



Global Environment Facility

Leonard Good

Chief Executive Officer
and Chairman

1818 H Street, NW
Washington, DC 20433 USA
Tel: 202.473.3202
Fax: 202.522.3240/3245
Email: lgood@TheGEF.org

July 28, 2004

Dear Council Member,

The World Bank, as the Implementing Agency for the project, ***Regional (Philippines, Indonesia): Marine Aquarium Market Transformation Initiative (MAMTI)***, has submitted the attached proposed project document for CEO endorsement prior to final approval of the project document in accordance with the World Bank procedures.

The Secretariat has reviewed the project document. It is consistent with the proposal approved by the Council in May 2004, and the proposed project remains consistent with the Instrument and GEF policies and procedures. The attached explanation prepared by the World Bank satisfactorily details how Council's comments and those of the STAP have been addressed. I am, therefore, endorsing the project document.

We have today posted the proposed project document on the GEF website at www.gefweb.org. If you do not have access to the Web, you may request the local field office of the World Bank or UNDP to download the document for you. Alternatively, you may request a copy of the document from the Secretariat. If you make such a request, please confirm for us your current mailing address.

Sincerely,

cc: Alternate, Implementing Agencies, STAP

OFFICE MEMORANDUM

DATE: July 12, 2004

TO: Mr. Leonard Good, CEO/Chairman, GEF

FROM: Steve Gorman, GEF Executive Coordinator



EXTENSION: 35865

SUBJECT: **Country Names: Indonesia and Philippines**
Project Name: Marine Aquarium Market Transformation Initiative (MAMTI)

1. Please find attached the electronic file of the Project Document for the above-mentioned project for review by Secretariat staff and your final endorsement.
2. The Project Document is fully consistent with the objectives and scope of the proposal endorsed by Council as part of the May 2004 Work Program. A minor change related to the organizational chart has been introduced during final project preparation and appraisal. Council comments received at Work Program entry have also been addressed.

Minor Change

3. The organizational chart has been modified to incorporate several additional staff positions and revised reporting relationships. These changes are found in Section 1.11 (MAMTI Management). A new staff description is also found in Annex 8 (Project Staffing).

Responses to Council Comments

4. United States:
 - Issue #1 – Performance Indicators: Detailed indicators have been incorporated into section 1.9 (Indicators).
 - Issue #2 – No Trade Promotion: MAMTI's commitment is now clearly stated in section 1.5 (Objectives).
 - Issue #3 – Unsuitable Species: Please see section 3.2 (Design), subsection 3.2.4.
 - Issue #4 – Scientific Authority of Reef Check: Please see section 1.11 (MAMTI Management).
 - Issue #5 – Precautionary Approach: Please see section 3.3 (Sustainability), subsection 3.3.2.
 - Issue #6 – Social Equity: Please see section 3.3 (Sustainability), subsection 3.3.5.

- Issue #7 – Corruption: Please see section 3.6 (Monitoring & Evaluation), subsection 3.6.3.
- Issue #8 – Health & Safety: Please see section 1.6 (Activities & Outputs), subsection 4.1.
- Issue #9 – Number of Sites: Please see section 2.2 (Country Drivenness), subsection 2.2.2 (Philippines Country Drivenness).

5. Canada:

- Comment #1 – Illegal trade and activities in exotic pet trade, including the marine aquarium trade: No changes were made on the basis of this comment alone. The revised Project Document addresses MAMTI's strict adherence to CITES in detail (e.g. section 1.11 and Annex 18), and provides specific language on MAMTI's plans for unsuitable species designation (section 3.2).
- Comment #2 – The level of co-financing does not seem realistic: Annex 7 addresses the detailed assumptions found in the co-financing analysis.
- Comment #3 – How will MAMTI address the gender dimension with respect to community stakeholder participation: Section 3.5.4 addresses gender issues.

6. France:

- Comment #1 - Project requires close dialogue with stakeholders: Section 3.5 on Stakeholder Involvement addresses this in detail.
- Comment #2 - The French Global Environment Facility (FFEM) is appraising a project in South Pacific to test methods of post-larval fish selection for aquarium market that could be tested and appraised by GEF project. See Section 5. (Institutional Coordination And Support), especially subsection 5.1 (Core Commitments and Linkages), which includes reference to linkage with this project.

7. Germany:

The following themes from the German comments have been integrated into the Project Document:

- Analysis of other stakeholders, especially fishermen: Please see section 3.5.1 (Stakeholder Involvement).
- Collaboration with GTZ projects in Visayan Sea and South Leyte: Please see section 2.2 (Country Drivenness), subsection 2.2.2 (Philippines Country Drivenness).

- Analysis of alternative livelihoods: This is addressed more clearly in the new text added to section 1.5.
 - Analysis of the target group: This is included in the baseline socio-economic assessment that is outlined in section 1.6 (Activities & Outputs), subsection 1.1 (Develop and Implement Site Selection Process). Additional information is presented in Annex 24.
 - Selection of potential business partners: Section 1.6 (Activities & Outputs), subsection 5.4 (Conduct Collector Training for Co-op and Business Skills) now addresses this in more detail.
 - Analysis of MAC experiences: Please see section 2.2 (Country Drivenness), subsection 2.2.2 (Philippines Country Drivenness), which notes that MAC efforts in the Philippines have collaborated with the GTZ Public-Private Partnership. Additional information has been provided in Annex 24.
 - Analysis of MPAs: See section 1.6 (Activities & Outputs), subsection 3.1. (Establish No-take Zones/MPAs in Each Collection Area). Additional information is presented in Issue 1 of Annex 18 (Response to Government Focal Point Review of PDF-B).
 - Analysis of demand for ornamental fish: Annex 16 (Summary of MAC Business Plan) includes statistics and analysis of the demand for marine ornamentals from the Philippines and Indonesia.
 - Size of MPAs: Section 1.6 (Activities & Outputs), subsection 3.1. (Establish No-take Zones/MPAs in Each Collection Area) now addresses this more clearly.
 - Risk assumptions (MPA enforcement): A reference to the GTZ VisSea Project has added to section 1.6 (Activities & Outputs), subsection 1.4.
 - Cooperation with the Asian Conservation Company: Text has been added to section 5.1 (Core Commitments and Linkages).
8. Please let me know if you require any additional information to complete your review of the project document.
9. Many thanks, and we look forward to receiving notification of clearance for CEO endorsement.

CC : Messrs./Mmes. King, GEF PROGRAM COORDINATION (GEFSEC); Boorstin, Cassagne, Keller (CES); Broadfield (EASES); MacKinnon, Khanna, Wedderburn, Aryal (ENV); ENVGC ISC, Regional Files

**GLOBAL
ENVIRONMENTAL
FACILITY**

Philippines and Indonesia

**Marine Aquarium Market Transformation Initiative
(MAMTI)**

GEF Project Document

July 2004

KEY ACRONYMS AND TERMS

ACF	Asian Conservation Foundation
ADB	Asian Development Bank
AKKII	Indonesia Coral Shell and Ornamental Fish Association (Asosiasi Koral, Kerang, dan Ikan Hias Indonesia)
BFAR	Philippines Bureau of Fisheries and Aquatic Resources
BFARMC	Barangay Fisheries and Aquatic Resources Management Council
BMT	Bohol Marine Triangle
BSAP	Biodiversity Strategy and Action Plan
Bupati	Head of Regency in Indonesia
CAMP	Collection Area Management Plan (required by MAC EFM Standard)
CAS	Country Assistance Strategy
CBD	Convention of Biological Diversity
CCIF	Conservation and Community and Investment Forum
CFH	Collection, Fishing and Holding Standard (MAC Core Standard 2)
CI	Conservation International
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
COREMAP	Coral Reef Rehabilitation and Management Program
CRM	coastal resource management
CRMP	Coastal Resources Management Project
DENR	Philippines Department of Environment and Natural Resources
DKP	Indonesia Ministry of Marine Affairs and Fisheries (Departemen Kelautan dan Perikanan)
EFM	Ecosystem and Fishery Management (MAC Core Standard 1)
FAO	Philippines Fisheries Administrative Order
FARMC	Philippines Fisheries and Aquatic Resources Management Council
FASPO	Philippines DENR Foreign-Assisted and Special Projects Office
FRMP	Philippines Fisheries Resource Management Project
GCRMN	Global Coral Reef Monitoring Network
GEF	Global Environment Facility
GTZ	German Agency for Technical Cooperation
GOI	Government of Indonesia
HHT	Handling, Husbandry and Transport (MAC Core Standard 3)
ICRAN	International Coral Reef Action Network
ICRI	International Coral Reef Initiative
ICM	integrated coastal management
ICRM	integrated coastal resource management
IFC	World Bank International Finance Corporation
IMA	International Marinelife Alliance
ITMEMS	International Tropical Ecosystem Management Symposium
IUCN	World Conservation Union
IUCN/SSC	IUCN Species Survival Commission
Kabupaten	Indonesia Regency
KKP	Kabang Kalikasan ng Pilipinas (WWF Philippines)
LGU	local government unit
MAC	Marine Aquarium Council
MAMTI	Marine Aquarium Market Transformation Initiative
MAQTRAC	Marine Aquarium Trade Coral Reef Monitoring Protocol
MAO	Municipal Agricultural Officer
MFI	Micro Finance Institution

MMAF	Indonesia Ministry of Marine Affairs and Fisheries (DKP)
MPA	marine protected area
M & E	monitoring and evaluation
NGO	Non-Governmental Organization
PAWB	Philippines DENR Protected Areas and Wildlife Bureau
PCSD	Philippines Palawan Council for Sustainable Development
PENSA	IFC Program for Eastern Indonesia SME Assistance
PHKA	Indonesia Directorate General of Forest Protection and Nature Conservation (National Park Authority)
PTFEA	Philippine Tropical Fish Export Association
RC	Reef Check
SME	small and medium enterprise
TMAT	Transforming the Marine Aquarium Trade (USAID Philippines project)
TNC	The Nature Conservancy
UNDP	United Nations Development Programme
UP-MSI	University of the Philippines – Marine Science Institute
USAID	United States Agency for International Development
WRI	World Resources Institute
WSSD	World Summit on Sustainable Development
WWF	Worldwide Fund for Nature

PROJECT DOCUMENT

1. IDENTIFIERS :

PROJECT NUMBER: 506049
PROJECT NAME: Marine Aquarium Market Transformation Initiative (MAMTI)
DURATION: Five (5) years
IMPLEMENTING AGENCY: International Finance Corporation (World Bank)
EXECUTING AGENCY: Marine Aquarium Council (MAC)
REQUESTING COUNTRY OR COUNTRIES: Philippines, Indonesia
ELIGIBILITY: Philippines: CBD Ratification on 8 October 1993
Indonesia: CBD Ratification on 23 August 1994
GEF FOCAL AREA: Biodiversity
GEF PROGRAMMING FRAMEWORK: OP2: Coastal, Marine and Freshwater Ecosystems

2. SUMMARY:

The Philippines and Indonesia support globally significant marine biodiversity on coral reefs that are being degraded by many factors, including destructive fishing practices used by the marine aquarium trade. Market transformation through international Marine Aquarium Council (MAC) Certification can ensure the marine aquarium industry is sustainable and responsible and create incentives for achieving global benefits of biodiversity conservation, reef management, protected areas and reef restoration - thereby contributing to poverty alleviation, sustainable livelihoods and food security. The MAMTI project will mainstream this transformation by: 1) building the capacity of community stakeholders to develop certified ecosystem management, 2) ensuring there is scientific assessment and monitoring of coral reefs and marine ornamentals stocks for management, 3) establishing no-take zones and reef and stock restoration, 4) building the capacity of marine ornamentals collectors to become certified, 5) increasing the financial resources and business skills for collectors to participate in a sustainable trade, 6) increasing the participation of exporters, importers, and retailers in certification, and 7) raising the awareness of, and demand for, certified marine ornamentals among consumers.

3. COSTS AND FINANCING (MILLION US):

Sources of Funds :

GEF:

Preparation (PDF B):	0.295
<u>Project:</u>	<u>6.620</u>
Sub-Total GEF:	6.915

Co-Financing:

Preparation (PDF B):	0.368
Donor/Sponsor Contributions:	6.924
<u>Industry Investment:</u>	<u>8.074</u>
Sub-Total Co-Financing:	15.366

Total Project Cost without Project Preparation:	21.618
Total Project Cost with Project Preparation:	22.281

4. OPERATIONAL FOCAL POINT ENDORSEMENT:

Name: Mr. Rafael E. Camat, Jr.	Title: Assistant Secretary
Organization: Foreign-Assisted and Special Projects Office, DENR, Philippines	Date: 15 December 2003
Name: Mr. Effendy A. Sumardja	Title: Special Assistant Minister for Intl. Relations
Organization: Ministry of Env't., Indonesia	Date: 10 December 2003

5. IA CONTACT:

Sam Keller, IFC Projects Officer
Tel. +1 202 473-2891 skeller@ifc.org

TABLE OF CONTENTS

	Page
1. PROJECT SUMMARY	
1.1 Background	1
1.2 Transforming the Marine Aquarium Market	3
1.3 Barriers to Transforming the Marine Aquarium Market	5
1.4 Rationale	6
1.5 Objectives	8
1.6 Activities and Outputs	9
1.7 Outcomes	17
1.8 Beneficiaries	19
1.9 Indicators	20
1.10 Risk Assessment	24
1.11 MAMTI Management	27
2. COUNTRY OWNERSHIP	
2.1 Country Eligibility	32
2.2 Country Drivenness	33
2.3 Country Endorsement	36
3. PROGRAM AND POLICY CONFORMITY	
3.1 Conformity with GEF Operational Program	36
3.2 Project Design	37
3.3 Sustainability	40
3.4 Replicability	45
3.5 Stakeholder Involvement	46
3.6 Monitoring and Evaluation	48
4. FINANCING AND COST EFFECTIVENESS	
4.1 Project Budget	51
4.2 Monitoring and Evaluation Costs	53
4.3 Co-financing and Leverage	53
4.4 Cost Effectiveness	53
4.5 Alternative Project Approaches Considered	53
5. INSTITUTIONAL COORDINATION AND SUPPORT	
5.1 Core Commitments and Linkages	54

	<u>ANNEXES</u>	Page
1.	Project Design Log Frame	57
2.	Detailed Project Description of Activities	62
3.	Detailed Project Timeline	80
4.	Detailed Site Project Timeline	82
5.	Site Selection Criteria	83
6.	Site Capacity Building Module Flow Chart	85
7.	Project Budget and Co-Financing	86
8.	Project Staffing	91
9.	Cost Effectiveness Analysis	96
10.	Incremental Cost Analysis	97
11.	Stakeholders Involved in Project Design	105
12.	Map: Philippines Marine Aquarium Trade and Initial Project Sites	108
13.	Map: Indonesia Marine Aquarium Trade Initial Project Sites	109
14.	Year 1 Sites: Philippines and Indonesia	110
15.	Supporting Documents from the Project Partners	130
16.	Summary of MAC Business Plan	131
17.	Analysis of Certified Supply Generation	138
18.	Response to Government Focal Point Review of PDF-B	139
19.	Response to IFC Issues Raised during PDF-B Phase	142
20.	Frequently Asked Questions (FAQs) On Transforming the Marine Aquarium Trade	147
21.	IUCN Scientific Review	157
22.	Response to IUCN Scientific Review	160
23.	STAP Technical Review and Response to STAP Review	164
24.	Case Study of MAC Experience in Batasan, Bohol	177

1. PROJECT SUMMARY

1.1 Background

1.1.1 Global significance of marine biodiversity in Indonesia and the Philippines

Coral reefs are the second most diverse ecosystem on earth. They provide global benefits, including genetic material for drugs, coastal protection from storm waves, coral sand beaches and diving for millions of tourists, subsistence and commercial food supplies (e.g. providing food to over 350 million people in Asia alone), and the basis of a global fishery for marine aquarium organisms. Coral reefs are facing a global crisis due to overfishing, destructive fishing, pollution and sedimentation. The world's most extensive, diverse and threatened reefs are in the Philippines and Indonesia, and these countries supply more than 80% of marine aquarium fish and (for Indonesia) much of the live coral in trade. Almost all of this is for export, with reports indicating only 1-2% of the harvest is for the domestic market.

