercially valuable marine products. Fish catch monitoring in 2004 also revealed that dynamite fishing accounted for 12.66% of total fish landings in Tawi-Tawi Bay, second only to bottom-set gillnet (20.46%). Overall catch monitoring results indicated the predominance of pelagic species caught through the use of ring nets. (FISH Project, 2005a)

Participatory coastal resource assessments (PCRA) conducted in 2005 showed further evidence of the overall deteriorating condition of the Bay's marine resources. Live coral cover and mangroves in the area were given mostly "fair" ratings (Tables 2 and 3) while seagrass beds were found to be in "poor, disturbed or altered condition" (Table 4).

Table 2. Mangrove assessment results from Tawi-Tawi Bay, 2005 (FISH Project, 2005b)

Municipality	% Crown Cover	Regeneration rate / m^2	Height (m)	Dominant Species	Total No.of species found
Bongao	42 (fair)	2	5.9	*Rhizophora apiculata*	26
Panglima Sugala	58 (good)	2.3	5.3	*R. apiculata/R. mucronata*	29
Simunul	46 (fair)	7.3	4	*Ceriops decanda/C. tagal*	9

Table 3. Coral reef assessment results from Tawi-Tawi Bay, 2005 (FISH Project, 2005b)

Municipality	Percentage cover	Ratings	Number of species
Bongao	46	Fair	42
Panglima Sugala	44	Fair	40
Simunul	41	Fair	38

Table 4. Seagrass assessment results from Tawi-Tawi Bay, 2005 (FISH Project, 2005)

Municipality	Average cover (%)	Condition rating	Dominant species	Total no. of species found
Bongao	40	Disturbed	*Thalasia hemprichii*	10
Panglima Sugala	47	Disturbed	*Enhalus acoroides*	11
Simunul	58	Disturbed	*T. hemprichii*	11

Again, although these habitats rated better than those found in some of the other FISH sites, they were clearly already in a state of degradation. When the assessments were conducted, the cutting of mangroves, destruction of seagrass and quarrying of corals and beach sand were evident. Additionally, there were confirmed reports of the gathering, trading and transport of red-listed species, particularly shellfish and *mameng* (*Cheilinus undulates*).

In 2005, about 15 commercial fishing boats freely (but illegally) operated in Tawi-Tawi Bay, using a variety of active gear such as ring nets (*kulibo*), bag nets (*basnig*), and Danish seine (*hulbot-hulbot*).

Poverty and high population growth. Fisheries are the second biggest source of employment in Tawi-Tawi province, next only to agriculture. Given this, any further

decline in the fisheries resource base would have massive impacts on the local socio-economic situation. Already, in 2000, Tawi-Tawi had the third highest poverty incidence (about 56%) in the Philippines, more than double the national average of 24.4%. By 2006, with its poverty incidence rising to nearly 79% (national: 27%), it was ranked No.1 among the country's poorest provinces. (NSCB, 2007) Even the Project's focal area had a high poverty incidence of more than 50% in 2000, despite being close to the province's trade and commercial center in Bongao. (NSCB, 2005)

Coastal community in Bongao (Photo: A Sia, 2008)

The situation appears even more critical given the high population growth rate in the area. Population in the 3 focal area municipalities grew at a fast rate of 4.5% yearly between 1995 and 2000, nearly double the national average of 2.36%. It grew at an even faster annual rate of more than 5% from 2000 to 2007, when the national population grew at a slower pace of 2.04%. Bongao had the highest population growth rate in 2000-2007 (7%) and Simunul had the lowest (2.5%). Province-wide, the population grew 5.5% annually in 1995-2000 and 4.72% in 2000-2007. (NSO, 2008) As well as high birth rate, in-migration (primarily from Sulu and Basilan) accounted for such high growth rates.

Small-scale fishers constitute a large segment of the population in the focal sites: about 23% of the population in Bongao, 71% in Panglima Sugala, and 44% in Simunul. Fishers commonly use hook and line, gill nets, traps, fish corrals and spear gun in fishing. Seaweed farming is also a major source of livelihood.

Objectives

The FISH Project was designed to bring to the next level the Philippine experience in CRM by building much needed fisheries management capacity especially at the local level. It officially started in September 2003 and had a total life of 7 years (2003-2010). The Project was tasked to work with the Philippine government through DA-BFAR and other concerned agencies to begin a process of reform from open access to managed resource use in fisheries.

The province of Tawi-Tawi was one of 4 FISH target areas, which also included the Calamianes Group of Islands in Palawan west of the country, Danajon Bank in Central Visayas, and Surigao del Sur on Mindanao's Pacific seaboard. In general, the Project aimed to catalyze changes in exploitation patterns of fishery resources in a smaller "focal area" within each of its target areas that could be sustained and replicated beyond its lifespan. In Tawi-Tawi, the Project hoped to achieve the following specific objectives:

- To develop strategic coastal resource and fisheries management plans at the municipal level based on resource assessment and other relevant results;
- To formulate fisheries ordinances and other policies aimed at protecting fish habitats and deterring destructive and highly efficient fishing practices;
- To institute a fishery registration and licensing system at the municipal level;
- To establish MPAs and train community-based groups in MPA management and protection;
- To enforce coastal and fishery laws through the establishment of functional coastal and fishery law enforcement units and coordination systems at the local level;
- To build an active constituency for sustainable fisheries through information-education-communication (IEC), community organizing, outreach and other strategies

Strategies & Actions Taken

Given the state of fisheries governance in the Tawi-Tawi focal area, the Project's overall strategy was to pursue its objectives while simultaneously helping and encouraging the LGUs to develop the basic governance systems needed to improve their absorptive capacity for technical assistance and ensure some level of program continuity after Project completion. The preferred capacity-building strategy was heavily anchored on participatory and experiential approaches where every activity was a learning event that engaged stakeholders in the critical steps of planning and decision-making.

Entry and baseline assessments. When the Project set up its field office in Bongao in late 2003, it found enthusiastic partners among LGU staff and DA-BFAR, who were eager for the opportunity to learn new skills through its technical assistance package. Despite such show of enthusiasm, however, real action was slow in coming. The LGUs signed with FISH memorandums of agreement declaring their specific commitment to undertake CRM and government workers were eager to apply what they learned from FISH trainings, but funding was not regularly made available for the implementation of programs. Without political backing from LGU officials (particularly the mayors), the Project's "entry period" was stretched out for nearly 2 years.

The Project used a well-proven strategy to bring around local officials to support its initiatives: study tours. In 2005, several community members and local officials – mayors, municipal councilors, *barangay* officials and selected staff from the LGUs and other government agencies – were invited to participate in a FISH-sponsored study tour that included Bohol, Masbate, Negros Oriental and Cebu, where they met with their counterparts in municipalities with successful CRM programs. They came away from the tour with a much better appreciation of what they could achieve by pursuing some critical CRM actions, notably MPA establishment, coastal law enforcement and CRM planning.

Meanwhile, the Project conducted baseline fish stock and MPA assessments to gather initial information on the status of fishery resources in its focal area. Unlike most of the Project's other activities, these baseline assessments and subsequent monitoring events were undertaken largely independently of local partners, primarily to track Project

performance relative to improving fish stocks in the focal area and biophysical changes in and around MPAs.


CRM planning, Bongao (FISH Project file photo)

Participatory assessment and CRM planning. As soon as local officials became supportive of CRM (or at least its general principles), the Project facilitated participatory coastal resource assessments (PCRA) to give local stakeholders the opportunity to see for themselves the condition of their resources, primarily important marine habitats such as coral reefs, seagrass beds and mangrove forests. In this regard, PCRA was a capacity development as well as a constituency building strategy.