Southeast Asia is the global center of marine diversity. It contains more than one third of all the world's coral reefs, and over 600 of the 800 reef-building coral species in the world. A greater variety of species exist on a single island in this region than on all the coral reefs in the Caribbean. Indonesia and the Philippines together hold 77% of the region's coral reefs, including the majority of South East Asia's best-preserved reefs. These reefs of the Wallacea Bio-Region have been identified by the major conservation NGOs (TNC, WWF, WRI and CI) as a global priority conservation area.

The 24,000+ islands in Indonesia and the Philippines make up the world's largest archipelago, home to about 17% of the total number of species in the world, including 25% of the world's fish species. These countries contain over 100,000 square km of coral reefs or about 25% of the world's total. Indonesia has nearly 81,000 km of coastline and its vast oceans extend over nearly 6 million square kilometers. All of the world's 15 families of reef-building corals are represented here, with a total of 80 genera and 452 species. These high diversity reefs serve as a reproductive reservoir for seeding other areas throughout the region due to circulating and seasonally changing currents. Because of upwelling of relatively cool waters from the south, the area is also somewhat protected from bleaching events, which have damaged so many reefs around the world.

1.1.2 Threats and root causes of marine biodiversity loss in Indonesia and the Philippines

Overall Threats

- Destruction of coastal and marine habitats and unsustainable and illegal harvesting.
The single largest threat to marine biological diversity are illegal and destructive fishing practices; including fishing with explosives, cyanide fishing, and the use of illegal trawl nets. All of these contribute to the closely related problem of overfishing. Although there is some legislation in place, enforcement, and education to address these threats, the practices continue largely because these techniques are widespread and overwhelm the capacity of government and conservation organizations to address them.

- Coastal water pollution.
Untreated domestic sewage from coastal towns, cities, and ships is being dumped directly into the sea, or reaches the nearshore marine environment through rivers and canals. Tailings and sediments from quarrying and mining in coastal and agricultural chemicals (e.g. fertilizers) and aquaculture waste (i.e. resulting from the use of fertilizers, feeds, and chemicals) can impact nearshore waters. Plastic bags and free-floating nets result in the death of threatened marine species that ingest or become entangled in them. Leaks and spills of oil and fuel from ships periodically damage marine ecosystems.

Root Causes

Ultimately, the decline in marine biodiversity is linked to macro trends affecting the coastal areas and marine resources of Indonesia and the Philippines, including the following:

- Population growth.

Population growth rates of over 2 percent annually and the increasing concentration of population and development near the coast are placing mounting pressure on coastal watersheds, waters and resources.

- Poverty and limited economic opportunities.

Limited opportunities coupled with resource depletion and degradation results in poverty that forces people to use destructive and unsustainable harvesting methods to meet their immediate needs. These methods result in further resource depletion and degradation, creating a downward spiral of poverty.

- Institutional and policy issues and limited enforcement of existing regulations.

Inappropriate, overlapping and conflicting policies and institutions; shortage of expertise; inadequate information, education, and communication capacity; and weak policy mechanisms are often part of the problem in many areas. Where the central government has devolved nearshore resource management, there is often a lack of technical knowledge and resources to implement effective management. In many cases, laws and regulations have been developed, but enforcement is weak or lacking.

- Public and stakeholder awareness and involvement.

Marine resources and ecosystems are not well understood by local communities, governmental agencies, and NGOs and there is generally a lack of awareness and local stakeholder participation in nearshore resource management.

- Limited information for management.

In many areas there is a lack of appropriate scientific information on nearshore marine resources and ecosystems and their use, with few baseline assessments and monitoring programs. When scientific information is available, it is often not interpreted and applied to management.

1.1.3 Threats to coral reefs: Destructive fishing and overfishing

The coastal areas of the Philippines and Indonesia are some of the most heavily populated in the world. With rapid population growth rates, the pressure on coastal resources is exceedingly high, with every member of each family often involved in resource extraction of some type. The pressures have now reached unsustainable levels. The principal threats to the region's coral reefs are destructive fishing and overfishing. The 2002 Global Coral Reef Monitoring Network (GCRMN) report, "State of the World's Reefs", documents how destructive fishing and over fishing have led to ecological destabilization and are even pushing some high-value reef organisms to the brink of extinction.

The most destructive techniques include:

- Blast fishing: the use of primitive bombs for food fishing, largely for subsistence consumption and domestic markets.
- Poison fishing: the use of sodium cyanide to capture marine ornamental (aquarium) fish as well as live food fish (primarily for Chinese restaurants). This has spread from the Philippines to Indonesia and other countries and has become more common in the recent past.

The results of destructive coastal fishing have been devastating. According to the WRI's "Reefs at Risk" report, almost 90 percent of the coral reefs in the Philippines and Indonesia (as well as Cambodia, Singapore, Taiwan, Vietnam, Malaysia and China) are threatened. Fish larger than a few centimeters in length have become rare on many reefs. Indonesia and the Philippines together hold nearly 80 percent of all the threatened reefs in the region. When coral reefs are protected, the recovery of reef fish and shellfish populations can be dramatic and rapid. But when the living coral reef itself has been destroyed, siltation often becomes a problem, preventing the settlement and growth of young corals. In this case, the recovery of reefs is a decades-long process at best.

1.1.4 The need for market transformation

The *only* possibility to turn the tide of continuing reef degradation on a large scale is an approach that combines private sector incentives with government policy and regulation. Luckily, in the Philippines, and to a lesser extent in Indonesia, the relevant policies and regulations are already in place. What has been lacking is a system of sustainable private sector incentives that encourages and requires fishermen to comply with regulations for their own benefit.

A public-private partnership is needed to solve the fundamental problems facing the marine environment in the Philippines and Indonesia. In essence, an umbrella of government policies and regulations is necessary to allow the private sector “engine” to push the train in the right direction. It is exactly this combination of government and private sector collaboration that this project will facilitate. In the Philippines, for example, cyanide and dynamite fishing have long been illegal. However, a lack of enforcement combined with a lack of incentives to follow the law has led to a dramatic and well-documented decline in the health of the marine ecosystem.

Over the past few years, a number of demonstration projects have successfully shown that the tourism trade can be used as an incentive to stop illegal destructive fishing. Marine protected areas (MPAs) such as Gilutongan in Cebu are not only ecologically successful but economically sustainable through user fees charged to tourists. Unfortunately, the fundamental problem facing the Philippines, Indonesia and many other countries is that most reefs are not found in tourist areas – therefore the tourism solution is not viable for the vast majority of these high diversity reefs.

In contrast to the tourism, over 200 collection areas for marine aquarium fish and coral have been identified in the Philippines, with many more in Indonesia. In these locations, using the marine aquarium trade to increase the value of the reef to fishermen in comparison to illegal and destructive uses provides a private sector incentive to replicate coral reef management and MPA successes at hundreds of reefs. The MAMTI project does not seek to open new areas to the marine aquarium trade or expand the market or demand. The focus is on transforming the marine aquarium fishery through certification in areas where marine ornamentals harvesting is already being undertaken for the market demand that already exists. In fact, total demand upon marine aquarium animals in the wild may decrease. The higher survival rates of marine ornamentals due the use of best practices during harvest, holding, transport, etc will reduce the fishing pressure, as a much greater percentage of the initially harvested organisms will now survive to market.

1.2 Transforming the marine aquarium market

1.2.1 The need and opportunity for market and industry transformation

Destructive fishing practices and overexploitation, when used by the marine aquarium trade, are contributing to the depletion and destruction of the coral reefs of the Philippines and Indonesia. This creates poverty in coastal communities by removing or reducing economic and subsistence options for resource use. When undertaken responsibly, harvesting marine ornamentals alleviates poverty and supports sustainable livelihoods by providing one of the few potentially sustainable local industries in rural coastal villages that have few other options for generating income. Marine ornamentals are a high value reef product. Data from the Maldives show that aquarium fish sell for US\$ 248/pound while food fish earn only US\$ 3/pound. In Indonesia, aquarium coral sells for US\$ 7,000/tonne, while only US\$ 60/tonne is paid for coral harvested to make lime for construction.

Reef destruction and degradation by the marine aquarium trade results from the use of cyanide to stun and catch fish, breaking of corals, and the over harvesting and poor husbandry of aquarium organisms. Cyanide use causes long-term habitat devastation by killing or damaging corals and other reef animals. Even when collected with nets, aquarium organisms often suffer from poor husbandry practices such as improper post-harvest handling, poor water quality during storage, and high packing densities that result in reduced survivorship. The unnecessary mortality from destructive fishing practices, and poor handling and husbandry puts added pressure on coral reefs as more organisms are collected to make up for those that die. The high levels of harvesting from limited extraction areas may then lead to overexploitation.

However, there are marine ornamentals collectors and companies that employ responsible practices, proving that it is possible to have a sustainable, environmentally sound trade. Many in the industry and hobby (and other

stakeholders) support a sustainable trade. Prior to the Marine Aquarium Council, there has been no system to identify best practices and verify/label complying companies and products that allows consumers to choose responsible operators and sustainably-sourced products from reefs and fisheries that are well managed. The *only* possibility to transform the marine aquarium industry is an approach that harnesses private sector incentives to complement government policy and regulation.

1.2.2 The Marine Aquarium Council: International Standards and Certification

To achieve market-driven conservation, sustainability and poverty alleviation in the marine aquarium trade, a comprehensive approach by an independent, multi-stakeholder institution was required. This organization must develop international standards, create certification and labeling of compliance, and raise awareness, demand, and confidence among all parties. The Marine Aquarium Council (MAC) was established in 1998 for this purpose. MAC is a not-for-profit organization that brings together the global aquarium industry, fishers and their communities, conservation organizations, public aquariums, hobbyists, scientists and government agencies to create international standards and certification to ensure the marine aquarium trade is environmentally sustainable, socially responsible, and economically viable.

The MAC Standards outline the requirements for third-party certification of quality and sustainability in the marine aquarium industry. Several years of international, multi-stakeholder consultation were undertaken to develop three MAC Core Standards covering the entire “reef to retail” supply chain, as well as document “Best Practice Guidance” information that provide advice to industry operators on how they might be able to comply with the standards.

- *Ecosystem and Fishery Management (EFM) Standard*: This addresses in-situ habitat, stock and species management and conservation by verifying that the collection area is managed according to principles consistent with the FAO Code of Conduct for Responsible Fisheries that ensure ecosystem health and the sustainable use of the marine aquarium fishery.
- *Collection, Fishing and Holding (CFH) Standard*: This addresses harvesting of fish, coral, live rock and other coral reef organisms, handling prior to export, holding, plus packaging and transport to ensure the health of the collection area, sustainable use of the marine aquarium fishery and optimal health of the harvested organisms.
- *Handling, Husbandry and Transport (HHT) Standard*: This addresses the handling of marine life during export, import and retail to ensure their optimal health, their segregation from uncertified organisms and proper documentation to show that they pass only from one MAC Certified industry operator to another.

MAC Certification was launched in late 2001, and over 70 companies made public “statements of commitment” to seek to achieve MAC Certification. By 2003, following pilot efforts by MAC and its partners, MAC Certification had been achieved in the Philippines by several collection areas, collector's associations and exporters and by several importers and retailers in the U.S., Canada, the Netherlands and the UK. Initial demonstration site efforts have also begun in Indonesia. There are many issues that arise in transforming the marine aquarium trade through MAC Certification and a list of “Frequently Asked Questions” that are posed to MAC, and the responses, are found in Annex 20.

Over the long-term, the role of MAC Certification in ensuring that the marine aquarium industry contributes to sustainable and healthy coastal communities and coral reefs will be supported and financed through cost recovery mechanisms derived from industry participation in certification. The MAC Certified industry is supportive of the need for full cost-recovery, fee-based, systems. This has been captured in the MAC Business Plan that was approved by the MAC Board of Directors and outlines a five-year roadmap to financial self-sufficiency for the core costs of operating MAC (Annex 16).

MAC Certified marine ornamentals are now moving from “reef to retail” at a pilot scale, engaging market forces in realizing the “win-win” of linking conservation and sustainable use with responsible industry practices. The need now is to build on the successful pilot efforts and “scale up” to a critical mass of certification supply and participants in order to mainstream certification for a sustainable trade in the two most important source countries - the Philippines and Indonesia.

Unfortunately, there are barriers to mainstreaming the transformation of the marine aquarium trade. Global resources are needed to achieve the global benefits of the marine aquarium market transformation.

1.3 Barriers to Transforming the Marine Aquarium Market

There are a number of barriers to mainstreaming marine aquarium market transformation that require global support to overcome and achieve global benefits.

1. Lack of community-level stakeholder capacity and experience to develop certified ecosystem management for collection areas, including for “open access” situations.

Developing and implementing scientifically based ecosystem management plans for marine ornamental collection areas is a requirement for certification and is a key part of achieving the desired conservation benefits. Few examples of ecosystem management for coral reef fisheries exist and government resources for this are limited in Indonesia and the Philippines. There is a need to develop options for ecosystem management of aquarium fishery areas and the capacity to implement the management plans through partnerships of NGOs, collectors, fishing communities, and government agencies. Governments and communities throughout the world may be able to use these model plans to manage their coral reef “commons.”

2. Insufficient no-take zones, marine protected areas and reef enhancement or restoration areas to ensure sustainable resources are available.

A fundamental requirement for a successful and sustainable trade in marine ornamentals is an ecologically sustainable supply. To transform marine ornamental harvesting to sustainability, marine management areas that include marine protected areas (i.e. reserves or no-take zones) need to be established where fisheries management tools can be used to rebuild depleted fish and invertebrate stocks. There are few coral reef management and reserve areas that have been established to help maintain and restore stocks of marine aquarium organisms and no specific programs in place to achieve this.

3. Absence of scientific baseline assessment and monitoring of collection areas.

Most coral reefs used for fishing have never been monitored to determine what level of fishery of any kind they can support. More specific to the marine aquarium trade, in most collection areas the abundance and distribution of marine aquarium resources is not known and there have not been methods available for documenting the resources. Baseline assessment and ongoing monitoring of the collection areas and target species is required to ensure that the level of harvest is sustainable and that conservation benefits are being achieved. There are few efforts and little funding available to accomplish this, in spite of the continued harvest of marine ornamentals as a significant ecological and economic use of coral reefs.

4. Limited opportunity and capacity for collectors to become certified.

The thousands of village-based collectors in Indonesia and the Philippines are at the interface between the marine aquarium industry and coral reefs. Their actions determine the difference between sustainable reef resource use and coral reef degradation. Capacity building programs are needed to inform and train fishers in collection practices that can be certified. This needs to be undertaken at a scale that can reach a significant portion of the thousands of collectors in order to mainstream certification and take the transformation of the marine aquarium trade to a meaningful scale.

5. Lack of access to funding and business skills to enable collectors to transform to sustainable certified practices.

Current industry conditions make it very difficult for collectors to adopt sustainable practices. There is a shortage of funding to allow collectors to purchase the required equipment (nets, dive gear, compressor, etc.), to build holding cages, and to finance the working capital required. While these capital requirements are relatively low (typically less than \$2,500 per cooperative), most poor fishing communities have not had access to

appropriate sources of capital. In the absence of knowledgeable coaches and coordinators, the collectors are at the mercy of a “spot market” for their product, which often leads to monopolistic pricing, significantly/indefinitely delayed payments, and no direct contact with the international markets. As a result, collectors collect indiscriminately to assure sufficient volume. Providing collector cooperatives with (very modest) capital, as well as skilled coordinators, pays out in many ways: prices improve as it becomes possible to sell directly to certified exporters, and payments are made instantly. Importantly, improved inventory management makes it possible for collectors shift from opportunistic collection to “collect to demand” – a key element of sustainable fishery.

6. Need for industry awareness about the benefits of certification for responsible best practices and becoming certified.

Most marine aquarium industry operators would like to ensure they are buying quality products from suppliers that are using responsible practices. Those that are familiar with the MAC Standards and Certification support the concept and many are actively working towards becoming certified. However, to achieve mainstream levels of industry transformation, a broad range of industry must be engaged through ongoing awareness-raising and consultation efforts that facilitate industry understanding the benefits of MAC Certification and the process for achieving it.

7. Need for consumer awareness about the benefits of harvesting marine ornamentals using non-destructive methods from sustainably managed reefs.

Most consumers would prefer to purchase marine ornamentals that have been harvested via non-destructive methods once they learn about the benefits, as indicated in market studies. At present, many pet store owners claim that their marine ornamentals were caught via sustainable practices. They, and the consumers, have no way of knowing if this is true. As a result, there is a need to develop awareness about the benefits of certification to create an incentive for hobbyists to buy marine ornamentals harvested responsibly and sustainably and thereby drive the mainstreaming of the industry transformation.

8. Need for sufficient effort and capacity to implement certification at a sufficient scale and for a sufficient time period to achieve a critical mass of certified areas and collectors.

There is strong demand for marine ornamentals resulting from industry efforts to ensure sustainability and quality, especially in the U.S. and Europe. This demand must be balanced by an equally robust, and steadily growing, supply. Individual collectors, cooperatives, or even exporters do not have the required scale to provide meaningful levels of certified product to the market; some initial coordination of the highly fragmented industry value chain is required to match certified demand and supply. In addition, the market for certified products will not be self-sustaining for exporters and importers until a critical mass of carefully chosen collection areas are fully functional – once again, this requires significant capacity for coordination and planning.

1.4 Rationale

1.4.1 Mainstreaming marine aquarium market transformation

The aquarium fishing industry currently is at best a neutral and, at worst, a destructive impact on the coral reefs of Indonesia and the Philippines. As a highly valued provider of employment and income for coastal communities in developing countries, *a responsible marine aquarium industry could provide a powerful incentive to conserve coral reefs* so that they could continue to serve as a sustainable source of community livelihoods. Indeed, *if the existing marine aquarium industry could be shifted to reward responsible behavior, then fishermen would seek to protect reefs from threats (e.g., blast fishing, etc).*

For this market transformation to take place, two conditions must be in place:

- 1) a system to identify best practices, verify collectors and companies that comply with these practices, and label the resulting products - so that consumers can choose responsible operators and sustainable products

and thereby create private sector incentives that encourage and require collectors to shift to sustainable practices that manage and conserve coral reefs; and

- 2) sufficient resources committed over a sufficient time period to overcome the barriers to mainstreaming the transformation of the marine aquarium trade, so that global benefits can be achieved.

As noted in the previous section, the first condition is being met through the Marine Aquarium Council's work with the aquarium industry, collectors and their communities, government agencies, conservation organizations, public aquariums, hobbyists, and scientists that has resulted in international standards of best practice and certification. A limited number MAC Certified marine ornamentals are now moving from "reef to retail" at a start-up scale.

What is needed now are the resources to take these successful pilot level transformation efforts to scale and achieve a mainstreaming of the transformation of the marine aquarium trade. This is the purpose of the MAMTI project.

1.4.2 The MAMTI Project: A unique and strategic partnership

The MAMTI project brings together three non-governmental organizations (NGOs) as the project "Partners" – the Marine Aquarium Council (MAC), the Conservation and Community Investment Forum (CCIF), and Reef Check – to work with IFC in an unprecedented strategic combination of international standards-setting and certification, business skill development and finance mechanisms, and monitoring methods and resource management support. With GEF support, this powerful team is what is needed to mainstream the transformation of the marine aquarium industry into a vehicle for conservation, sustainable use and livelihoods and poverty alleviation.

Marine Aquarium Council (MAC):

As described above, MAC has created an alliance of marine ornamental industry participants and other stakeholders around the world, which has established a comprehensive set of certification standards for achieving a responsible, sustainable and quality-driven trade. MAC has pilot programs in the Philippines and Indonesia, as well as several other countries. On the supply side, MAC works actively to ensure the participation of communities and collectors to understand and participate in the certification - efforts that can and must be expanded to significant scale as resources become available if a mainstreaming of the industry transformation is to be possible. MAC also facilitates the understanding and involvement of exporters, importers and retailers in the certification through outreach, communication materials, technical documents and consultations. To shift demand to certified products, MAC is increasing consumer awareness of certification and its benefits through a variety of mechanisms to inform consumers, especially in the major markets of the U.S. and Europe.

Conservation and Community Investment Forum (CCIF):

CCIF is an international organization dedicated to the application of private sector management tools, strategies and capital sources to biodiversity conservation. CCIF's staff consists of investment bankers, operational specialists and resource economists. CCIF is working to ensure that collectors involved in the marine aquarium trade, especially the leaders of collectors cooperatives ("Collector's Coordinators") have the basic business skills needed to ensure their operations are sustainable and can be certified. CCIF is also seeking to create the appropriate investment vehicle to assist collectors in their conversion to MAC Certification. Collectors need small amounts of capital to purchase equipment, and to develop local net and land-based holding and packing facilities to ensure supply quality control and compliance with the MAC Standards. CCIF will take a leading role in developing a modular "business model" which allows for the rapid replication of the MAMTI program across many municipalities, villages and collector's cooperatives. Finally, CCIF is responsible for building the financial, operational and programmatic monitoring and evaluation program that is essential for MAMTI's success.

Reef Check:

Reef Check, part of the Global Coral Reef Monitoring Network (GCRMN), is a university-based NGO solely devoted to coral reef conservation. Reef Check has developed a scientifically rigorous system to monitor the

health of coral reefs and stocks of aquarium species through international consultation, workshops and extensive field testing. Reef Check will use this Marine Aquarium Trade Coral Reef Monitoring method (“MAQTRAC”) to undertake baseline assessment and regular monitoring of certified collection areas along with analysis of catch data to ensure sustainable operations and to continuously refine the science and management of marine ornamental collection. To create a critical mass of certified fish supply for import markets and to ensure that coastal communities are able to sustainably manage their reef resources, Reef Check will analyze and interpret the results of this work to provide for improved management through the required Collection Area Management Plans. This will also include working with collectors and their communities to designate Marine Protected Areas (i.e. sanctuaries/“no-take” zones) and Reef Enhancement Zones where fish and invertebrate stocks will be rehabilitated as needed. Reef Check is uniquely qualified to provide these services because the organization trains teams of volunteers in over 50 countries to monitor the health of coral reefs using standardized scientific methods. Reef Check has been working in the Philippines and Indonesia for over seven years and has major programs in both countries.

International Finance Corporation (IFC) role:

In addition to being the Executing Agency, the role of IFC in the MAMTI project will be to provide overall guidance and advice to the project Partners on achieving market transformation, based on IFC experience in other market transformation initiatives and environmentally and socially sound sustainable development. In addition, in the area of Small and Medium Enterprise (SME) development in the Philippines and Indonesia, the IFC Program for Eastern Indonesia SME Assistance (PENSA) will collaborate with the MAMTI project. The IFC PENSA staff and network of experts in marketing, access to capital and business association development will be able to provide advisory services. There is also the potential for Asian Development Bank support to PENSA for developing linkages and a series of pilot programs for both Indonesia and the Philippines SMEs involved in the marine ornamentals trade, e.g. knowledge and skills sharing, with a focus on North Sulawesi (Manado) and Mindanao (Davao) and, at a later stage, projects might be scaled up to include other parts of the Philippines (Mindanao and Palawan). The MAMTI team has had frequent meetings with the PENSA staff, both in Bali and in Manila as PENSA will be a key component of MAMTI's effort to build business development capacity in the collector communities.

1.5 Objectives

The goal of the MAMTI project is to transform the marine aquarium trade of the Philippines and Indonesia to ecological and economic sustainability using conservation management and rehabilitation to ensure the health of coral reef ecosystems and their contribution to poverty alleviation and food security.

Specific MAMTI Project objectives are to:

- Transform at least 17% of the worldwide marine aquarium industry (21% of the Philippines and Indonesian markets combined) by achieving MAC Certification through the complete supply chain.
- Establish more than two dozen marine management areas (that include no-take marine protected areas and reef enhancement zones) that are managed by the local community and harvesting groups to their own benefit, approved and regulated by the local and national government.
- Transform the existing unsustainable market to one that demands sustainably harvested marine ornamentals by increasing global industry and consumer awareness of, and involvement in, certification and the benefits of marine ornamentals that are harvested in a manner that conserves global biodiversity.

It is important to note that it is not the objective of the MAMTI project to promote the expansion of the trade on a net basis, and that the focus of the project is on areas where cyanide use is an issue. The extent of the existing cyanide use will be documented. MAC efforts to transform the marine ornamentals trade will not promote the expansion of the fishery into areas not involved in the harvesting of marine ornamentals. This will include areas that are traditionally used by long-distance fishermen.

The transformation of the trade through MAC Certification will likely result in a reduced number of organisms being removed from coral reefs due to reduced mortality, improved inventory and the “collect to order” system required by certification, which eliminates opportunistic and speculative collection. There will be improved statistics on which to understand trends in the trade due to the reporting requirements of certification.

Alternative Livelihoods

Through its community-focused approach, the MAMTI will also seek to analyze alternative livelihood options at the cooperative level and support relevant training programs for certified MAMTI cooperatives. This concept will provide an important opportunity for collaboration, as there are many existing programs engaged in alternative livelihood promotion. MAMTI will actively seek collaboration with such programs when it is clear that livelihood alternatives are needed.

1.6 Activities and Outputs

The objectives and outputs will be achieved through targeted activities linked to each project component, as described below. These are outlined in the Logical Framework (Annex 1) and detailed in Annex 2.

1. Building Capacity Of Community Stakeholders To Develop And Implement Certified Ecosystem Management Plans

1.1 Develop and Implement Site Selection Process

An initial list of candidate sites will be examined and ranked based on a set of criteria (see Annex 5). With prioritized list of sites and an initial site profile, field scoping will be conducted to gather, verify and evaluate more detailed information on each site. The entry point will normally be the municipal local government unit (LGU) in the Philippines or the Regency government in Indonesia, to ensure the MAMTI project activities is coordinated with the local government agencies. The MAMTI team will undertake rapid resource assessment (RRA) of the target sites. Baseline socio-economic conditions of the collectors and the community will be documented at the site before interventions begin, including assessing the critically important interest, resources and political will of the local leadership to support and implement reform of the marine ornamental trade and the interest of the collectors to participate in transformation. The team will document the baseline level of reef use and users, illegal practices, level of marine aquarium trade practices and business arrangements.

Key outputs include:

- Prioritized list of sites.
- Initial site descriptions/profiles.
- Report on baseline socio-economic conditions of the collectors and community.
- Report on baseline conditions of reef use, including illegal practices.
- Report on baseline conditions of marine aquarium trade activities in the area.

1.2 Undertake Community Organizing and Develop Collection Area Management Plans

A Collection Area Management Plan (CAMP) must be developed for the collection area with active and meaningful involvement of key stakeholders. The MAMTI project team will bring local stakeholders together to develop the awareness of the need for a management plan, using educational and training materials on multi-stakeholder management planning developed and translated. Local and regional government agencies (e.g. LGUs, regional BFAR officials) will be important participants in this process. The participatory planning process will result in a CAMP Committee to follow through on drafting the management plan, with assistance as needed. The draft CAMP will be presented in individual and group meetings to stakeholders to discuss and resolve concerns, building the capacity of collectors and other stakeholders to understand reef resource management planning. A series of workshops with the community stakeholders will be conducted to review, revise and endorse the CAMP, using the training materials developed through the MAMTI project. The community organizing and CAMP development will be coordinated with the local coastal resource managements planning process. Although the CAMP development is not a multi-sectoral Integrated Coastal Management (ICM) approach, the establishment of the CAMP Committees will ensure that many of the issues typically addressed in ICM will be introduced and considered - thereby assisting the community, stakeholders and local government with the concepts, structures and process of ICM and marine tenure the process of

introducing the concepts, structures and process of ICM. This includes taking account of marine tenure (where local governments have authority in planning nearshore marine zone uses).

Key outputs include:

- Training materials on multi-stakeholder management planning in several languages.
- Management planning committee formed and operating.
- Work plan to develop the CAMP.
- Collection Area Management Plan (CAMP) adopted by stakeholders.
- Collection area able to be certified and ready for certification pre-assessment by MAC.

1.3 Facilitate Certification of Collection Areas

(see Activity 4.2 below)

1.4 Build Capacity for Management, Enforcement and Surveillance of Collection Areas

There are existing agencies and authorities with the interest and mandate to undertake management, enforcement and surveillance of the collection areas, but they often lack the capacity and means for surveillance and enforcement. The MAMTI project will provide training and logistical support for agencies and authorities relevant to each collection area to catalyze and develop the capacity and experience of the agency personnel. This will also include capacity building in the legal framework for monitoring, control, surveillance and paralegal training to empower local stakeholders, collectors and community members through workshops in law enforcement. This will help bring in the support and contribution of local government agencies in developing and implementing the enforcement of local ordinances. The role of LGUs and regional BFAR staff will be important to assist to sustain and institutionalize the project at the local level, monitor the Collection Area Management Plans (CAMPs) that need to be integrated in the municipal or city development plans. The MAMTI project will work with the LGUs and other agencies and projects, including the GTZ VisSea Project, to build their capacity for enforcement and integrate the monitoring of MAC Certified collection areas as part of their ongoing activities and budgets.

Key outputs include:

- Increased management, enforcement and surveillance of collection areas.
- Improved compliance with the CAMP and relevant laws and regulations.
- Collectors and CAMP committee members deputized as fish wardens.
- Management, enforcement and surveillance of collection areas integrated into agency programs.

2. Ensuring Scientific Assessment And Monitoring Of Coral Reefs And Marine Ornamentals Stocks, With Results Contributing To Management

2.1 Conduct Baseline Resource Assessment and Monitoring of Collection Areas

For sites to be suitable for potential certification, a detailed baseline survey will be carried out using the MAQTRAC monitoring protocol to collect and document information on baseline conditions of the reef and fishery resources as the basis for management recommendations and ongoing monitoring. The sampling design will depend on the size of the collection area, but typically requires surveys inside and outside each collection area by teams responsible for field work, analysis and reporting. The MAQTRAC assessment may start with manta tows to establish overall reef condition, followed by belt transects and timed swims. A list of 76 fish and 42 invertebrates provides the primary target for monitoring. Training will be provided to local monitoring groups to continue to monitor each collection area.

Key outputs include:

- MAQTRAC baseline assessment data.
- Local groups capable of collecting data.
- MAQTRAC monitoring data.

2.2 Develop and Communicate Management Recommendations for CAMPs

The baseline data regarding the diversity and abundance of target species and reef health will be analyzed. If the area is considered potentially certifiable, the analyses and recommendations on management of the collection area will be provided to the CAMP committee for integration in the CAMP. The monitoring will result in recommendations to be included in the ongoing improvement of the collection area management plan (CAMP), (e.g. location and size of no-take zones, instituting harvest limits on certain species, harvest rotation patterns). The results of the MAQTRAC full assessment will be communicated to the collectors, community and stakeholders to increase their awareness of the state of the reefs and marine aquarium fish stocks and the importance of scientific monitoring.

Key outputs include:

- Report compiling and analyzing assessment and monitoring data.
- Analysis of fish and invertebrate stocks and overall coral reef health.
- Recommendations to the CAMP for improved management of the area.

3. Ensuring The Health Of Certified Coral Reef Harvest Areas Through No-Take Zones, Marine Protected Areas And Reef Enhancement Or Restoration

3.1 Establish No-take Zones/MPAs in Each Collection Area

A precautionary approach must be taken to ensuring the sustainability for the marine aquarium fishery. Every collection area will include at least one and typically, several, no-take areas off-limits to all aquarium fishing to act as reseeding sources for the surrounding collection areas. The size and location of the no-take zones will be proposed based on the results of the MAQTRAC assessments and developed with collectors and other stakeholders through the CAMP Committee process. The size of each individual MPA will vary based on the size of the municipal waters and the particular conditions determined during the MAQTRAC assessments. We have estimated for planning purposes that approximately 20% of each collection area will be designated a no-take zone/MPA. This will ensure the areas are of a size that can be managed by the local management committee, including the collectors cooperative. It should also be mentioned that MAMTI will not only establish new MPAs, but will work with existing MPAs in the Philippines and Indonesia to the extent they overlap with MAMTI collection areas and are effectively managed and enforced and have appropriate zones and regulations allowing sustainable reef fisheries.

Key outputs include:

- CAMP with no-take zones established.
- Maps and informational materials on location and reason for no-take areas.
- Marked boundaries of reserves.