As a constituency building strategy, PCRA has proven particularly effective not only in promoting stakeholder awareness and understanding of the need for CRM but also in getting local communities actively involved in coastal protection and management. Through PCRA, participants from various community sectors – including *barangay* officials, leaders and members of fishers' organizations and youth and women's groups, LGU staff, NGOs, government agencies and other stakeholders – learn how to conduct actual site assessments with different groups surveying mangroves, seagrass beds and coral reefs, and conducting interviews. They are also trained to gather secondary information useful to CRM, map resource use and issues, and identify fishing and other relevant trends.

The Project deemed it particularly important for the Tawi-Tawi stakeholders to participate in PCRA activities, because of their unfamiliarity with the concept of habitat protection and CRM in general. PCRA was conducted in all of the FISH focal area LGUs in 2005, serving as the initial impetus for community stakeholders to get involved in MPA management.

PCRA results guided the formulation of each LGU's municipal CRM plan. A technical working group (TWG) composed of LGU staff, community stakeholders, and representatives from DA-BFAR and other concerned agencies was created to promote broad participation in the planning process. Plan preparation involved a series of consultations and field activities and culminated in the presentation of the plan to the municipal council. To promote program sustainability, the Project encouraged each LGU to create a municipal fisheries office dedicated to ensuring that the plan would be implemented and that local fisheries concerns would be addressed in a timely manner.

The plans were popularly referred to as "municipal fisheries management plans" but were not focused on fisheries management. Mostly, they tackled the various CRM areas in broad terms rather than specifically undertake in depth the various aspects of

fisheries management, such as fisheries profiling; fishing effort management; formulation of fishery measures, rules and access rights, etc. This was partly because the Project wanted to build up support for CRM by promoting positive stakeholder experience in some of the more familiar CRM "best practices," such as MPAs and coastal law enforcement, of which there already existed many documented and verifiable proofs of success.

MPA establishment. The Project's proposal to establish MPAs in selected areas around Tawi-Tawi Bay gained strong approval from local leaders who participated in the 2005 FISH-sponsored study visit to successful MPAs in Masbate and Central Visayas. Four sites – 2 in Bongao and one each in Panglima Sugala and Simunul, and all traditionally used by local fishers for dynamite fishing – were initially selected for protection. Affected communities were consulted, informed about the potential benefits they would get from the MPAs, and encouraged to participate in their establishment and management. Subsequently, a good number of stakeholders became deeply involved in the establishment of the MPAs, including the construction of guardhouses and installation of buoys marking the MPAs' boundaries. A special activities fund (SAF) that FISH set up helped to purchase construction materials to build MPA guardhouses, patrol boats, marker buoys and monitoring and communication equipment, while participating communities contributed labor and other material support. Community contributions and participation were encouraged to engender among members of each community a sense of ownership, pride and responsibility over the MPA they were tasked to manage and to motivate their continued involvement in its protection.

Along the way, some community members were deputized as fish wardens, organized as a community-based enforcement team called *Bantay Sanctuary*, and trained in the enforcement of MPA rules and regulations. For each MPA, the Project also formed and trained a committee composed of community members who monitored MPA activities and made decisions about its management. This committee worked with *barangay* and municipal officials to draft a multi-year MPA management plan.

Installation of buoys, Pababag/Lagasan Fish Sanctuary, Bongao
(FISH Project file photo)

As with most of the Project's other interventions, the process of setting up the MPAs was designed to also support capacity development in the LGU. Toward this end, concerned personnel from the LGU and relevant agencies like DA-BFAR were encouraged to participate in every step of the process.

Six additional MPAs were subsequently established in the 3 focal

area municipalities – 2 in Bongao, 3 in Panglima Sugala and 1 in Simunul. Several of the new MPA sites were selected based on hydrodynamic and larval dispersal studies conducted in 2006. The studies provided information on current and larval distribution patterns and potential ecological interactions that suggested the "best mix" or network of MPAs to support recovery and maintenance of the ecosystem.

The Project supported the coordination of management activities within the network by facilitating the formation of the Tawi-tawi Bay Fish Sanctuary Alliance composed of representatives from the 3 focal area LGUs and other government line and enforcement agencies. The Alliance served as the primary venue for discussing MPA management issues and sharing information on best practices. Because of their involvement in the Alliance, the three LGUs were encouraged to adopt a memorandum of understanding that addressed trans-boundary issues related to fishery law enforcement.

Coastal law enforcement. One of the biggest challenges for those tasked to manage an MPA is the constant threat of poaching. Such threat only grows as the habitats and fish stocks within the MPA become more productive.

In Tawi-Tawi, one of the Project's biggest challenges in general was how to improve compliance with fishery laws. The enforcement of fishery laws in Tawi-Tawi was inconsistent, if not totally absent in some places. Violations of fishery laws were largely regarded as *mala prohibita*, or wrong only because the law prohibited them and therefore there was no real social pressure on anyone to follow them. In Tawi-Tawi, violations were even sometimes encouraged. For example, dynamite fishing – rampant even on ordinary days – was often encouraged during the few days after the Ramadan and other occasions, for example, as part of death and wedding rituals, when large gatherings for meals are common.

To support, coordinate and provide oversight to municipal enforcement, the Project urged the formation of a provincial coastal law enforcement team (PCLET), and assisted the formulation of *Oplan Mataud Istah,* an operational guide for law enforcers. When the PCLET failed to fully function, the Project turned its focus to municipal enforcement. Upon its recommendation, the 3 focal area LGUs each formed a municipal coastal law enforcement team composed of the Philippine National Police (PNP), PNP-Maritime Group, Philippine Coast Guard, Philippine Navy, Philippine Marines, and members of different *Bantay Sanctuary*. Following their 2005 study tour, they also supported the establishment of the Municipal Police Environment Desk Office (MPEDO), about which they learned while visiting Bohol.

Enforcers went through several stages of training, from the basic enforcement course to enhancement and specialization courses fitted to the particular needs of each team. The basic course covered fisheries and maritime law enforcement topics and legal and tactical approaches to site-specific violations. Enhancement training focused on the enforcement of site-specific ordinances covering such measures as temporal and spatial restrictions (including MPAs), registration and licensing, navigation, investigation and report writing, while specialization courses consisted mainly of the standard fish

Coastal law enforcement training (FISH Project file photo)

examiner's training course offered by DA-BFAR but also included plotting and chart work, media relations, and trainers' training.

IEC was also a key module in coastal law enforcement training courses, particularly in the aspects of prevention and detection in the law enforcement continuum. It covered relevant skills and methods that coastal law enforcers could use to "sell the law" and promote compliance, emphasizing the role of enforcers as "public educators" who could help transform community perception toward illegal fishing, especially cyanide and dynamite fishing, as highly undesirable and unacceptable behaviors. Because illegal activities thrive in the absence of strong moral or ethical standards, training highlighted the role of enforcers in strengthening and then maintaining the moral values and ethical norms of the communities they served.

Between courses, municipal compliance and enforcement teams received coaching and their performance was periodically assessed to gauge their learning progress and identify remaining skills and knowledge gaps. For example, in Bongao, the Project assisted the formulation of *Oplan Pagjaga* that was intended to provide overall guidance to the MCLET's operations. Although the *Oplan Padjaga* was not fully enforced, it still resulted in a decrease in the incidence of illegal fishing in Tawi-Tawi Bay. Toward the end of 2007, violators – especially blast fishers – began operating at night to evade the enforcers, forcing the *Bantay Sanctuary* to run 24/7 surveillance and patrol operations. When requested (as was often the case), the Project attended the team's regular meetings and some of its enforcement operations to lend its members both technical and moral support. Project staff responded to the volunteer enforcers' call for help day or night to ensure that they were adequately supported by concerned agencies like DA-BFAR, PNP and PNP-Maritime and that other enforcement agencies operating within the area were properly informed about all ongoing enforcement operations. Coordination was critical to avoid any mis-encounter at sea between police operatives and the Philippine Navy and Philippine Marines, who also maintain a presence in the area.