3.2 Develop Reef Enhancement / Restoration Program for Each Collection Area

If the status of aquarium organism stocks are low then the need and opportunity for enhancement of the stocks will be evaluated. Typically rehabilitation will focus on fin fish with methods to be employed including crest nets and light traps to collect fish post-larvae that will be held in floating cages until they reach marketable size, and some used to reseed reefs. A second method will be restocking whereby reproductive age fish will be purchased from the fishermen and released into the rehabilitation area. These two techniques are expected to build up populations within two years to fully sustainable levels.

Key outputs include:

- Increased reproduction inside and outside collection area.
- Increased juvenile and adult fish inside and outside collection areas.

4. Building Capacity Of Marine Ornamentals Collectors To Become Certified

4.1 Conduct Collector Training Program for Fisheries

Collectors will be trained in net collection, proper post-harvest handling and holding, documentation and order management by a team of specialists, with training designed and adapted to address the needs of the collectors at each site. The skills of trainees will be rated and follow-up extension training scheduled where need. This activity will also include training of trainers whereby a number of the best collectors will be trained to work as trainers at other sites, expanding the possibilities for replication. In addition to the technical training, collectors' organizational capacity will be strengthened by developing a collector's cooperative at each site.

This training does not just pertain to sustainable fishing methods, but also to safe diving practices – both free diving and hookah/scuba diving. The MAMTI team includes trainers who are certified in Scuba diving who will develop training materials that are relevant in the local economic, physical and linguistic context. The training will be administered by dive instructors. Completion of the diver safety training is a prerequisite of certification for collectors.

A note on Hookahs: the MAMTI project will NOT actively introduce hookahs into areas where they are not currently in use. To the extent that local collectives decide on their own to purchase hookahs, this will be allowed only to the extent that CAMP management of species and harvest levels are not violated, no deterioration of the reef is observed over time by MAQTRAC monitoring and health and safety issues are addressed. Poorly designed Hookahs (i.e. intake manifold next to exhaust manifold, previous use in industrial applications, etc.) will be required to be fixed or removed from service.

Key outputs include:

- Collectors trained in responsible, non-destructive marine aquarium fish collecting.
- Collectors trained in best practices of documentation and post-harvest handling.
- Collectors able to be MAC Certified and ready for certification pre-assessment.
- Collector's cooperative formed.

4.2 Facilitate Certification of Collectors and Collection Area

At the end of the MAMTI site capacity building activities, the readiness of the site and collectors for formal third-party MAC Certification will be evaluated through a pre-assessment, i.e. a certification "dry run", undertaken by the project team. A gap analysis will be conducted and a series of corrective action recommendations produced, based on which the MAMTI team will work with the collectors to implement corrective actions. Formal certification assessment will be the ultimate verification of compliance with the MAC Standards by the site and collectors. The assessment is carried out by an independent, MAC-Accredited certifier who will conduct document review, interviews collectors' skills examination, etc.

Key outputs include:

- Pre-assessment report and corrective actions recommendations.
- Site and collectors fully ready for formal MAC Certification assessment.
- MAC Certified collection area and collectors.

4.3 Monitor Standards Compliance and Provide Extension Services

In the early years it will be necessary to monitor the collectors and their management system to ensure they maintain compliance with the MAC Standards. The MAMTI project team will conduct extension work through periodic field visits to monitor compliance for a year. Indication of non-compliance will be the basis for possible detailed on-site investigations and extension efforts to correct problems, e.g. through refresher training or on-going skills improvement.

Key outputs include:

- Report of 12 month monitoring and compliance record.
- Continued and consistent compliance by certified sites.

5. Ensuring Collectors Have Sufficient Financial Resources and Business Skills To Participate In A Sustainable Trade, and Fisherfolk Livelihoods are Enhanced

5.1 Determine Short-Term Cooperative-Level Capital Needs

The MAMTI project will provide initial capital to finance infrastructural and working capital start-up costs of the cooperatives, as adopting sustainable practices requires investment on the part of aquarium fish collectors. Although it may be true that if a local fisher or community organization can fund itself, the chances of success in managing the funds are higher, the lack of access to capital and financial services is often a significant barrier to surmounting these costs of transformation. Through the further development of the MAMTI budget model, as well as on-the-ground experience, cooperative-level microfinance needs will be assessed for each of the cooperatives to be formed within MAMTI.

Key outputs include:

- A needs assessment document for each collectors cooperative.
- Detailed information on: Collectors, current revenue, current costs, investment needs and available capital sources.

5.2 Determine Long-term Growth Capital and Other Local Sustainable Livelihood Funding Needs

With start-up costs of the cooperatives financed through grants, long-term growth capital (if required) will be provided by local micro-finance institutions. The MAMTI project will seek to identify other local sustainable livelihoods that possess a synergistic relationship to the aquarium trade and face a similar shortage of capital availability, taking a holistic view of the economies that drive the health of the villages. Activities that could alleviate some pressure on local aquarium fisheries, will be identified and evaluated for support by local microfinance facilities.

Key outputs include:

- Report assessing long-term capital needs for financing expansion of cooperatives.
- Standardized needs assessment documents for relevant local businesses.
- Capital availability through local microfinance providers affiliated with MAMTI.

5.3 Establish Micro-finance Program and Cooperative-level Lending Protocol via MFI

The micro-financing scheme envisioned for MAMTI involves loans to existing business groups, i.e. cooperatives of collectors, not individual fishermen. Such business groups have a track record of reasonable loan use and repayment in the Philippines and Indonesia. The MAMTI team is in discussions with two MFIs interested in providing microfinance services to MAMTI cooperatives: QUEDANCOR (Philippines) and BRI (Indonesia). It is anticipated that these discussions will develop into a memorandum of understanding between the MAMTI project and these MFIs, through which the MAMTI team will develop a cooperative-level lending protocol that establishes the terms under which village cooperatives may borrow capital.

Key outputs include:

- MOU with MFIs.
- Lending protocol that provides each cooperative with a roadmap for borrowing from MFI facilities.

5.4 Conduct Collector Training for Co-op and Business Skills

The MAMTI project will provide training to assist the collectors to understand and implement the process of forming a working association or cooperative and to develop their business skills, such as quality control in developing and maintaining reliable communications and interactions with their buyers and implementing sound

and well documented financial transactions. This will result in well developed co-ops with solid business skills, which are preferred candidates as eventual borrowers from the microfinance facility, so the MAMTI project will enhance the understanding of these collectors groups to access and use credit.

The identification and recruitment of individuals at the local level with sufficient skills and motivation to assist in the business implementation of the MAMTI collection area strategy is critical to the success of the MAMTI approach. To the extent that such skills and motivations do not already exist, MAMTI must establish the context for building sufficient cooperative-level business capacity. In recognition of these facts, MAMTI has been designed as an initiative with multiple organizational levels of personnel focused on this all-important project component. In both the Philippines and Indonesia, a professional will be hired to manage the growing cooperative-level business processes in each country. These individuals will be charged with overseeing the development of cooperatives from the business perspective (e.g. establishing and monitoring local markets, business training, monitoring and analyzing fish sales, etc.). At the local level, the key to the establishment of successful business operations will be the Local Community Organizer. In addition to the other tasks associated with this position, the LCOs will be responsible for identifying and recruiting local personnel within the cooperative who can serve as Collector Coordinators and others who can serve as the business skills resource for fisherfolk. Additionally, the business capacity building function will be led by Business Consultants who will travel from cooperative to cooperative (on a bi-weekly rolling basis) to both implement the MAMTI collection area methodology prior to certification and serve as a business skills resource over time for the cooperative. As much as possible, this work will learn from previous experience, such as the GTZ Economic Reform and Market Development activities.

Key outputs include:

- Report on the training program and co-ops developed and operating in target sites.
- Report on the training of collectors to achieve business skills to engage in market transformation.
- Reports detailing cooperative level capacity for engaging in business borrowing.

5.5 Establish and Implement Coordination between Capital Needs and Capital Availability

The MAMTI team will build programmatic capacity to provide a systematic linkage between the capital needs of the cooperatives, and the lending capacity of local MFIs through a MFI Liaison. Their primary function will be to act as the conduit between village-level capital needs and the capital pool represented by local MFIs.

Key outputs include:

- Regular, auditable reports from cooperatives to MFI detailing loan requests.
- Regular, auditable reports from MFI to cooperatives detailing planned loanmaking activities.

6. Creating Awareness Of, And Demand For, MAC Certified Marine Aquarium Organisms Among Exporters, Importers, And Retailers

6.1 Expand Industry Awareness of MAC Certification and Demand for MAC Certified Products

The MAMTI project and MAC will work with importers and retailers in major market countries to improve their understanding of certification, by: developing materials targeted to inform the industry about the environmental as well as the business benefits of MAC Certification and participating in industry conferences and trade shows to disseminate information. The MAMTI project can facilitate visits by companies, trade associations, and the media to supply sites to observe and report on the implementation of MAC Certification of the entire resource chain of custody to industry, consumers and the public.

Key outputs include:

- Communications materials for industry operators.
- Increased industry awareness of MAC Certification.

6.2 Facilitate Industry Understanding and Application for MAC Certification

The MAMTI project team will identify exporters, importers and retailers interested in finding out more about MAC and in becoming MAC Certified. Consultations with exporters, importers, retailers will be undertaken to understand their information and communications needs with emphasis will be placed on the linking of demand in the market countries with supply chains resulting from MAMTI project activities in Indonesia and the Philippines.

Key outputs include:

- List of exporters, importers and retailers signing Statement of Commitment to be MAC Certified.
- Implementation manuals for exporters, importers and retailers.

7. Creating Awareness Of, And Demand For, MAC Certified Marine Aquarium Organisms Among Consumers

7.1 Expand Consumer Awareness of MAC Certification and Demand for MAC Certified Marine Ornamentals

In the market countries, there will be a campaign to raise awareness of MAC Certification and its benefits with the consumers to create demand for MAC Certified organisms from the Philippines and Indonesia. Multi-media materials for raising awareness about MAC Certification with hobbyists will be developed and translated into the key languages of the main market countries and widely distributed. MAC will participate in hobbyist meetings in key market countries to disseminate information on transforming the industry in the Philippine and Indonesia.

Key outputs include:

- Communications materials for marine aquarium keepers and the general public.
- Increased consumer awareness of MAC Certification.

8. Building Capacity For Market Transformation, Including Project Management, Coordination And Implementation

8.1. Establish Project Management Infrastructure and Process

The MAMTI members will set up MAMTI Central Organization by developing detailed terms of reference for project positions, recruiting staff for the positions and developing a more detailed workplan and timeline.

Key outputs include:

- MAMTI Central Organization staff hired.
- MAMTI Central Organization office, infrastructure and processes in place.

8.2 Build Capacity for Creating Management Plans, Establishing Fisher's Co-ops and Training Collectors

MAMTI field team members will be the trained in local community organizing and technical project activities and the “franchise model” of the MAMTI project, the technical aspects of the MAC Standards and methods for conducting training. The MAMTI team will develop training modules to guide the field team members in and their work, taking account of the lessons learned in previous MAC site and field training and organizing activities.

Key outputs include:

- MAMTI field teams trained as trainers and community organizers.
- Training modules of ecosystem management and collectors training.
- MAMTI field teams fully prepared for site level responsibilities.

8.3 Build Capacity for Coral Reef Baseline Assessment and Monitoring

Field survey teams will be trained for undertaking MAQTRAC assessment and monitoring of coral reefs and aquarium organism stocks using the MAQTRAC methods, the compilation and analysis of the data, and the development of management recommendations, building on the lessons learned in previous MAC site and field survey work. As there is little experience in developing management options, based on the kind of data that will be generated from the assessment and monitoring, a 3-day experts workshop will be held to review the MAQTRAC methods and develop management options to develop recommendations to the CAMPs.

Key outputs include:

- MAQTRAC field survey teams are trained.
- Options for management and developing recommendations for CAMPs identified.

8.4 Develop Legal and Policy Context and Business Model for Implementing Site-level Certification and Collectors Co-ops

The MAMTI Partners will develop a detailed “franchise model” for the transformation of the marine aquarium trade at the site level that will be packaged into informational and training materials used to introduce and implement the rollout of the MAMTI model in each area. The MAMTI partners will develop an understanding of the legal and policy context at the site and provide appropriate government agencies and NGOs with information on possible changes to the legal and policy situation to create a climate more favorable for the transformation of the marine aquarium industry, and link this with broader integrated coastal management policy developments. The team will identify the range of aquarium trade site and fishery types in the Philippines and Indonesia and their relation to the legal and policy context to develop a series of scenarios on the kinds of site situations, providing the basis for developing intervention strategies and site specific implementation plans.

Key outputs include:

- Franchise business model and guidance on developing local adaptations.
- Cooperative-level finance and economics model.
- Report on legal and policy context relevant to the marine aquarium trade transformation.
- Information and recommendations on possible changes to the legal and policy context.

8.5 Evaluate Cyanide Detection Test (CDT) Potential, Develop Sampling Protocol and Program and Establish Pilot Labs

The use of cyanide is not allowed under MAC Certification. The MAC Certification of collection and export operations in the Philippines without an approved cyanide detection test (CDT) and a monitoring and sampling program have raised concerns that cyanide caught fish (or fish of unknown origin) are knowingly or unknowingly mixed with organisms coming from MAC Certified collection areas in a MAC Certified export facility. With MAC Certification the non-use of cyanide is part of a larger context of responsible fishing practices with other approaches to create broad scale, longer lasting changes in behavior among fishers. Nonetheless, MAC Certification in locations where cyanide use is known to occur should include a program of monitoring, sampling and testing for cyanide by credible, accurate, and reliable methods used by internationally accredited laboratories.

The MAMTI project will determine which CDT method is appropriate, cost-effective and practical for indicating whether fish have been caught using cyanide, working with laboratories, government agencies, research institutions and chemical detection equipment manufacturers. The project will also research the potential for later products of cyanide exposure to be detected at the point of import. The MAMTI project will establish a pilot cyanide detection testing laboratory in both the Philippines and Indonesia, to be run by credible and independent organizations, such as a scientific body, research institution or NGO. The project will develop a protocol for random sampling of certified fish and train a group of individuals to collect random for delivery to CDT labs, with unannounced visits to obtain whichever fish they chose, and strict documentation and tracking system for the samples. Two CDT labs will be functioning by year 2 of the MAMTI project, with a significant per cent of the MAC Certified fish being sampled. In the longer term, a system whereby the industry pays, as much as possible, for the costs of the sampling program and the CDT labs will be developed.

The level of action on CDT development through MAMTI is the bare minimum necessary. It is important to note that the issues of cyanide detection methods and facilities are of strong interest to the COREMAP 2 project, which may thus include activities to evaluate CDT methods more thoroughly and support CDT lab development and operations in Indonesia more fully than is proposed in the MAMTI project. The MAMTI activities on the evaluation and research on CDT methods, as well as development of a testing regime in Indonesia, will be closely coordinated with COREMAP 2.

Key outputs include:

- Report evaluating existing CDT methods.
- Report on potential for import level CDT.
- 2 pilot CDT labs established (1 each in Philippines and Indonesia).

9. Provide regular and rigorous evaluation of MAMTI's programmatic, financial and operational performance

9.1 Develop M&E Plan

A rigorous and efficient monitoring and evaluation plan will be and implemented by a professional who will establish linkages throughout the organization and undertake regular monitoring and evaluation of project successes and challenges.

Key outputs include:

- Document outlining project milestones.
- Comprehensive monitoring and evaluation plan.

9.2 Undertake Rigorous, Regular Performance Reporting and Evaluation

The monitoring and evaluation director will provide regular reporting in the M & E Plan as a tool for the MAMTI project manager to assess performance, with regular internal reports, as well as regular external reports by independent auditors.

Key outputs include:

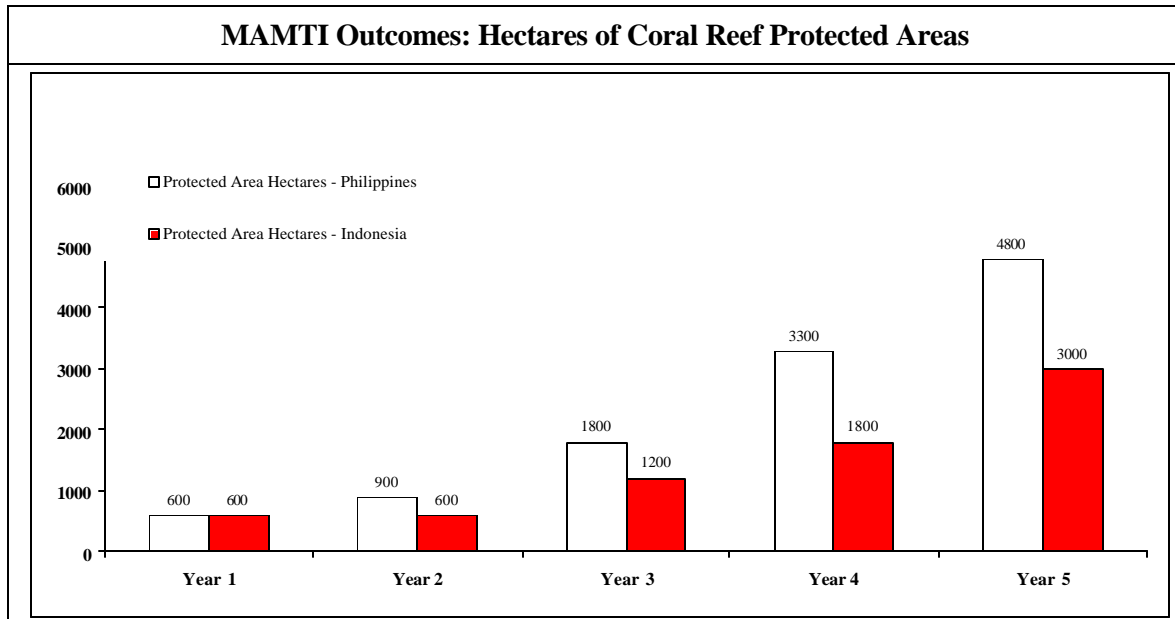
- Monthly financial reports and performance briefs.
- Quarterly reports detailing performance relative to established project milestones and metrics.
- Annual or biennial comprehensive operational and financial report written by an independent evaluators.

1.7 Outcomes

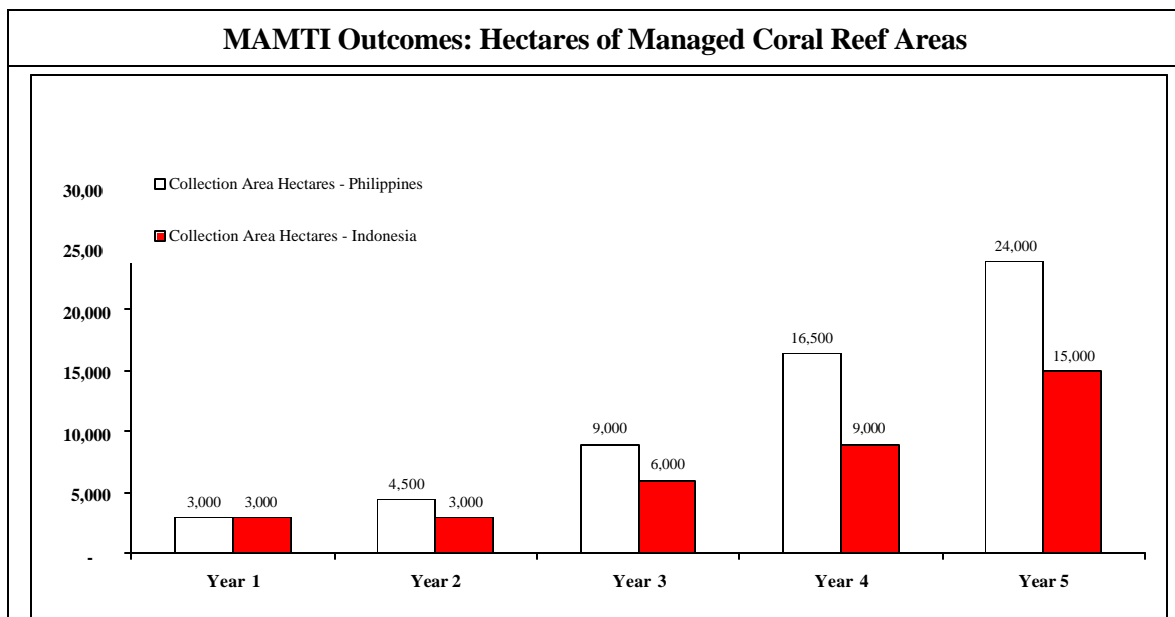
1.7.1 Outcomes Contributing Directly to the GEF Business Plan Indicators

The MAMTI project will produce the measurable outcomes shown below that specifically address the following two key indicators of the GEF Business Plan:

- Additional productive landscape (coral reefs) under conservation (ha)



- Additional land (coral reefs) under improved management for conservation or protection (ha)



1.7.2 Outcomes to Address Barriers to Transformation of the Marine Aquarium Trade

The MAMTI project will produce a series of measurable outcomes that address the existing barriers to transforming the marine aquarium trade:

1. The capacity of community stakeholders to develop and implement certified ecosystem management plans is built.
2. Scientific assessment and monitoring of coral reefs and marine ornamentals stocks are ensured, with results contributing to management.

3. The health of certified coral reef harvest areas is ensured through no-take zones, marine protected areas and reef enhancement and/or restoration.
4. The capacity of marine ornamentals collectors to become certified is built.
5. Sufficient financial resources and business skills for collectors to participate in a sustainable trade are provided, and fisherfolk livelihoods are enhanced through the application of a business model that shortens the aquarium fish value chain.
6. The awareness of, and demand for, MAC Certified marine aquarium organisms among exporters, importers, and retailers is raised.
7. The awareness of, and demand for, MAC Certified marine aquarium organisms among consumers is raised.
8. Sufficient capacity for market transformation is built, including for project management, coordination and implementation.
9. Rigorous evaluation of MAMTI's programmatic, financial and operational performance is undertaken regularly.

1.8 Beneficiaries

1.8.1 Principal Target Group: Marine aquarium fishers and their coastal communities

The principal target groups for MAMTI efforts are the aquarium fishers and the coastal communities in which they live.

- *Marine aquarium fishers* are often the poorest of the poor in the coastal communities of Indonesia and the Philippines, with aquarium fishing often a marginalized activity. However, harvesting marine aquarium organisms provides one of the few sustainable local industries in low-income coastal areas that have limited resources and few options for generating income. In spite of the high value of the marine aquarium fishery, the fishers in these areas often earn a very low income due to the low price and poor quality of the organisms resulting from poor fishing and handling practices.

- *The rural coastal communities involved in marine aquarium fisheries* are often among the most disadvantaged and marginalized communities in these countries. They are the most intensively in contact with, and directly dependent on, the health and productivity of the local marine environment. Unfortunately, local marine resources are usually over-exploited, lacking in management and rapidly being degraded.

1.8.2 Other Beneficiaries

Transforming the marine aquarium market is a comprehensive, international multi-stakeholder effort that brings together the marine aquarium industry, marine aquarists, non-governmental/civil society organizations, conservation organizations, government agencies and public aquariums that have an interest in the sustainability of coral reefs, reef resources, fisher livelihoods, coastal communities, and a responsible marine aquarium trade, industry and hobby. All of these other stakeholders are potential beneficiaries of mainstreaming the market transformation through the MAMTI project.

- *Government agencies in the Philippines and Indonesia* will benefit from the market transformation. The marine aquarium industry transformation through MAC Certification provides government fisheries and environment agencies a way to help ensure compliance with regulations, such as the ban on cyanide use for fishing. More broadly, these agencies like and support the certification's requirements for reef management and the role of the management planning in empowering and catalyzing efforts by LGU's, fishers, communities to keep other illegal users away from the reefs.

- *Local and National NGOs/CSOs* are key partners in the work with the main target group of fishers and their communities. These organizations are already involved in community development and/or local conservation efforts. They are increasingly interested in sustainable enterprise and environmentally sound resource use that alleviates poverty while creating sustainable communities and conservation benefits, such as will result from the transformation of the marine aquarium trade.

- *Conservation organizations* are very supportive of efforts to transform the marine aquarium market, as exemplified by the active participation of WWF in Indonesia, the Philippines and other export countries, as well as in the Netherlands, US and other import countries. A responsible and sustainable marine aquarium trade creates incentives for reef stewardship and sustainable use. MAC Certification requires reef and fishery management, including reef sanctuaries (i.e. marine protected areas) to put this in place. Conservation and sustainable use organizations hold a majority representation on MAC's Board of Directors.

- *The worldwide marine aquarium industry* consists of collection area managers and stakeholders, fishers, exporters, importers, retailers and trade associations. The industry has a vested interest in the health, quality and sustainability of the marine aquarium organisms and the coral reefs supplying these "products". They realize that to achieve this, the industry must result in sustainable, decent livelihoods for the fishers and create support and incentives for responsible fishers and communities that manage their reefs and fisheries.

- *Marine aquarists (i.e. consumers, hobbyists)*, especially in the major importing countries in Europe and North America, are also increasingly supporting the transformation of the marine aquarium trade, either as individuals or through aquarium clubs or through their purchasing decisions. Aquarium keepers are very interested and sensitive to the health of the marine ornamentals they buy, and as a result are very concerned about the quality of collecting and husbandry practices used by the fishers. By extension, they are increasingly concerned about the health of the fish stocks and reefs and the livelihoods of the fishers.

- *Government agencies in import countries, e.g. US and EU countries* will benefit from the market transformation as a way of also transforming the ecological footprint of their country - as a consumer of reef aquarium products - from a footprint of environmental and social problems to a footprint of market driven reef management and conservation, thereby assisting them to implement the CBD. Government agencies see how MAC Certification ensures better compliance with CITES and the FAO Code of Conduct for Responsible Fisheries.

- *Public aquariums around the world* support the transformation of the marine aquarium trade, and have linked with MAC to communicate to the public and aquarium keepers about the need for responsible aquarium keeping based on an industry that supports sustainable livelihoods and reef conservation in developing countries.

1.9 Indicators

In order to analyze the measurable improvement in the health of the coral reefs (including size and condition of reefs and fish populations), the MAMTI project will use in the following indicators:

- Size and Condition of Reefs and Fish Populations: The condition of reefs and reef fish populations will be carefully monitored using the MAQTRAC methods. Baseline conditions will be documented for each collection area. Targets for important changes will be made based on the full portfolio of sites. In the no-take areas, our target will be for an increase in fish stocks of 10% per year for the first three years. This increase rate will likely slow down to 5% per year at that time, and diversity will begin to increase at 10% per year for the next two years as biomass stabilizes. In the collections areas, we target a more modest increase in fish stocks of 2% per year for the first three years, followed by 5% per year thereafter. A similar pattern should be followed by mobile marine invertebrates. It is important to keep in mind that there are many external factors that will influence the recovery of coral reef fish and invertebrate populations at any given MAMTI site, therefore site specific changes are very difficult to predict. Each MAMTI site will be transformed to a situation where sustainability is being achieved according to best available information - and being improved upon over time.

- Size and Number of Marine Protected Areas (MPAs): A measurable goal of the MAMTI project will be to increase the number of MPAs in Indonesia by 30 and the Philippines by 48, i.e. a 30% increase in number of MPAs in which the marine aquarium fishery is managed in both countries which equates to 15,000 ha in Indonesia and 23,000 ha in the Philippines.
- Mortality rates: Mortality rates of marine ornamental organisms will be tracked throughout the entire value chain, as is required of participants in MAC Certification. Certification's role in generating this information is alone a vast improvement over the unknown levels of mortality. The MAMTI team will be able to provide information about the incidence, location, and probable cause of mortality by species and fine tune the collection and handling standards, the unsuitable species list, and its contribution to fisheries science.
- Trade in fish and invertebrates: Information on trade in fish and invertebrates will be specifically included as a project indicator, with information on volume captured and shipped by species, prices, and trends. MAC has also been responsible for instigating the creation of the Global Marine Aquarium Database (GMAD) at UNEP-WCMC that has created, through active involvement of the industry, the world's most comprehensive information on the characteristics of the trade in marine ornamental fish and invertebrates. Certified exporters are required to report their trade statistics to the GMAD and so records will be kept on every fish and invertebrate shipped from a MAMTI project site, along with the performance of the shipment and the catch per unit effort (CPUE), making it possible to measure how well:
 - MAMTI is affecting the overall volume of trade (the volume will likely decrease because of significantly reduced mortality, improved inventory and order management systems)
 - MAMTI changes in the current species mix (trade in certain species will likely decline as compliance with the unsuitable species list and CAMPs prevent their collection; the volume of certain low-value fish will likely decline as supply adapts to demand)
 - MAMTI is able to transform local, regional and international markets
 - CPUE rates are increasing, indicating recovering stocks
- Transformation of the market: The MAMTI currently anticipates directly converting 17% of the worldwide market (corresponding to about 21% of Indonesia and Philippine export volumes) to a certification. The indirect effect will be much larger: As importers and retailers are assured of certified supply, the rate of replacement of non-certified product will accelerate. Given the experience of other environmental certification efforts (Forest Stewardship Council, Marine Stewardship Council, etc.), the establishment of a sound supply base is critical. The MAMTI M&E team will track both the direct and indirect transformation: a) tracking shipments through the value chain and b) in interviews with importers, retailers and hobbyists.
- Income of collectors: Information on collector income will be specifically included as a project indicator (see detailed social equity discussion in section 3.3.5). A dedicated team will spend this summer developing specific indicators covering absolute income levels and indices of social welfare and equity (e.g. health care access, housing, schooling, nutrition, etc).
- Reduced use of cyanide: As there is no baseline on this illegal trade, we will measure the numbers of fishermen and areas of reef in which the chemical is not being used in the fishery. The targets are: 78+ communities trained in multi-stakeholder ecosystem management and have developed certified Collection Area Management Plans, and more than 39,000 hectares of collection areas are managed and certified. MAMTI will only work in areas with documented cyanide use – the intensity of the previous cyanide use will be documented.