FISH also provided guidance to the *Bantay Sanctuary* to help ensure that its patrol operations were in compliance with the Philippine Fisheries Code (RA 8550), the regional fisheries code (MMAA 86), and relevant municipal ordinances. Volunteer enforcers were taught how to use the handbook *Mending Nets*, which was published by the Project and the Environmental Legal Assistance Center (ELAC) to provide enforcers with a practical guide on the prosecution of fishery and coastal law violations. If needed, the Project also facilitated the documentation of each violation, inventory of paraphernalia, preparation of

apprehension reports and affidavits, and the turnover of violators to local authorities. This type of assistance greatly improved the response time of the municipal police station, particularly in Bongao where the Project was based and could respond quickly to the enforcers' requests for help.

Constituency building. One particularly prominent element of the Project's strategy to promote compliance was the development of a strong constituency for CRM and "good fishing" practices. Opportunities to engage various institutions in the capacity building effort in Tawi-Tawi came up in 2005. That year, an NGO consortium called "Pagtabangan BaSulTa" was formed and put together a fund for various projects on water, environment, livelihood, leadership and skills training, health, education, agriculture, peace building and governance training "to break the cycle of poverty" in the provinces of Basilan, Sulu and Tawi-Tawi. ("Pagtabangan" means "to help each other"; BaSulTa is an acronym for Basilan, Sulu and Tawi-Tawi.) Also, the Department of Agriculture allotted Php15 million for two major fishery projects in Tawi-Tawi and Sarangani Province, with Tawi-Tawi receiving Php10 million for the construction of a multi-species hatchery. Along with the agriculture department, the Southeast Asian Fisheries Development Authority-Aquaculture Department (SEAFDEC-AQD) was also involved in the project.

To constantly engage local officials, the Project framed its messages to emphasize the LGUs' mandate and corresponding responsibility to manage their municipal waters, and that failure to deliver this mandate could make an LGU liable to higher authorities or the electorate. Initially,

Sea Guardians
Community volunteers help protect Tawi-Tawi Bay

Julficar Ladjahali (second from left) with members of the MCLET of Bongao embarks on another sea patrol mission. (Photo: A. Sia, 2008)

When FISH began promoting the establishment of an MPA in Bongao, all fingers pointed at village chief Julficar Ladjahali to lead the initiative. The site that was initially selected for the MPA did not include Ladjahali's village, but local leaders advised the Project to involve Ladjahali, who was known for his strong leadership

At first, Ladjahali was not totally convinced the MPA would work. But he kept an open mind, even when his mother told him she thought it was a bad idea. "She said it wasn't fair to ask people to stop fishing. What would they do for food?"

What finally sealed his commitment was a FISH-sponsored study tour that he participated in. What he experienced during the tour left a deep impression: "We visited communities that protected and successfully revitalized their fishery resources, and I thought, if others could do it, so could we. And that's exactly what we have accomplished. A few years ago, our nearshore waters were severely depleted; now the fish are back."

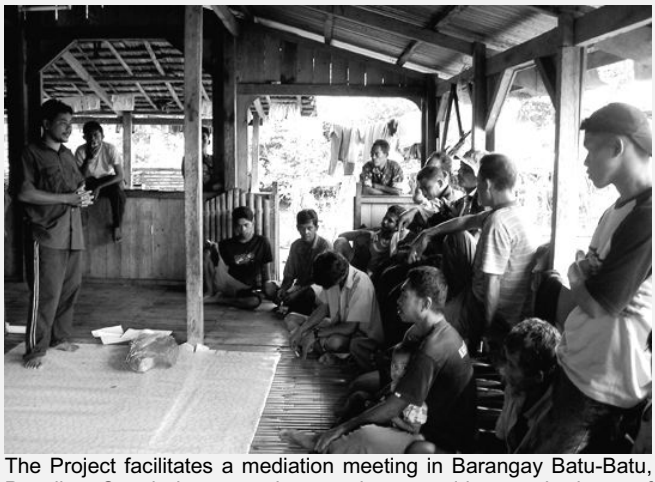
With help and guidance from FISH, Ladjahali, along with other local officials and *Bantay Dagat* members, established the Pababag/Lagasan MPA, built a guardhouse, and guarded the MPA with their lives. Literally: "Of course people say we're taking away their source of income, so we've made many enemies and some have threatened to kill us," Ladjahali revealed on numerous occasions.

Ladjahali was later assigned to head the MCLET of Bongao. He and the other local champions like him that help protect Bongao's municipal waters have vowed to continue their mission: "We can't stop now that we're beginning to reap the benefits of protection. We will continue to do this, and we will continue to do it well." (Sia, 2008)

orientation meetings and information caravans spearheaded by the IEC team were held by way of introducing the Project to its target LGUs and other constituencies. The community-level information caravans were conducted using the local Tausug and Sama dialects to promote audience comprehension. User-friendly information materials such as posters, leaflets, comic books and booklets were distributed during these caravans to encourage further discussion of issues. The caravans were also organized as a learning activity for concerned personnel from the focal area LGUs and DA-BFAR to observe and participate in the practical applications of basic IEC strategies.

Using a good amount of interpersonal communication and persistence, site teams actively focused on the office of the mayor as well as the municipal council and where possible, the fisheries and aquatic resource management councils (FARMCs), which had influence on the LGU's policy-making as an advisory body.

Keeping the Peace
Conflict between clan members over MPA resolved peacefully



The Project facilitates a mediation meeting in Barangay Batu-Batu, Panglima Sugala between clan members at odds over the issue of setting up an MPA at their village. (Photo: R. Irilis, 2006)

The strategy of restoring the natural productivity of marine resources by prohibiting or limiting access to them is well-proven and has become widely accepted in the Philippines. But setting up an MPA can still present difficult challenges.

In 2005, when the Batu-Batu/Kulape Fish Sanctuary in Panglima Sugala was being planned, a shootout almost erupted between clan members who supported the initiative and those that opposed it. To ease the potentially explosive situation, the Project arranged through the Mayor's office a mediation meeting between the opposing camps. Not everyone left the meeting completely sold on the sanctuary, but all parties agreed to exercise restraint and allow the initiative to continue without further trouble.

The benefits of protection have since become evident in higher fish catches and incomes for many stakeholders. Today, the MPA has become a showcase of community cooperation, guarded and protected by community members, including some of those that initially opposed it. *(Sia, 2008)*

When called for, the Project also played a facilitation role in defusing resource use conflicts. In Panglima Sugala, a potentially violent situation erupted between resource users who were divided on the issue of setting up the MPA. With the Project's help, the mayor presided a mediation meeting that allowed all parties to air their grievances and come to a "gentlemen's agreement" to exercise restraint and allow the MPA initiative to continue without further trouble. Similar facilitation and mediation roles were performed by the Project over issues related to site selection for MPAs, municipal water delineation and fisheries use zoning.

Building and calling upon social capital was another important strategy for promoting sustainable fisheries in Tawi-Tawi, where social networks and family ties are paramount when making decisions or implementing programs. The establishment of MPAs, for example, was coursed through 2 channels: the LGUs and recognized community leaders. Also, the initial recruitment of law enforcers and volunteers to guard the MPAs was done mostly within the family and clan

circles of the recognized village chiefs and, for the most part, it was social capital rather than altruism that served as the motivation for volunteerism.