Other key performance indicators that will be used by the MAMTI are outlined below:

Objectives to be Monitored	Performance indicators	Expected Change
Capacity of community stakeholders to develop and implement certified ecosystem management plans	<p>Local collectors trained in sustainable fish and coral collection techniques</p> <p>Collector coordinators trained in business development, logistics, inventory management, community relations</p> <p>Communities trained in multi-stakeholder ecosystem management and development of collection area management plans</p> <p>Exporters trained in integrated inventory management</p>	<p>4,000+ sets of education / certification materials published / distributed in local languages</p> <p>Educational workshops conducted at 150+ cooperatives</p> <p>50+ communities trained in multi-stakeholder ecosystem management</p> <p>50+ communities are implementing certified Collection Area Management Plans (CAMPS)</p> <p>39,000 hectares of collection areas sustainably managed and certified</p>
Health of certified coral reef harvest areas	<p>Effective and well-placed no-take zones established</p> <p>Effective and well-placed marine protected areas established</p> <p>Reef enhancement and restoration accomplished where feasible</p>	<p>Up to 7,800 hectares of no-take zones/marine protected areas delineated and established in certified collection areas</p> <p>Increased surveillance and enforcement of protected areas</p> <p>Reef enhancement / restoration activities conducted at all feasible location</p> <p>75 fishermen's village cooperatives participating in conservation, management and rehabilitation activities</p>
Scientific assessment/monitoring of stock	<p>All collection activities based on sustainable principles and explicit management plans</p> <p>All collection areas rigorously monitored</p>	<p>Sufficient MAQTRAC monitoring completed in each area to assess ecosystem and stocks of key species</p> <p>Management recommendations are incorporated into the CAMP or CAMP revisions</p> <p>9 local teams trained to carry out MAQTRAC and other monitoring methods</p> <p>150+ surveys carried out</p>
Collector skills	Marine ornamentals collectors are fully trained to become MAC certified	<p>3000 sets of training materials developed, translated into Bahasa Indonesia, Tagalog, Cebuano and other relevant languages and distributed</p> <p>75+ training workshops conducted</p> <p>2,300+ collectors trained in certifiable collection techniques</p> <p>2000+ collectors certified</p>
Capital availability	<p>Collectors have sufficient financial resources to participate in a sustainable trade</p> <p>Microfinance providers are linked to certified collector cooperatives to address sustainable livelihood needs</p>	<p>Infrastructure and working capital funding needs assessments completed in 50 municipalities (e.g., nets, collection stations, local office space, communications needs, transportation, etc.)</p> <p>Start-up costs for collector cooperatives financed by MAMTI grant funding</p> <p>Other sustainable livelihood needs are assessed in 50 municipalities</p> <p>Microfinance providers (local and international) are integrated into community organizing effort/team</p> <p>Substantial microfinance funds available to cooperatives</p> <p>2,300+ collectors trained in co-op development and business skills</p>
Industry awareness of and demand for MAC certified marine aquarium organisms	<p>Participants throughout the marine aquarium industry chain are aware and supportive of MAC certified products</p> <p>Demonstrable trend toward industry-wide certification of exporters, importers and retailers</p>	<p>The majority of marine ornamentals exporters, importers and retailers aware of MAC Certification</p> <p>200+ of exporters, importers and retailers reached by awareness raising materials</p> <p>Approximately half of all exporters and importers and a quarter of retailers certified</p> <p>~770%+ growth in MAC Certified organisms from Indonesia and the Philippines (from approximately 7,600 export boxes per year to 66,000+ export boxes per year)</p>
Consumer awareness of MAC certified marine aquarium organisms	Demonstrable trend towards consumer acceptance of MAC-certified organisms	<p>600+ marine ornamentals hobbyists reached by awareness raising materials and aware of MAC Certification</p> <p>2,800%+ growth in sales of MAC Certified organisms from Indonesia and the Philippines</p>
Superior project management	<p>High-performance central project office established and staffed</p> <p>Modular, "franchise" business model for rapid replication of MAMTI model to collection sites designed</p> <p>Collection sites identified</p> <p>"Trainer of trained" capacity established</p> <p>Scientific zoning and monitoring protocol fully integrated into site management concept</p>	<p>Project Steering Committee and process established</p> <p>Project manager hired and office established</p> <p>Report on legal and policy constraints and opportunities for site-level certification reviewed</p> <p>Scenarios described (e.g. open access) and strategies developed (e.g. community zoning) for site-level intervention</p> <p>Site selection criteria and process developed</p> <p>12 sites selected by year 1, 30 sites by year 3, 78 sites by year 5 (collection areas)</p> <p>28 community organizers trainers and technical trainers hired and trained</p> <p>75+ workshops on stock assessment and management completed</p>

	Monitoring and evaluation system designed and implemented	<p>Recommendations for integration of MAQTRAC data into CAMPs in place</p> <p>Contractual relationships with microfinance institutions established</p> <p>CDT methods evaluated for appropriateness, effectiveness and possible import country testing</p> <p>A significant % of certified fish are tested for cyanide</p> <p>Decrease in % of fish that test positive for cyanide</p> <p>Monthly financial reports and performance briefs</p> <p>Quarterly reports outlining performance vs. key milestones</p> <p>Yearly comprehensive evaluation of entire program</p>
--	---	---

1.10 Risk Assessment

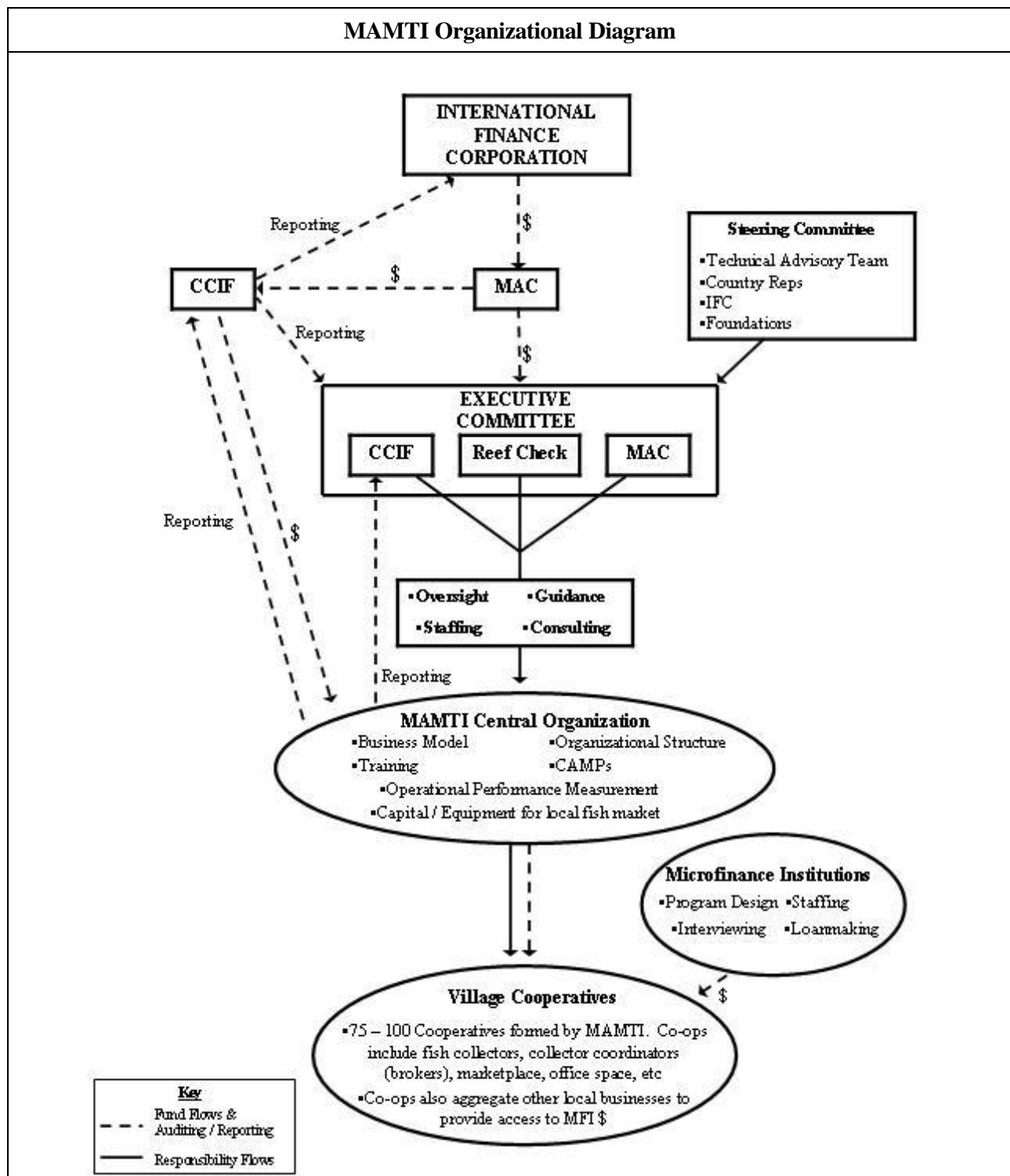
	Risk Description	Level	Mitigation Strategies
Regulatory / Legal	Change in legal framework disallowing marine tenure for local fishing cooperatives	Low	In most cases, cooperatives will have de facto control over fishery management. If local cooperatives are not allowed that right, however, the MAMTI project team will work with relevant local government agencies to build capacity necessary for those agencies to manage fisheries.
	Legal context does not allow certification of aquarium fisheries	Low	Certification is voluntary on the part of fishing cooperatives and does not rely on the legal context. The actualization of this risk would necessarily be highly politically motivated.
	Legal structure slows development of resource management plans	Medium to High	In such cases, the MAMTI project team would invite increasingly higher-ranking government officials to widen the stakeholder group until sufficient satisfaction is reached.
	Collection area surveillance and management regulation enforcement capacity insufficient amongst local authorities	High	The MAMTI project team will work with local government agencies to build enforcement capacity. A budget has been developed for precisely this purpose.
	Project team unable to move amongst sites due to political instability	Low to High	Political stability is one of the criteria used in the MAMTI site selection process, and therefore selected sites will reflect local stability risk. If a site does prove to be unstable, rollout of the MAMTI business plan will be postponed until such time as stability returns.
Ecological / Scientific	Other impacts (e.g. bleaching, blast fishing, cyanide use, pollution, natural) degrade potential for reefs or stocks to support sustainable marine ornamentals harvest	Medium	The potential for other impacts to reefs and fish stocks is a component of the project site selection criteria, and chosen sites will reflect a limited risk from other impacts. The MAMTI project team will also work with local government agencies to build enforcement capacity to mitigate human impacts.
	Appropriate and effective cyanide detection testing not achievable	Medium	Strengthen traceability / documentation systems to increase peer pressure amongst cooperatives members with the threat of collective de-certification as a result of individual non-compliance.
	Insufficient sites meeting project selection criteria to meet 5 year project goals	Low	The project team has already identified a roster of acceptable sites for MAMTI rollout
Financing / Economics	National or Regional economic climate degrades so as to make project implementation impossible	Low to High	There is obviously a risk of widespread economic degradation that would directly impact MAMTI. It is very difficult to assess the likelihood of such a risk, but the magnitude of the risk would be mitigated by the fact that the economics of the project will be conducted largely outside of the region, and funds will originate in historically stable currencies such as the US Dollar.
	Exporters do not cooperate with direct payment and inventory control methods	Medium	The MAMTI Central Organization will include personnel specifically tasked with developing relationships with exporters that align with the overall goals of the project
	Microfinance institutions are	Low	While microfinance availability is not a

	not interested in and capable of working with the aquarium fishing industry		requisite success factor for MAMTI, it will be extremely helpful in achieving project goals. MFIs have already indicated an interest in lending to aquarium fishing cooperatives. Additionally, the MAMTI business model for cooperatives provides comparable economic and risk profiles relative to other industries funded through microfinance (e.g. agriculture)
Staffing	Insufficient candidates are available to meet hiring needs for key project positions	Medium	The MAMTI project team is prepared to exercise patience during the hiring process so as to maximize the organization's collective skills and experience. Furthermore the MAMTI project team will leverage its contact network throughout the region to gain access to desirable candidates.
Markets / Industry	The international market for marine aquarium organisms closes	Low	The MAMTI project team will use the project as a platform to lobby industry opposition. Positive project results will offer excellent evidence to concerned counterparties that the marine aquarium organism market can be conducted in a sustainable fashion.
	Demand amongst hobbyists for certified organisms proves to be insufficient	Low	The MAMTI project team will devote substantial resources to build hobbyist awareness relative to the existing harms of the trade and benefits of certification. MAMTI will advertise at trade shows, in magazines, and at retail locations.
	Industry (importers, exporters and retailers) interest in certification is insufficient	Low	The MAMTI project team will devote substantial resources to build industry awareness relative to the existing harms of the trade and benefits of certification. MAMTI will advertise at trade shows, in magazines, and at retail locations. MAMTI efforts amongst the hobbyist community will also drive demand for certified fish, which will catalyze interest in certification amongst importers, exporters and retailers.
Community / Collectors	Interest in ecosystem management plans amongst communities, collectors and government proves to be insufficient	Low	The MAMTI project will connect with existing government programs in Indonesia and the Philippines related to integrated coastal zone management.
	Collection area surveillance and management regulation enforcement capacity insufficient amongst local authorities	High	The MAMTI project team will work with local government agencies to build enforcement capacity. A budget has been developed for precisely this purpose.
	Collectors do not respect no-take zones / MPAs	Low	MAC certification of collection areas will be dependent on the ongoing adherence to the no-take zones / MPAs set forth in the CAMP on the part of collectors. MAMTI management will ensure that no-take zones / MPAs are respected and will revoke certification if they are not. Furthermore, the MAMTI training and certification protocol makes clear to collectors the linkage between sustainable harvests and no-take zones / MPAs.
	Insufficient numbers of collectors interested in certification	Low	The MAMTI project will devote substantial resources to build awareness of the benefits of certification amongst collectors, and will also

			work directly with local government agencies to link certification with the need for integrated coastal zone management. The MAMTI project will also devote resources to build demand for certified fish amongst exporters, which will in turn drive certification interest amongst collectors.
--	--	--	---

1.11 MAMTI Management

The diagram below is a visual representation of the flows of funding, management reporting and responsibilities between the various components of the MAMTI project. It is anticipated that MAC, as lead partner, will act as the contracting organization with IFC.



The MAMTI Project Partners and Executive Committee

MAC, Reef Check and CCIF collectively make up the MAMTI project “Partners”. As the lead partner, the Marine Aquarium Council, Inc. will be contracting organization with the IFC on behalf of the others, as was the case with the PDF-B. The Partners will develop contracts with each other regarding the role, responsibilities and relationship that each will have in the implementation of the MAMTI project.

The Executive Committee (“ExCom”) of the MAMTI project will be comprised of representatives from MAC, Reef Check and CCIF. The ExCom will be assisted by the Project Steering Committee (“Steering Committee”) made up of representatives from the reef fisheries scientific community, local and regional governments in the Philippines and Indonesia, the IFC, and internationally recognized conservation and philanthropic organizations. The Steering Committee will provide the ExCom with an invaluable link to current best practices in biodiversity conservation, sustainable enterprise, country-specific developments and issues, and will also provide the credibility attendant to independent technical oversight. The representatives of the reef fisheries scientific community will provide a technical advisory capacity for the MAMTI project and will include scientists from the University of the Philippines (the only Center of Excellence of the GEF Coral Reef Targeted Research and Capacity Building project that is located in the MAMTI countries).

The Role of Reef Check (scientific authority)

Scientific evidence will play a determinant role in MAMTI, as it has in the MAC process. It is critical to have a sound scientific understanding of the status of target marine aquarium resources and reefs at the collection area level so that an informed decisions can be made that a given reef area and/or group of target species can support some level of use as the basis for moving forward with management and certification.

The role of Reef Check in the MAMTI project is to serve as an independent scientific group that will assess and monitor both collection and non-collection areas and determine appropriate collection levels in the former. The Collection Area Management Plans (CAMPs) are designed through a process of negotiation among stakeholders. As part of this process, Reef Check will present scientific evidence for its recommendations on catch limits, no-take areas, and rehabilitation efforts. If negotiations do not lead to an agreement on management, such as catch limits, the recommendations of Reef Check will be adopted consistent with the “precautionary principle.” Reef Check also will have the authority to require changes in existing CAMPs based on analysis of new data or analysis that indicates the CAMPs that are not consistent with sustainable use.

Since Reef Check scientists will often be in the field, they will also play a role in informal monitoring of harvest practices and species mix. They will also be expected to assist in providing scientific advice in cases where complaints have been alleged or where a de-certification process has been started.

The development and implementation of the CAMPs is one of continual improvement and adaptive management. Phase 1 CAMP is based on the initial work in the area. The full resource assessment and science based recommendations are required to be integrated into the Phase 2 CAMP. Further iterations are required as scientific monitoring, evaluation and analysis continues to take place over time.

In most MAMTI sites, the abundance of the marine aquarium resources is not known and no aquarium organism specific methods were previously available for determining this. To address this, MAC contacted the Global Coral Reef Monitoring Network (GCRMN), which referred the situation to Reef Check, a part of the GCRMN. Reef Check has developed the Marine Aquarium Trade Coral Reef Monitoring Protocol (MAQTRAC) to assess the status and condition of reefs and marine ornamentals stocks in collection areas. The method can also evaluate the effectiveness of management by monitoring coral reefs and populations of exploited organisms and 'control areas' to determine if there are effects on reef health or target species' populations from aquarium collection, and if these effects are ecologically significant compared to natural spatial and temporal variation.

MAMTI will provide the means to expand significantly the application of field surveys and credible science to the reefs and stocks that are harvested for the marine aquarium trade. Without MAMTI, no science based assessments or management of these areas is likely. The use of these methods and their results as part of

certification provides the scientific authority for the management of the marine aquarium resources in MAMTI sites. The monitoring will result in recommendations to be included in the ongoing improvement of the CAMP, (e.g. location and size of no-take zones, instituting harvest limits on certain species).

MAC Certification requires companies to be compliant with all national and international regulations. MAMTI's work with the marine aquarium industry operators will help ensure that the scientific and management requirements for sustainability under CITES are met before CITES-listed species are certified. Under CITES, it is the responsibility of each nation (Party) to designate a Management Authority and a Scientific Authority.