In the early stages of Project implementation, radio interviews were used to disseminate information about fishery issues. Later, the Project produced radio spots to promote citizen involvement in the effort to address the issues. In 2010, the Project helped the LGUs of Bongao and Panglima Sugala to establish a CRM information center and develop an interpretive exhibit aimed at promoting environmental stewardship among local residents. Both LGUs adopted the interpretive education concept after a visit to the Masbate City CRM Interpretive Center in 2005 as part of their first study tour.

To reinforce its message of environmental stewardship, the Project looked for "champions" beyond the fisheries sector, engaging members of the media, youth groups and the religious sector in the advocacy effort. Through the SAF, it supported the Supreme Council for Islamic Preaching and Guidance, Inc. (SCIPG), a group of shariah (religious) lawyers and Muslim Religious Leaders (MRL) in the formulation and dissemination of the Philippines' first ever fatwa (religious ruling) on marine conservation. The *fatwa* was formulated by a group of *ulama* in a series of *mushawarah* (consultations and research) and officially issued by the Mufti of Tawi-Tawi in 2006. Disseminated in 4 language versions (English, Arabic, Sama and Tausug), it tackled the issues of blast fishing, cyanide fishing, the harvesting of juvenile fishes, and the protection and conservation of marine habitats. It categorically declared the use of dynamite and cyanide to catch fish as "prohibited in Islam" because it causes direct or indirect harm to humans and the environment. It also declared the harvesting of juvenile fishes as "undesirable" if it involves wastage "such as throwing away or abandoning dead tiny fishes" and that the protection and conservation of marine habitats is a "collective obligation of the community."

Two other non-fishery groups were engaged in the CRM process through the SAF. These were the Kasalamatan Sin Raayat Lagasan Association (KSRLA), which had several years of experience in providing social services (mainly focused on child care and livelihood development) in Lagasan village, Bongao, and the Advocacy for Resource Management and Environmental Governance (ARMEG), a newly created organization that aimed to provide public education on various environmental issues affecting Tawi-Tawi. Their participation in the SAF allowed both groups to get involved in CRM programs – KSRLA, for instance, expanded its program to include assistance to community-managed MPAs in Bongao and neighboring municipalities.

Policy development. One group that needed to be engaged in the CRM process – the *Sangguniang Bayan* (SB) or municipal legislative council in each of the focal area LGUs – was themselves the focus of some of the Project's capacity-building efforts. SB members rarely met in session, and some members admitted they did not know how to formulate an ordinance and did not fully understand their responsibilities and functions as local legislators. To support local policy development for CRM, the municipal councils had to be capacitated first. To achieve this, the Project worked with the Philippine Councilors' League (PCL) and the PCL-Tawi-Tawi Chapter, through the PCL national

Boatload of illegally caught tropical fishes seized by police operatives in Bongao (FISH Project file photo)

president, to orient local legislators to their duties and the process of formulating a municipal ordinance.

The Project also assisted the provincial government in the formulation of the Tawi-Tawi Provincial Environment Code through a participatory and consultative process involving several government agencies and the various sectors of society. In addition, ARMM, and as a consequence, Tawi-Tawi, received special attention from the Project in terms of the development of fishery-related policy instruments. An early priority policy work for the Project was the formulation of the implementing rules and regulations (IRR) of MMAA 86 or the ARMM Fisheries Code, which helped clarify issues related to the LGUs' role in fisheries management, particularly in the enforcement of fishery laws.

The Project also assisted the regional DA-BFAR office in the ARMM in the formulation of Regional Executive Order (REO) 16 s. 2006 creating an inter-agency regional monitoring, control and surveillance team in ARMM to help reinforce the enforcement capabilities of the Tawi-Tawi PCLET. In addition, it assisted the adoption of regional FAO (RFAO) 57 s. 2009 providing guidelines on the harvesting and trading of tropical fishes in ARMM, an especially important concern in Tawi-Tawi, where a still relatively rich source of tropical fishes remains available amid diminishing catches and tighter controls in the traditional sources of these lucrative commodities.

On occasion, the Project was also called upon to provide "expert opinion," such as in the case of 4 House bills proposing the establishment of "modified mariculture development parks" in Tawi-Tawi – in this case, it advised against a plan to raise *mameng* in cages for export purposes, as it could lead to overfishing of juveniles and further complicate the enforcement of measures to protect this CITES-protected species. However, this recommendation did not make it to the final versions that were approved by Congress and submitted to the Senate in 2009.

Local officials in Bongao did heed the Project's advice to step up efforts to prevent illegal trade in *mameng*. As a red-listed commodity, *mameng* is covered by both international and national laws on the international trade in rare and endangered species. In 2007, the municipality of Bongao sought to reinforce the local enforcement of this ban by adopting a municipal ordinance prohibiting the catching and transport of *mameng.*

FISH also assisted the adoption of its focal area LGUs of ordinances banning the use of air compressor in fishing and the catching and selling of dolphins. In addition, it supported the Panglima Sugala LGU in the formulation of an ordinance declaring the establishment of an abalone sanctuary (and subsequently assisted its establishment).

Fishery registration and licensing. As part of its effort to pilot Executive Order (EO) No. 305 series of 2004, the Project pushed for the institutionalization of fishery registration and licensing in the Tawi-Tawi Bay municipalities. EO 305 devolved the registration of municipal fishing vessels from the national government (specifically the Maritime Industry Authority and Philippine Coast Guard) to the LGUs. It was advocated by the National Anti-Poverty Commission Fisherfolk Sectoral Council and the League of Municipalities of the Philippines to facilitate the registration of municipal fishing vessels.

LGUs and regional officials were oriented to the merits and protocols of administering a fisheries registration and licensing system at the municipal level. The fisheries registration system was installed in the municipal fisheries and agriculture office and linked to the revenue collection system of each of the focal LGUs through a series of workshops leading up to the adoption a municipal ordinance that officially instituted the system.

Concerned municipal personnel were trained in the registration process and qualified trainees were further equipped with specialized skills and certified by the Maritime Industry Authority (MARINA) in admeasurement, a prerequisite to the official registration and documentation of all sea vessels, including those used for fishing. Then public consultations were conducted to promote community acceptance of the registration program. Once these were completed, the specific LGU functions related to fisheries registration and licensing were adopted through a municipal ordinance that also spelled out the systems and procedures and a common fee structure. Subsequently, the system was put in operation.

Zoning. FISH promoted fisheries use zoning to determine and evaluate the interactions among the various uses, identify multiple uses and resolve any existing or potential conflicts through proper allocation of space. In Tawi-Tawi, zoning also had a very specific objective: to ease tension among seaweed growers at Sitangkai Island over allocation of space and to avoid similar resource use conflicts in other seaweed farming communities.

Zoning mostly involved marine spatial planning (MSP) focused on fisheries resource use within defined ecosystems shared by various resource users. The Project facilitated a series of activities aimed at producing a draft zoning map that identified possible sources of resource use conflicts and overlaps. Municipal officials, technical experts from concerned government agencies and local academic institutions, and members of MPA management councils worked together to identify conflict areas and possible solutions. The information was validated through field surveys and the maps accordingly updated and presented to stakeholders in community meetings for further refinement and eventual adoption by the municipal councils.