Of the many marine aquarium trade species, only scleractinian hard corals, antipatharians, blue, organ pipe and fire coral as well as the bivalves *Tridacna* species are listed in CITES Appendix II. Aside from pipefish/sea horses (*Hippocampus* species), however, no aquarium fish are listed in any CITES Appendix. It is illegal to export hard corals from the Philippines, hence only Indonesia will be involved in CITES determinations for hard corals. Requirements for "non-detriment to survival" findings in relation to harvesting and the role of the species in the ecosystem are determined by the CITES Scientific and Management Authorities in each country. Quite often, CITES decisions have been made despite the lack of reliable field data. One of the major problems identified in COP 10 was that many countries were unable to designate a Scientific Authority. The data collected through MAMTI's support for MAQTRAC surveys will significantly aid in the decision-making process for CITES. MAMTI and MAC Certification provide another mechanism for ensuring that the industry must comply with CITES requirements.

Above and beyond this, MAMTI and MAC Certification provide proactive information, technical input and support for efforts to strengthen CITES and the management of CITES-listed species by US and other countries, especially regarding corals and live rock. MAC and Reef Check are assisting country CITES Scientific and Management Authorities to work through these difficult issues and develop information and methods for non-detriment findings in relation to harvesting and the role of the species in the ecosystem. For example, in Fiji the CITES Scientific Authority and Management Authority, as well as TRAFFIC International, have requested assistance from MAC and Reef Check in developing and implementing science based resource assessment methods that will contribute to developing "non-detriment" findings based on sound, credible science. This is a significant international confirmation of the major and authoritative role that science plays in MAC Certification and the validity of the MAQTRAC methods. This assistance and support to the CITES Scientific Authority and Management Authorities will be able to expand and improve under MAMTI, thereby further assisting the US and other concerned countries to support the implementation of CITES.

Live Rock:

No live rock operations will be considered for certification under the MAMTI project. MAC supports the active development of alternative products, such as farmed live rock, and this is included under the MAC Standards as being certified.

Live rock is a significantly different component of the marine ornamentals trade. The collection of live rock is currently undergoing an international consultations in relation to CITES and other stakeholders, especially governments and local communities, where live rock is an important source of livelihood. There is a lack of scientific information, methods and assessment for live rock harvesting and impacts that have impeded a more complete and informed understanding of the issues. Environmental impact assessment approaches are needed to evaluate the environmental effects in relation to the socio-economic value, to identify possible mechanisms to minimize/mitigate damage, and to consider the alternatives such as manufactured live rock.

MAC has begun a process to review the issues associated with live rock and a workshop was held in March 2004, with more work underway since then. MAC is developing a multi-stakeholder working group on live rock harvesting. The output of this work will be to determine what constitutes environmentally responsible best practice for live rock harvesting and if and when live rock harvesting is acceptable and appropriate. Environmentally responsible best practice for live rock harvesting could include components such as: science based resource assessment, environmental impact assessment, management (e.g. rotation, volume limitation), minimum rejection rate, gear and/or collection technique restrictions. The MAC outputs of the MAC working

group on live rock will be completed and incorporated into the MAC Standards and policies within the first year of MAMTI.

The MAMTI Project Central Organization

Through the ExCom, the Partners will act in an oversight and guidance capacity, working with the MAMTI Central Organization (the “Central Organization”) to develop detailed operating budgets, hire staff, prioritize site rollout, establish and execute the MAMTI franchise model, etc. Based on the budgeting process, the ExCom will fully fund the Central Organization on a six monthly basis for those activities that will take place in the Philippines and Indonesia. The Partners believe that the ExCom control should provide guidance, budget approval and oversight services to the extent required to assist the Central Organization in the accomplishment of the MAMTI project mission. In addition to funding the Central Organization, the ExCom will also coordinate to the degree required for microfinance lending by local micro finance institutions (MFIs) in Indonesia and the Philippines.

CCIF will develop the project management control, accounting and reporting systems to ensure that the project remains focused and on track, that milestones are set and deliverables are achieved, that progress reporting is conducted in a complete and timely manner, and that thorough, transparent and on-time accounting and financial reporting is maintained. CCIF will provide regular updates on financial and project performance metrics to the Ex Com, and will make recommendations on advisable management actions. At each level of the MAMTI Project, the ExCom will ensure the highest level of accountability through the application of these financial and operational audits. GEF and other investors will be provided with regular reports detailing fund flows and operational outcomes. The MAMTI franchise model and the growth of village cooperatives will be regularly assessed and documented by the Central Organization and reviewed by the ExCom.

The Central Organization (See MAMTI Central Organization Chart, below) will be responsible for all operational aspects of the MAMTI project. Given the primacy of the Central Organization in the structure of the MAMTI project, the choice of the person to run this organization (the “Project Office Director”) will be one of the most important and highly leveraged decisions made by the ExCom. The Partners believe that the appropriate person for the Project Office Director position will be well-versed in private sector management, and will have extensive and successful experience implementing a large and dispersed franchise model in Southeast Asia.

The Central Organization itself will actually consist of several physical offices. It is currently contemplated that the Project Office Director will establish a headquarters office and small staff in the Philippines. The headquarters staff will consist of one Business Development Director, who will be hired and supported by CCIF, one Monitoring and Evaluation Director, also hired and overseen by CCIF, one Senior Scientist, who will be hired and supported by Reef Check, a Project Office Assistant and a part-time accountant. The MAMTI Project Office Director will also directly supervise two senior officers named the Philippines Project Manager and the Indonesia Project Manager. Each of these Managers will be responsible for three teams – the Capacity Building Team, the Assessment Team and the Business Team.

Each Capacity Building Team (one in Indonesia and one in the Philippines) will be comprised of four positions: Regional Community Organizers, Free Dive Trainers, Hookah Dive Trainers, and Technical Consultants. Regional Community Organizers (“RCO”s) will be responsible for the process of forming village cooperatives. It is anticipated that each country office will employ three RCOs (one for each region), who will work at the village level to build relationships with local officials, assess the local aquarium fish business, and identify a local version of themselves (“Local Community Organizers” or “LCO”s) in each collection area, who will be hired to implement the cooperative strategy. Free Dive Trainers and Hookah Dive Trainers will carry out the in-water capacity building portion of the MAC Certification system. Separate positions are necessary based on the experience that the skill sets and training needs relative to free divers and hookah divers are quite divergent. Technical Consultants will make themselves available to collection areas on a rotating basis to provide technical capacity related to MAC Certification. In addition to the LCOs, which have already been mentioned, the Capacity Building Team will train the following local participants in the MAMTI Project: Enforcement Personnel (monitoring and enforcement of physical collection area and protected area boundaries), Collector

Coordinators (buyers at cooperative markets who deliver to exporters), and the collectors themselves. Each Capacity Building Team will be led by a Supply Development Manager. The Supply Development Managers will be responsible for developing, directing and monitoring the in-country strategy to bring certified sustainable supply online to the marketplace. This position will be responsible for coordination all field training activities to ensure proper implementation of MAC Standards. This crucial task will involve close coordination with village cooperatives to develop targeted fishing protocols. They will be supported in this effort by a capacity building team composed of senior trainers and consultants

Each Assessment Team (one in Indonesia and one in the Philippines) will consist of Reef Check Scientists, Resurvey Scientists, Collection Area Management Specialists and Rehab Scientists. With each new collection area that comes on line, the Reef Check Scientists will implement the Reef Check protocol to determine the baseline condition of the reef and fishery, and set in place a monitoring program to track progress. One year after each collection area comes on line (and is assessed by the Reef Check Scientists), Resurvey Scientists will visit the collection area to assess progress or decline relative to the baseline. Collection Area Management Specialists will be responsible for translating data emanating from the Reef Check assessment and resurvey processes into meaningful management recommendations to be integrated into the collection area management plans. The Assessment Team in the Philippines will be directed by the Senior Scientist mentioned previously. The Assessment Team in Indonesia will be led by an Indonesia-based Fisheries Scientist, who will be tasked with directing all strategy related to the assessment and proactive monitoring of the health, viability and sustainability of the aquarium fisheries in the MAMTI collection areas. (S)he will be the focal point for implementation of the MAQTRAC protocol in the MAMTI collection areas, and will direct the Assessment Team accordingly. Working with the Fisheries Scientist a Rehabilitation Scientist will be responsible for actively rehabilitating fisheries that have been degraded. They will be supported by an assessment team composed of marine scientists and collection area management specialists.

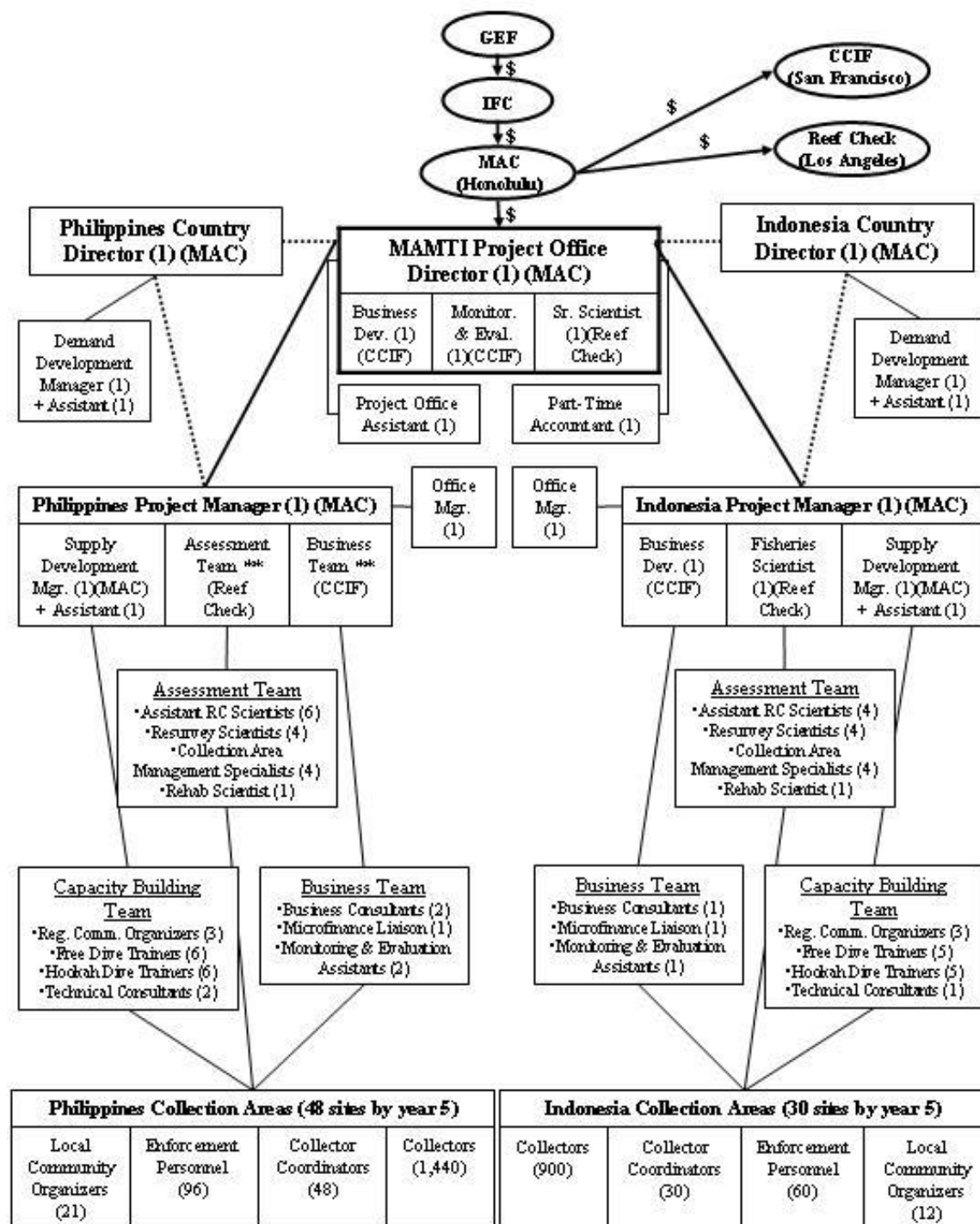
The Business Team will consist of three positions – Business Consultants, Microfinance Liaisons and Monitoring and Evaluation Assistants. Business Consultants will act in much the same fashion as the Technical Consultants in the Capacity Building Team, but with a focus on capacity building related to the development of viable, efficient local markets for the aquarium fish trade. The Microfinance Liaisons will work with coordinate the relationship between village cooperatives and microfinance institutions to facilitate the provision of capital. Monitoring and Evaluation Assistants will be the on-the-ground representatives of the Monitoring and Evaluation Director, responsible for collecting and analyzing data in the field necessary to create transparent and rigorous audits. The Business Team in the Philippines will be led by the Business Development Director mentioned previously. The Indonesia Business Team will be led by an Indonesia-based Business Development Manager.

The MAMTI Project Office Director will work closely with the existing MAC Country Directors for the Philippines and Indonesia, who are responsible for stakeholder relations, certification systems development, and demand development for certified products with local exporters and foreign importers. Working together, the MAMTI Director and MAC Country Directors will ensure that solid, dependable relationships with exporters and importers are developed to match the increasing supply of certified marine ornamentals, and that exporters become MAC Certified.

The MAMTI Project Office Director will work with these senior officers to develop three additional regional offices in each country (i.e., Luzon, Visayas and Mindanao in the Philippines and West, Central and East in Indonesia) that will be responsible for executing the MAMTI operational plan at the sites in each of those sub-country regions.

The organizational chart below depicts the Central Organization personnel and chain of command.

MAMTI Organizational Chart



* Parentheses denote to which organization the position reports and the number of personnel for each position.
 ** Does not represent an individual position refers to the team below instead.

2. COUNTRY OWNERSHIP

2.1 Country Eligibility

The Philippines ratified the Convention on Biological Diversity (CBD) on 8 October 1993.
 Indonesia ratified the CBD on 23 August 1994.

2.2 Country Drivenness

2.2.1 Overview

Both the Philippines and Indonesia recognize that they are facing serious problems with overfishing in general, and specifically with respect to the use of damaging fishing techniques including blast and poison fishing. Laws have been in place for many years, banning these practices in both countries. Surveillance and enforcement have proved problematic. The line agencies in both countries have welcomed the joint activities of Reef Check and the Marine Aquarium Council. Dozens of meetings have been held over the past three years with all levels of governments in both countries to work together to engage collectors, communities, the industry and other stakeholders in implementing MAC Certification and achieving the associated conservation and management of collection areas and their fisheries.

MAMTI Partners' Interaction with Philippines and Indonesia Governments

The MAMTI partners interact regularly with key government agencies in the Philippines. The Marine Aquarium Council, formally registered in the Philippines in 2003, has a Memorandum of Agreement with the Bureau of Fisheries and Aquatic Resources (BFAR) and is regularly in contact with the Department of Environment and Natural Resources (DENR), the Palawan Council for Sustainable Development and many Local Government Units (LGUs).

In Indonesia, CCIF, Reef Check and MAC interact regularly with key government agencies, especially the Ministry of Marine Affairs and Fisheries (DKP), with whom MAC has a Memorandum of Understanding. CCIF is currently working with DKP on developing sustainable financing plans for marine protected areas. The project partners are in communication with the DKP Director for Small Island Affairs, who chairs the inter-agency committee on marine resources certification, and with Ministry of Environment, as well as the Director for Marine Conservation.

There is clear and practical evidence of government support for transformation of the marine aquarium trade at the local level as well. In the Philippines, several Local Government Units have requested MAC to undertake the training of collectors in their areas and develop management plans. In Indonesia, the local governments have worked with fishers cooperatives to delineate collection areas to enable MAC Certification to move forward, despite the lack of clear legislation giving local communities marine tenure options.

MAMTI and Regional, Intergovernmental and International Agreements and Programs

At the international level, the MAMTI project complements and implements regional and international initiatives in which Indonesia and the Philippines are participating, such as the SE Asia Regional Program of the IUCN World Commission on Parks and Protected Areas (WCPA) and the Code of Conduct for Responsible Fisheries of the UN Food and Agriculture Organization (UN FAO). The MAMTI project also implements World Summit on Sustainable Development targets for marine biodiversity conservation and sustainable fisheries.