Results & Impacts

The Project's performance monitoring showed the following accomplishments contributing toward the institutionalization of basic CRM functions in the governance systems of the 3 Tawi-Tawi focal area LGUs:

- All 3 focal area LGUs instituted a fishery registration and licensing system by municipal ordinance;
- Law enforcement units established and trained in all 3 LGUs;
- 11 new MPAs assisted, all of them functional and adequately enforced (4 in Bongao, 5 in Panglima Sugala, 2 in Simunul);
- CRM instituted by all 3 focal area LGUs through the adoption of multi-year CRM plans;
- 1 inter-LGU agreement adopted; and
- Reproductive health information and services linking population growth to environmental degradation delivered to 4 villages.

Relative to where the Project started in 2004, these accomplishments constituted remarkable progress, but in the overall scheme of good governance development, they only represented the first milestones in the still long journey to sustainable fisheries. Indeed, based on a rating system devised by the Project for its 2009 capacity review, the Tawi-Tawi focal LGUs scored a low 19% in terms of their capacity to coordinate 10 basic CRM functions, and 20% on implementing these functions, the lowest among the Project sites. Furthermore, the LGUs scored only 16% in terms of their capacity to access technical support from external sources after FISH Project completion, and even lower on access to funding and policy support. (Table 5)

Table 5. Capacity scores of the Tawi-Tawi focal area LGUs in terms of access to external assistance after FISH Project completion (2009)

Type of support	Capacity score
Funding support	7%
Policy support	6%
Technical support	16%

Most of the LGUs' CRM functions were discharged through an *ad hoc* office created by executive order issued by the mayor's office. Only Simunul had a permanent position for a municipal agriculturist, while Bongao and Panglima Sugala employed contractual (or "job order") staff or detailed personnel from other offices to carry out their CRM programs. Despite their rather uncertain prospects of permanency, these offices and the individuals assigned to them were the primary focus of the Project's capacity-building effort. For the most part, they served the purpose for which they were created, at least during the time that FISH was there to help them lobby for support from the LGU. To provide some assurance of permanency, provisions for the creation of a permanent position for a municipal fisheries officer were included in each LGU's municipal fisheries code.

Budgetary provisions for CRM (or the more general "environmental management" budget line item) were also included in the LGUs' municipal development and annual investment plans (AIP). (Table 6) There was never any real guarantee that the legislated budget would actually be followed, however. For example, Panglima Sugala did not

submit a report on their budget allocations in 4 out of 6 years during the period 2005-2010, but was known to have spent the most for CRM among the 3 focal area LGUs. On the other hand, Simunul, which had a relatively big budget for CRM between 2008 and 2010, spent the least amount over the 6-year period. An overall upward trend in the LGUs' spending for CRM was achieved through lobbying by FISH, but the amount spent ultimately depended on each mayor's interest in CRM. Funding came from the municipal LGUs, *barangay* funds, and some private sector contributions (Table 7).

Table 6. Budget allocations and actual spending for CRM in the Tawi-Tawi focal area (2005-2010)

Year	Bongao		Panglima Sugala		Simunul		Total	
	AIP/ELA	Actual*	AIP/ELA	Actual*	AIP/ELA	Actual*	AIP/ELA	Actual*
2005		700		24,050				24,750
2006		148,440	300,000	83,150		55,700	300,000	287,290
2007	300,000	266,500		525,250		115,450	300,000	907,200
2008	100,000	358,815		698,900	985,000	129,100	1,085,000	1,186,815
2009	200,000	237,510		559,200	700,000	59,000	900,000	855,710
2010	1,500,000	38,800	700,000	127,500	700,000	17,000	2,900,000	183,300
Total	2,100,000	1,050,765	1,000,000	2,018,050	2,385,000	376,250	5,485,000	3,445,065

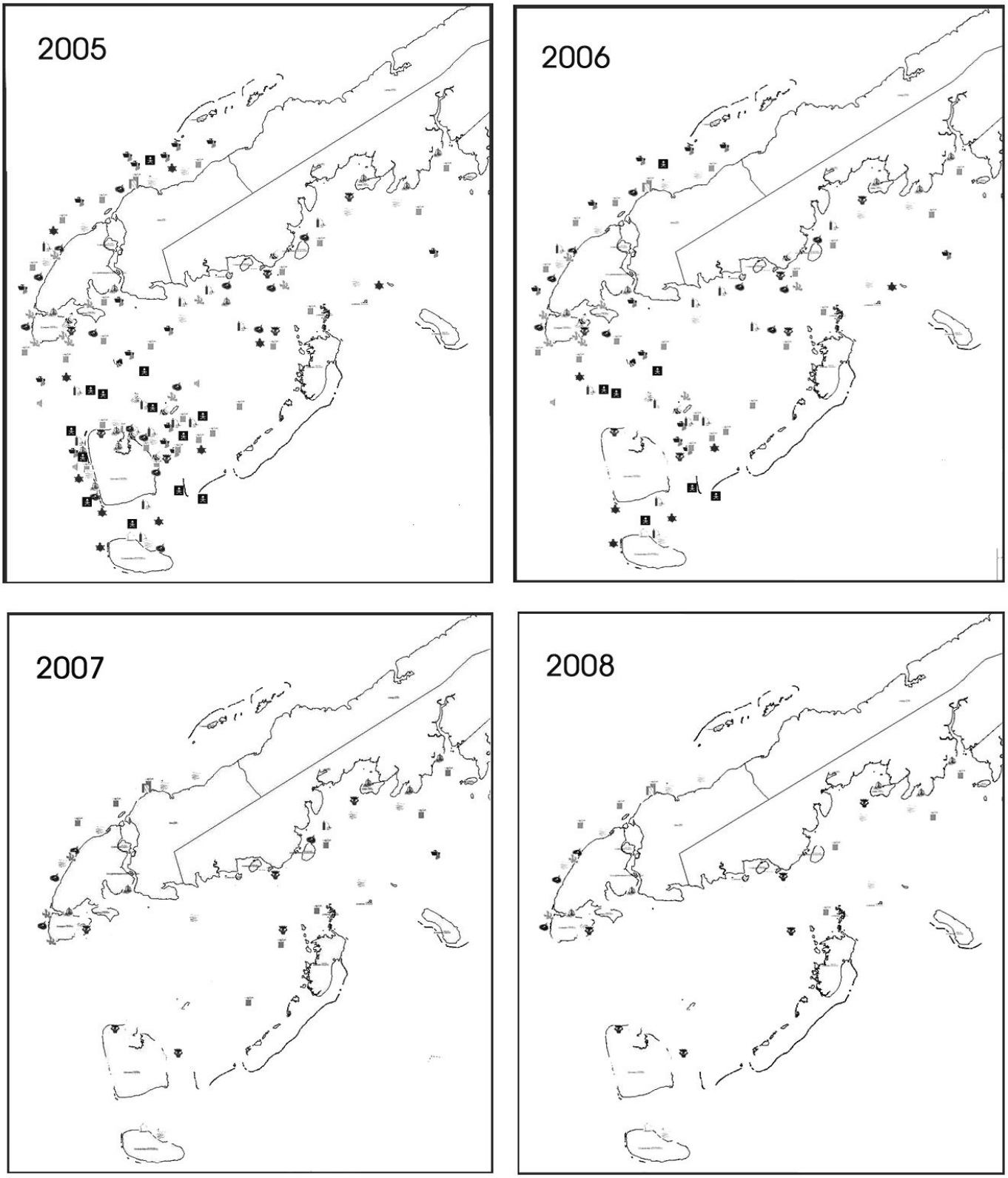
*Actual spending, as reported by each LGU in the FISH Project Performance Monitoring Data Form. Amounts represent spending by municipal LGU, *barangay* fund and some private sector contributions. Figures for 2010 are as of March 2010.

Table 7. Sources of funding for CRM in the Tawi-Tawi focal area (2005-2010)

LGUs	2005	2006	2007	2008	2009	2010*	Total
Bongao	**700**	**148,440**	**266,500**	**358,815**	**237,510**	**38,800**	**1,050,765**
Municipal government		*28,800*	*77,800*	*187,315*	*160,600*	*28,800*	*483,315*
Barangay fund	*700*	*119,640*	*188,700*	*171,500*	*61,650*	*10,000*	552,190
Lagasan	700	119,640	156,000	132,000	25,000	7,000	440,340
Pababag			31,200	13,000			44,200
Ungus-Ungus			1,500	26,500	4,000	2,000	34,000
Pasiagan					18,650		18,650
Ipil					14,000	1000	15,000
Private sector					*15,260*		*15,260*
Panglima Sugala	**24,050**	**83,150**	**525,250**	**698,900**	**559,200**	**127,500**	**2,018,050**
Municipal government	*21,250*	*63,650*	*333,950*	*578,000*	*396,500*	*103,500*	*1,496,850*
Barangay fund	*2,800*	*19,500*	*191,300*	*120,900*	*162,700*	*24,000*	521,200
Batu-Batu	2,800	19,500	24,100				46,400
Kulape							0
Tondon			167,200	96,400	111,200	7,000	381,800
Liaburan				8,500	17,500	8,500	34,500
Belatan Halo				7,500	17,500	6,500	31,500
Buan				8,500	16,500	2,000	27,000
Simunul		**55,700**	**115,450**	**129,100**	**59,000**	**17,000**	**376,250**
Municipal government		*26,400*	*33,000*	*69,500*	*59,000*	*17,000*	*204,900*
Barangay fund		*29,300*	*82,450*	*59,600*			*171,350*
Doh Tong		29,100	11,750				40,850
Tonggusong		200	70,700	38,800			109,700
Maruwa				20,800			20,800

* Figures for 2010 are as of March 2010

Fig. 1. Changes in the prevalence of coastal law enforcement issues in Tawi-Tawi Bay during the period 2005-2008



Most of the LGUs' programmatic spending for CRM at both municipal and *barangay* levels went to fishery law enforcement and MPA maintenance. This resulted in generally improved compliance with fishery laws and MPA rules around Tawi-Tawi Bay. Based on enforcement assessment reports, the incidence of dynamite fishing, in particular, declined by 95-98% between 2005 and 2008 (Fig. 1). Most of those apprehended from 2007 reportedly committed the violations outside Tawi-Tawi Bay. Based on the Project's fish stock assessment results for 2008, the decrease in illegal fishing might have generally benefited fishers using certain types of passive gear, particularly hook-and-line, fish pots and bottom-set longlines. As might be expected, decreases were noted in catches from active and illegal fishing methods, such as the use of dynamite and ring nets. (Table 8)

Table 8. Fish catch trends in the Tawi-Tawi focal area (2004-2008) (FISH Project, 2005a)

Gear used	2004			2006			2008			Δ%
	mean (kg/d)	s.d.	n	mean (kg/d)	s.d.	n	mean (kg/d)	s.d.	N	
Encircling gillnet	3.2		1	43.2	16.2	13	29.2	16.0	61	811.4
Fish jig				6.0		1	30.8	7.7	35	417.6
Handspear, spear gun	5.1	7.8	142	16.9	9.6	127	25.9	18.5	240	407.7
Octopus jig	3.1	2.4	146	3.6	2.0	65	7.6	4.5	86	144.3
Hook and line w/float	9.4	4.5	2	8.5	2.3	5	19.7	6.9	15	109.8
Fish pot	13.1	11.9	57	5.6	2.2	23	21.8	18.8	27	66.8
Fish corral	11.5	14.5	49	17.7	10.4	116	17.0	6.5	4	47.2
Bottomset longline	16.2	12.2	187	16.7	13.2	99	22.3	15.2	141	38.0
Hook and line (simple)	13.0	12.5	77	11.2	8.5	389	14.0	12.4	403	7.5
Beach seine	37.1	38.9	16	18.1	11.5	18	34.6	17.3	22	-6.8
Squid jig (troll)	5.4	6.0	36	3.9	6.3	101	4.7	3.1	79	-12.4
Troll line	28.6	28.7	128	28.6	14.5	151	24.8	12.5	380	-13.6
Multiple handline	18.5	14.0	160	17.8	10.9	131	15.5	9.9	488	-16.1
Ring net	305.5	441.3	100	278.6	267.8	22	240.2	188.9	59	-21.4
Dynamite	53.5	72.9	303	34.2	17.0	269	41.4	19.7	268	-22.7
Bottomset gillnet	28.5	21.1	556	28.1	21.2	978	21.7	12.3	863	-23.8
Drive-in gillnet	40.8	34.1	20	42.9	25.3	14	30.0	10.0	3	-26.4
Set gillnet (with plunger)	22.2	14.4	12	42.3	22.4	5	14.4	4.7	60	-35.4
Drift gillnet	60.6	71.9	191	39.7	19.8	271	37.5	17.4	185	-38.2

The strategy of establishing MPAs proved to be a generally popular strategy among fishery stakeholders in the Tawi-Tawi focal area, especially in those communities where the MPAs were located. Around the better managed MPAs, there had been a noticeable decrease in blast fishing, compressor fishing and other illegal activities, largely because of high enforcer presence in these areas. Community support increased over time, as the benefits of resource recovery, especially in terms of increased fish catch, became evident. No new PCRA activities were conducted after the first participatory assessments were done in 2005, but residents of communities near the MPAs claimed they observed increased fish abundance within the MPAs, with many fishes shoaling near the shore. Preliminary data from the Project's own performance monitoring reports also indicated significant increases in fish biomass and abundance inside the MPAs between 2005 and

2008. (Table 9) In addition, several dolphin sightings were reported in the Tawi-Tawi Bay area, encouraging the mayor of Panglima Sugala to support the establishment of 3 new MPAs in 2009, in addition to the first 2 MPAs (Batu-Batu/Kulape and Tondon) that were established in the municipality in 2006.

Table 9. Average percentage changes in fish abundance and biomass across 3 FISH-assisted MPA sites monitored in 2004-2008 (UPVFI, 2009)

INDICATOR	% change 2004-08	
	Inside	Outside
Biomass	23.8%	1.7%
Relative size	17.8%	0.6%
Total fish Abundance	4.1%	0.9%
Target fish abundance	129.4%	110.2%
Indicator species abundance	44.6%	65.4%
Juvenile fish abundance	-3.9%	11.8%

Joint training and enforcement activities in Tawi-Tawi Bay engendered closer coordination between community members and concerned authorities that made up the MCLETs. As a result of such activities, local enforcers demonstrated a noticeably higher understanding of their duties and the basic enforcement procedures as these applied to coastal law enforcement. The assignment of PNP Academy officers to municipal police stations beginning 2007 was lauded by *Bantay Sanctuary* members for making the local police "more cooperative," and improving overall enforcement service (in terms of response time) at the community level.

In the municipality of Bongao, fishery law enforcement started out primarily as an initiative of *Barangay* Lagasan to guard the Lagasan/Pababag MPA, but gradually gained more support from the municipal LGU, which helped fund the *Barangay Sanctuary*'s fuel requirements. Lagasan's *Barangay Sanctuary* eventually became the enforcement arm of MCLET-Bongao, and accounted for many of the apprehensions of illegal fishers in Tawi-Tawi Bay from the time it became fully operational in 2006. (Table 10)

Panglima Sugala's enforcement program also yielded positive results, generally around Tondon and Belatan Halo, where the *Bantay Sanctuary* was most vigilant about guarding the MPA. Law enforcement in Simunul, however, appeared to be hampered by lack of support from the LGU.

Table 10. Number of fisheries-related apprehensions in the Tawi-Tawi Bay focal area (2004-2008)

Violation	2006			2007			2008			2009			2010		
	B	P	S	B	P	S	B	P	S	B	P	S	B	P	S
Dynamite fishing	1	1	-	6	2	-	9	1	1	8	1	-	2	1	-
No. of fishers arrested	3	-	-	7	-	-	21	-	-	23	-	-	2	11	-
No. of fishing vessels seized	1	-	-	6	-	-	12	-	-	9	-	-	2	3	-
Compressor fishing	8	-	-	11	2	-	7	1	-	6	-	-	3	-	-
No. of fishers arrested	22	-	-	35	-	-	7	-	-	17	-	-	16	-	-
No. of fishing vessels seized	8	-	-	9	-	-	25	-	-	6	-	-	3	-	-

B = Bongao; P = Panglima Sugala; S = Simunul

Meanwhile, all focal area LGUs put into operation their respective fishery registration and licensing system. At end-2009, 1,440 fishers in the focal area municipalities had been registered with their LGUs. (Table 11) In Bongao and Simunul, registration fees were collected from fishers, duly receipted and remitted to the treasurer's office. In Panglima Sugala, the mayor assumed the payment of registration, saying he did not want to put the financial burden on small-scale fishers; collections were also receipted and remitted to the treasurer's office.

Table 11. Number of fishing boats and fishers registered as of 2009 in the Tawi-Tawi Bay focal area LGUs

Municipality	Number of fishing boats registered		No. of fishers registered
	Motorized	Non-motorized	
Bongao	430	20	462
Panglima Sugala	625	90	800
Simunul	165	67	178
Total registered as of end-2009	1,220	177	1,440

SAF support to the KSRLA and ARMEG, the 2 POs tapped by FISH to provide administrative services in the construction of guardhouses and procurement of enforcement and monitoring equipment for the Tawi-Tawi Bay MPAs, not only helped to capacitate community-based MPA management councils, but also developed new service providers for the LGUs and communities in MPA management. Similarly, the involvement of the SCIPG in CRM through their work in the formulation of the *fatwa* on marine conservation went beyond merely engaging the religious sector in the sustainable fisheries advocacy to providing moral guidance to the Muslim faithful in the correct and just way of extracting fishery resources. Disseminated through the *ulama* during the Friday prayer and various occasions such as the Tawi-Tawi environment summit, consultations on the formulation of the provincial environment code and other forums, the *fatwa* helped promote better understanding of how specific *Quranic* verses should be interpreted with respect to the use of marine resources.

The Project's work with the academe, primarily the Mindanao State University (MSU)-Tawi-Tawi through its Marine Research and Development Foundation Inc. (TMRDFI), also resulted in direct management applications at the community level. TMRDFI's study on invertebrates led to the establishment of an invertebrates sanctuary at a known abalone and sea cucumber habitat off Tondon, Panglima Sugala, and the adoption of size management mechanisms for abalone and sea cucumber by the Panglima Sugala LGU.

Formulation of the *fatwa* on marine conservation (FISH Project file photo, 2006)

Some the most important impacts of Project interventions were attitudinal changes among LGU officials and technical staff that were not easily quantifiable but clearly promoted a local governance system that paid long overdue attention to municipal fisheries concerns. From being indifferent or even resistant to Project interventions, local officials became supportive of CRM as they learned more about the issues that these interventions were meant to address. For example, as a direct result of their participation in a seminar presided by the PCL national president, SB members began to more religiously attend to their duties as local lawmakers and meet in legislative sessions more regularly.

The development of technical staff members and community leaders was also remarkable in some LGUs, not so much in terms of their skills and performance capacity, which were still limited, but in terms of their growing commitment to their duties. This was manifested in their determination to get the job done, despite sometimes tremendous odds.

That said, the process of building efficient governance systems to support sustainable fisheries in Tawi-Tawi has a long way to go. In fact, the local governance system in general still has to develop into a more participatory democracy, where the local chief executives, while providing overall vision and direction for development, encourages constituents to take part in a transparent process of planning and decision-making.

Changing Mindsets

After initial reluctance, mayor leads town in fish conservation

Panglima Sugala Mayor Nurbert Sahali (shown above left with FISH Project Tawi-Tawi Manager Nur Harun) is now convinced that conservation is the way to go. (Photo: A. Sia, 2008)

Nurbert Sahali was not always an advocate of coastal and fish conservation. In 2004, when he first assumed office as mayor of Panglima Sugala, Tawi-Tawi, Philippines, he was lukewarm to initiatives by FISH Project to institute a coastal and fisheries management program in his town.

"At first I thought, 'What's the big deal? It's just fish. There's plenty more where it comes from.' We have this huge productive fishing ground. I thought we were doing fine," he told FISH in an interview for USAID's Telling Our Story. "But Sir (Nur) Harun (FISH Project Tawi-Tawi site manager) was persistent. He and his staff were always there, explaining why it was important that we protected and managed our sea."

Sahali said he started to pay attention not only to what Harun and his staff were saying but also to what was happening around him. "I'd visit the market, and I'd hear people quarreling over the high price of fish," he recalled. "Fish had become scarce. I realized that everything the FISH people told me -- the dynamiting, cyanide fishing, mangrove cutting -- it was all there, and it was taking away our source of food."

A study tour sponsored by FISH in 2005 sealed Sahali's commitment to the Project's conservation cause. He was impressed by the Apo Island Protected Seasape in Negros Oriental, its beautiful and diverse reef life, and the community's self-sufficiency in managing the sanctuary. He marveled at how 'tame' the fishes were in the Gilutongan Island Fish Sanctuary in Cordova, Cebu. And he rued all the more everything that his town had lost. "I knew how beautiful and abundant our sea used to be, because I saw it as a child. It was more beautiful than Apo Island, and our fishes were as tame as in Gilutongan."

He resolved to bring it all back. "As Sir Harun kept telling me, as mayor, I am the key to change," he said. (Sia, 2008)

Remaining Gaps & Recommendations

The progress achieved in the FISH Project's 7 years of implementation should help steer future initiatives in CRM and fisheries management in Tawi-Tawi in the right direction. Each of the focal area LGUs in Tawi-Tawi Bay now has a multi-year CRM plan and a zoning plan that they can use as a roadmap to sustainable fisheries. Except for a few programs (primarily coastal law enforcement, IEC and MPA management), these plans are still largely unfunded and therefore unimplemented. The LGUs would do well to act on their specific commitments under these plans and provide the necessary policy and financial support to ensure that they are implemented, while aid agencies and other organizations that assist (or plan to assist) them might consider facilitating the process through governance reform and institutional development.

The rate of increase in LGU spending for CRM has been quite remarkable, but until the LGUs' operations are governed by clear financial and budget policies and procedures, funding will remain largely an act of largesse from the local chief executives, subject to political and personal biases and therefore highly uncertain. Mechanisms like the executive and legislative agenda (ELA) and annual investment plan (AIP) are provided by law to ensure that the process of identifying, setting priorities and allocating budgets in the LGU is done in a participatory manner based on the municipality's development objectives. While these mechanisms may be in place, however, the inclusion of a program in the ELA or AIP does not provide any guarantee that the program will actually be implemented, because the decision on where LGU funds are finally spent often rests solely on the local chief executive. A more efficient, less politically vulnerable system must be put in place to ensure program sustainability.

Funding for coastal law enforcement certainly needs to be ensured, because tremendous threats remain that if left unchecked could totally wipe out recent gains in reducing destructive fishing in Tawi-Tawi Bay. For example, despite the presence of an active *Bantay Sanctuary* at Lagasan, Bongao, dynamite fishers have tried to gain access to the MPA and even dared to challenge the *barangay* chairman when he accosted them. Similar incidents have been known to happen in the other MPAs as well.

Besides the municipal LGUs, DA-BFAR and the provincial government must play a central role in planning, managing and coordinating fishery law enforcement and other CRM activities. A TWG can be formed as part of the Fisheries and Coastal Resource Management Council to provide technical guidance in the establishment and implementation of a system to regularly monitor and evaluate enforcement and management activities. LGUs still need to complete the registration of fishers and fishing boats and subsequently put into operation a fisheries licensing system to manage fishing effort and prevent overfishing in their respective municipal waters. Fishing effort management entails the regular collection and analysis of fish catch data, which DA-BFAR can help them with.

So far, neither DA-BFAR nor the provincial government has shown consistent support for LGU initiatives. For example, FISH sponsored several DA-BFAR personnel to train as fish examiners. Despite completing the training and getting certified, however, these personnel are not readily available to local enforcement groups that need their

technical services. There may be logistical or even institutional issues that are hampering their job performance; these issues must be identified and properly addressed.

If it becomes operational, the PCLET can be a good support mechanism for the Tawi-Tawi Bay municipalities and a vehicle for expanding the coverage of fishery law enforcement. One major concern that emerged from the success of enforcement efforts in Tawi-Tawi Bay was the transfer of illegal fishing to other areas where enforcers do not maintain a strong presence. The PCLET can help address this concern. In 2006, the ARMM Governor issued REO 6, which created an inter-agency regional MCS team to help reinforce the capacity of local enforcement units. DA-BFAR and other regional government agencies must comply with this REO and support the full operationalization of the PCLET as the coordinating and implementing arm of ARMM-MCS in the province of Tawi-Tawi.

Clearly, the Tawi-Tawi LGUs need all the determination they can muster and all help they can get to build the capacity they need to achieve the objectives of sustainable fisheries. Projects like FISH can do much to jumpstart or somehow catalyze capacity building, but the capacity-building process is slow and gradual, and it happens over time scales larger than the life of any one project. While support from external sources is an important factor, the LGUs, their partners at all levels of government, and their stakeholder constituencies are the more important factors and must pull together to foster program sustainability.

A Clear Mandate
Regional law spells out functions of the Provincial Fisheries Offices of DA-BFAR-ARMM

PFO staff Faisal Nahul (left) and Evelyn Martinez (right) assist a fisher. (Photo: A. Sia, 2008)

With limited manpower and funding, Tawi-Tawi's Provincial Fisheries Office (PFO) has always been hard-pressed to deliver vital CRM services to its target communities. By working closely with LGUs, however, it is able to leverage its resources while helping the LGUs more effectively implement their legal mandate as front-line coastal managers.

With help from FISH, the PFO has actively redefined its operations to allow it to focus more strongly on building local government capacities in CRM. All for the better, said acting provincial officer Faisal Nahul. "There are only 14 of us, and there's more than 11,000 square kms of municipal waters across the Tawi-Tawi archipelago," he pointed out. "Given our limited resources, CRM cannot happen without the LGUs' involvement."

Under ARMM's fisheries code (MMMA 86), LGUs have jurisdiction over marine waters up to 12km from the shoreline. The law also mandates the regional office of DA-BFAR, through its PFOs, to build the LGUs' CRM capacities. But until 2006, the law was deficient, lacking the implementing guidelines required for budgetary allocation and implementation.

"For 7 years, we could not implement the law. Thankfully, with help from FISH, our regional office took charge of drawing up the guidelines," Nahul related. "Now, our role in capacity-building is clearly spelled out, and we have a budget – albeit meager -- to do it. " (Sia, 2008)

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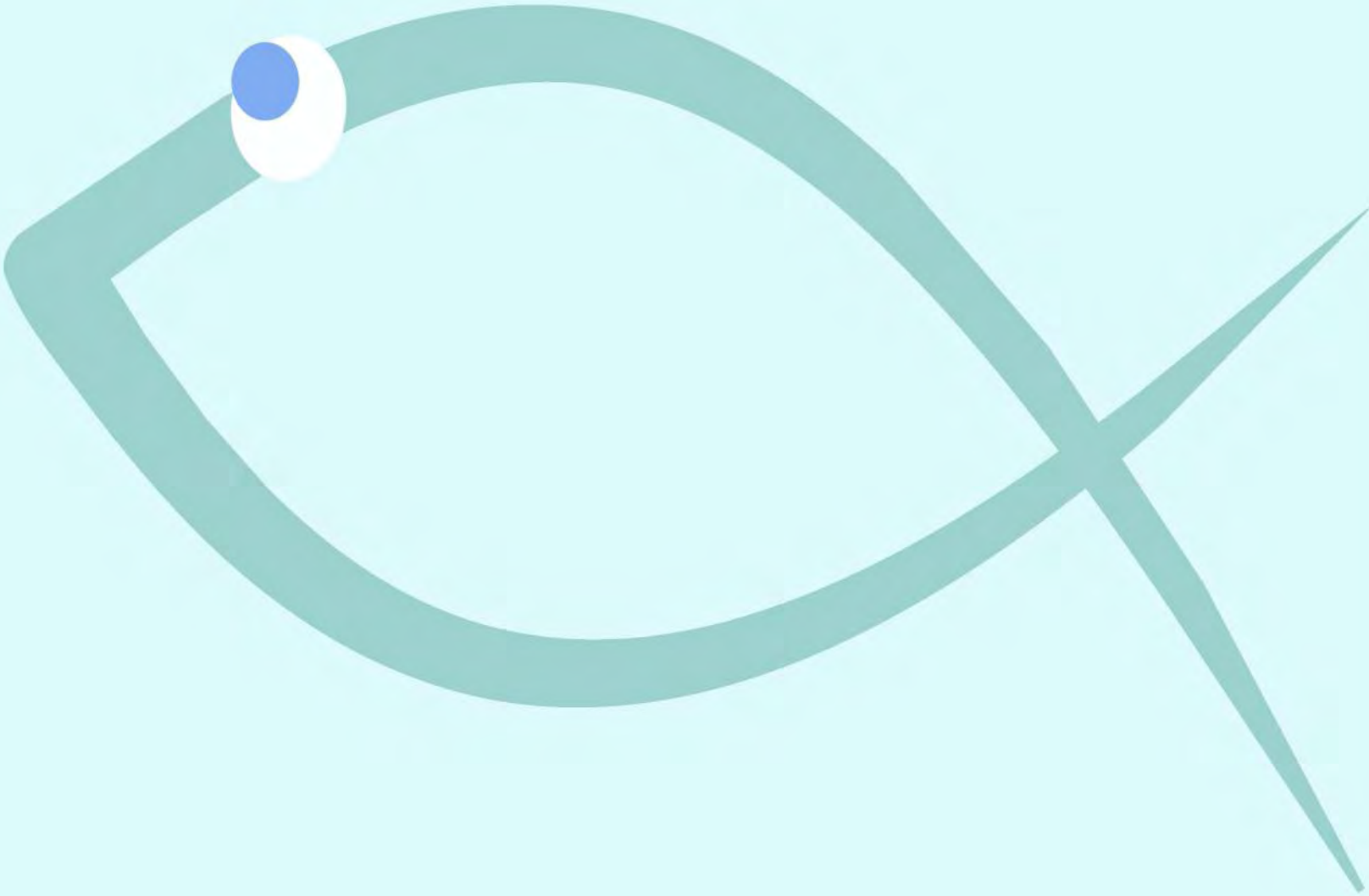

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