The MAMTI proposal is fully consistent with the International Coral Reef Initiative's (ICRI) Call to Action, Framework and Renewed Call to Action that was led by the Philippines government in early 2003. MAC and Reef Check are members of the International Coral Reef Action Network (ICRAN). The International Tropical Marine Ecosystem Symposium (ITMEMS 2) held in 2003 in Manila adopted the following recommendation: "Effective international certification, labeling and awards for good practice partnerships on coral reef conservation and fisheries be promoted."

2.2.2 Philippines Country Drivenness

MAMTI and Government Policy, Strategies and Programs

In the Philippines, the MAMTI project is consistent with, and supportive of, government policy, strategies and programs. At the policy level, ensuring the marine aquarium trade is sustainable, responsible and contributes to

conservation and sustainable livelihoods supports the National Agenda for Sustainable Development for the 21st Century (Philippine Agenda 21), National Biodiversity Strategy and Action Plan (NBSAP), and the National Marine Policy. The MAMTI project is also consistent with other externally supported projects addressing the sustainable development of coastal areas and marine resources. These include: USAID projects (Coastal Resource Management Program, Growth with Equity in Mindanao, Fisheries Improved for Sustainable Harvests), GTZ projects (Visayan Sea Coastal Resources and Fishery Management), and AusAID projects (Provincial Support Program).

The Government of the Philippines has made policy commitments and has numerous legal instruments and agency programs to address coral reef conservation, the sustainable use of marine biodiversity, the elimination of destructive fishing practices, and the empowerment of local government to act on these issues, including those listed below:

- National Biodiversity Strategy and Action Plan.

After signing the Convention on Biological Diversity in 1992, the Philippines formulated its National Biodiversity Strategy and Action Plan, the implementation of which is coordinated by the Philippine Council for Sustainable Development.

- DENR Programs.

Relevant DENR programs include the National Integrated Protected Areas System, the Community-Based Coastal Resources Program, the Coastal Resources Management Training Program and the Coastal Environment Program. Started in 1993, the latter assists LGUs with MPAs and is the only national government program to promote and manage the complete coastal environment. The Coastal and Marine Management Office guides policy-making for coastal management, especially assisting LGUs in the implementation of their CRM programs.

- National Integrated Protected Areas Systems (NIPAS) Law (Republic Act 7586).

The NIPAS Law create the DENR Protected Area and Wildlife Bureau (PAWB) and is the primary national legal framework for protected areas, covers national scope protected areas that are declared by Congress, as compared to the small municipal protected areas such as marine sanctuaries that are declared through municipal ordinance. A multi-stakeholder Protected Area Management Board (PAMB) (e.g. with local government, NGOs, POs, national government departments) is required for each protected area.

- The Local Government Code of the Philippines (Republic Act 7160).

This Code delegates authority and responsibilities for certain functions to the local government units (LGUs), including the power to manage coastal and marine resources out to 15 kilometers offshore, which has lead to the adoption of the growth in numbers of municipal MPAs.

- The Fisheries Code of 1998 (Republic Act 8550).

The Fisheries Code provides the framework for the management of fisheries and reaffirms city government jurisdiction over municipal waters, fishery law enforcement and coastal resource management. The Code supports local planning of MPAs through the Municipal or City Fisheries and Aquatic Resources Management Council (FARMCs), composed of fisherfolk organizations, NGOs, LGUs, and government agencies.

- The Fisheries Sector Program (FSP), Destructive Fishing Reform Program (DFRP) and Fisheries Resource Management Project (FRMP).

The FSP was instituted in 1991 to generate and implement Coastal Resource Management (CRM) plans in 12 bays, to rehabilitate, conserve, and sustainably manage aquatic resources; shift commercial fishing to under-exploited areas; and improve productivity. The DFRP was a joint effort of BFAR and IMA during the 1990's to combat practices such as cyanide use through improved education, enforcement, cyanide detection testing. The FRMP is a 1998-2003 project supported by loans from ADB and Japan, with Philippines Government co-financing, to: manage fisheries resources; build capacity; and diversify income generation through community development and alternative livelihoods.

- USAID Projects: Coastal Resources Management Project; Integrated Coastal Resources Management Project; Transforming the Marine Aquarium Trade (TMAT) Project; Fisheries Improved for Sustainable Harvests (FISH) Project.

The DENR and USAID project on CRMP ends in 2003 and has: implemented community management systems for sustainable coastal resource use; enhanced leadership capacity; provided technical assistance and training to LGUs, coastal communities, national government agencies, and NGOs and initiated coastal management improvements in 90 municipalities covering about 2,500 kilometers of coastline. With the assistance from ADB, the Integrated Coastal Resources Management Project started in mid-2002 and builds on the national policy framework and lessons generated through the CRMP and other completed and current projects. The Transforming the Marine Aquarium Trade (TMAT) project with MAC targets the transformation of 60 aquarium collection sites over 3 years in the Philippines. The TMAT target is ambitious as these efforts will have the advantage of working in the early sites where transformation can be achieved more easily. The MAMTI proposal takes this into account as indicated by the reduced number of target sites for MAMTI. The new FISH project begins field operations in 2004 and will run for 5 to 7 years. Its objective is to achieve sustainable fisheries in four project areas, two of which include aquarium fish gathering (northern Bohol Island and in the Calamianes Islands in northern Palawan). There is good potential for collaboration with MAMTI as both areas have large and active aquarium fish collection communities that need assistance and guidance.

- GTZ Projects: Visayan Sea Coastal Resource and Fisheries Management (VisSea); Sustainable Management in Silago Bay, South Leyte; Public-Private Partnerships in the aquarium trade in the Philippines.

The MAMTI Partners, especially MAC, have been in dialogue for several years with GTZ officials in the Philippines and Germany regarding the potential to coordinate with GTZ/Philippines government projects on coastal and fisheries management. Through the MAMTI project, it will now be possible for the transformation of the marine aquarium trade in these areas and the MAMTI project partners will ensure collaboration and coordination with GTZ and BFAR officials involved in these projects. MAC efforts in the Philippines have collaborated and with the GTZ Public-Private Partnerships to transform the marine aquarium trade and resulted in valuable experience and lessons learned. A case study on the MAC experience in its first collection area to become certified (Batasan, Bohol) is included in Annex 24.

2.2.3 Indonesia Country Driveness

MAMTI and Government Policy, Strategies and Programs

The MAMTI project is consistent with, and supportive of, government policy, strategies and programs in Indonesia. The MAMTI project is also consistent with other externally supported projects addressing the sustainable development of coastal areas and marine resources, such as the World Bank/ADB Coral Reef Rehabilitation and Management Program (COREMAP).

The Government of Indonesia (GOI) has shown a strong commitment to biodiversity conservation and identified coral reef ecosystems and improved coral reef management as national priorities in the National Strategy and Action Plan for Coral Reef Ecosystem Conservation and Management (Ministry of Environment, 1992), Sustainable Marine Program (1992), Indonesia Biodiversity Strategy and Action Plan (1993), and Indonesia Agenda 21 (1996). The recent creation of the Ministry of Marine Affairs and Fisheries (DKP) in 1999 and its drafting of new fisheries and coastal management laws reflects the government commitment to sustainable fisheries, which compliment ongoing efforts to decentralize authority over nearshore resources.

- Indonesian Biodiversity Strategy and Action Plan (BSAP).

The BSAP was developed by the Ministry of Environment, with the help of the World Bank, in 1993. More recently, a second BSAP was paid for by GEF.

- Ministry of Marine Affairs and Fisheries (DKP).

DKP was established with a vision to achieve: (i) efficient and sustainable management of maritime resources; (ii) rehabilitation of damaged coastal and marine ecosystems; (iii) sustainable development of coastal zone and territorial waters through improved spatial planning; (iv) improvement of resource databases and modernization of information and data exchange and dissemination facilities; (v) improvement of the socio-economic

conditions of coastal communities; and (vi) promotion of the maritime concept to the public and other stakeholders.

- Directorate General of Forest Protection and Nature Conservation (PHKA).

This is the government agency responsible for nature conservation, one of seven Directorate Generals within the Ministry of Forestry. PHKA's work is focused on the establishment of integrated conservation and development projects, linking biodiversity conservation in protected areas (PAs) with local social and economic development in and around the PAs. Indonesia now has some 40 national parks and 342 other reserves with a combined area of 22.4 million hectares (including 4.5 million marine hectares).

- Coral Reef Rehabilitation and Management Program (COREMAP).

Under COREMAP Phase I (1998-2003), a National Policy and Strategy for Coral Reef Management was prepared. COREMAP Phase II will be based on a framework of national strategies to implement the policies focusing on (i) empowering coastal communities to manage coral reefs; (ii) reducing the rate of coral reef degradation; (iii) managing coral reefs on an ecosystem basis; (iv) formulating and coordinating action programs of government agencies, private sector, and communities; and (v) strengthening the commitment of all parties to manage coral reefs through capacity building, awareness raising, and strengthening the legal environment.

2.3 Country Endorsement

The comprehensive MAMTI PDF-B was reviewed in detail by line agencies and endorsed by the Focal Points of the Philippines and Indonesia. The project design has not fundamentally changed since the PDF-B proposal was endorsed. The Full Sized Project Brief has been submitted to the Focal Points of the Philippines and Indonesia and has received their renewed endorsement.

3. PROGRAM AND POLICY CONFORMITY

3.1 Conformity with GEF Operational Program

3.1.1 GEF Business Plan

The MAMTI Project will mainstream biodiversity conservation as part of the marine aquarium industry and will achieve measurable results on key deliverables of the GEF Business Plan (see section 1.10 Outputs):

- Amount of land (coral reefs) under improved management for conservation or protection
- Amount of productive landscape (coral reefs) under conservation including land (coral reefs) around protected areas that are under productive use, but supporting habitats and ecosystems
- Amount of land (coral reefs) protected from degradation

3.1.2 GEF Operational Strategy

The project is consistent with the GEF Operational Strategy to support long-term protection of globally important biodiversity and ecosystems, directly addresses the GEF Operational Program 2 joint objectives of conservation and sustainable use of biological resources for Coastal, Marine and Freshwater Ecosystems, and the priority of tropical island ecosystems.

The project addresses many of the GEF Operations Strategy's priorities and activities, *inter alia*:

a) Biological conservation activities:

- Establishing long-term funding mechanisms for long-term biodiversity protection;
- Creating participatory schemes for natural resource management; and
- Developing demonstration projects linked to alternative livelihoods for local and indigenous communities.

b) Sustainable use of biodiversity:

- Integration of biodiversity conservation and sustainable use objectives into resource use management plans;
- Establishment of regulatory frameworks and incentive systems to minimize the harmful impacts of economic activities on natural resource use;

- Promotion of sustainable production and use of natural products, including the development and implementation of sustainable harvesting and marketing regimes; and
- Integrated pilot projects to provide alternative livelihoods to communities, consistent with biodiversity conservation and sustainable use.

c) Underlying causes and policies:

- Promotion of partnerships to address underlying causes and dissemination and systematic sharing of information, including on best practices;
- Incremental investments and technical assistance to help implement remedial measures, such as capacity building, including human resource development, and introduction and strengthening of legal, institutional, and regulatory systems; and
- Introduction of innovative measures, including economic incentives, for the conservation and sustainable use of biodiversity.

3.1.3 GEF Short-Term Response Measures (STRM)

The project directly addresses the following STRM outlined in the GEF Operational Strategy for Biodiversity:

- Cost effectiveness (i.e. certification ultimately provides a largely self financing mechanism for biodiversity conservation and sustainable use);
- Degree of threat, vulnerability and urgency (i.e. in relation to coral reef ecosystems and their destruction in the Asia/Pacific region);
- Opportunism (i.e. a first ever broad-based coalition of the marine aquarium industry, conservation groups, government agencies, and public aquariums has just been formed to develop a market based system for sustainability in the use of coral reef resources in the marine ornamentals industry); and
- Demonstration value (i.e. using market incentives to encourage and support the conservation and sustainable use of living marine resources in a global market).

3.2 Design

3.2.1 Project Logical Framework

(see Annex 1)

3.2.2 Detailed Description of Project Activities and Outputs

(see Annex 2)

3.2.3 Global Environmental Benefits

Without the intervention of GEF the barriers to mainstreaming the transformation of the marine aquarium industry will not be overcome. Unsustainable collecting practices and poor husbandry of aquarium organisms will continue to damage hundreds of reefs and a unique opportunity to realize globally significant levels of conservation and sustainable management of the world's most diverse coral reef ecosystems will not be fulfilled.

With the intervention of the GEF through the MAMTI project, numerous global benefits will be realized. The project is consistent with the guidance of the Convention on Biological Diversity (CBD) Conference of the Parties, as it will:

- Use *incentives*, *capacity building* and substantial *stakeholder involvement* to fulfill conservation and sustainable use objectives.
- Provide for the *long-term protection and conservation* activities by generating *sustainable conservation financing* from the private sector.
- Provide for *sustainable use* by ensuring that both the collectors operating in the areas and local stakeholders generate economic benefits from the resources in environmentally sustainable ways.
- Directly *conserve* biodiversity by supporting expanded conservation activities at coral reef areas that are used for harvesting marine ornamentals.

- Demonstrate the use of the *ecosystem approach* to the management of coral reef areas and involvement of the local communities and institutions associated with these areas.
- Enhance *equitable sharing of the benefits* of genetic resources by enhancing capacity of local stakeholders in implementing sustainable livelihoods, providing employment and other economic opportunities, and supporting practices to secure food resources, such as fish.
- Include *targeted research* to determine and monitor the status and conditions of key biodiversity and resources in coral reef areas.
- Address the *underlying, root causes* of coral reef degradation and overfishing.

Also at an international level, the MAMTI project will contribute to achieving commitments and targets of important international agreements, including:

- The CDB's Jakarta Mandate on Marine and Coastal Biological - in relation to the sustainable use of marine and coastal areas and resources, the establishment of marine protected areas and achieving sustainable fisheries.
- The World Summit on Sustainable Development (WSSD): especially targets for sustainable fisheries and marine protected areas.
- The Framework for Action of the International Coral Reef Initiative (ICRI).
- The recommendations of the International Tropical Ecosystem Management Symposia (ITMEMS).

Overall, the project will:

- Implement global certification that codifies, requires and rewards responsible fishing and best practices.
- Transform a major portion of a destructive international industry into one that supports reef conservation, sustainable livelihoods and poverty alleviation in developing countries that support the world's highest marine biodiversity.
- Establish a market transformation model that can be replicated in conjunction with other fishing-related industries (such as the live food fish trade or the artisanal tuna fisheries) to make them as compatible as possible with sustainable development.

More specifically in relation to the barriers, the MAMTI project will:

- Establish a process for community stakeholder capacity building to create ecosystem management that can be used in areas around the world wherever marine ornamentals are collected.
- Create one of the world's largest networks of coral reef management areas, including fisheries sanctuaries/"no take" zones (i.e. Marine Protected Areas) among the coral reefs of Indonesia and the Philippines, which support the highest global marine diversity.
- Result in scientific assessment and monitoring of these high biodiversity collection areas using methods that are developed to be globally applicable.
- Create a process for capacity building of marine ornamentals collectors for using best practices in the fishery that can be used in areas around the world wherever marine ornamentals are collected.
- Establish a process for developing the business skills and capital support for transforming the marine aquarium trade that can be used in areas around the world wherever marine ornamentals are collected.
- Catalyze substantial marine aquarium industry involvement so that industry players around the world will be compelled to adopt, sustain, and replicate ecologically and socially responsible practices beyond the life of the project.
- Catalyze substantial marine aquarium hobby involvement and thereby link rural collectors of marine ornamentals to the international market that will provide support and incentives for reef and fishery conservation and management.
- Catalyze comprehensive and coordinated effort and capacity to implement certification at a meaningful scale to achieve a critical mass of certified areas and collectors.

3.2.4 Unsuitable Species

The MAMTI Partners are aware of the importance of the unsuitable species question as it relates to the marine ornamentals trade. The MAMTI Partners agree that a managed and updated list of unsuitable species is critical,

as called for in the MAC Standards, which provide a comprehensive basis for addressing this issue (see below). MAC is committed to establishing the MAC Board sub-committee on Unsuitable Species in 2004 and having the process for determining unsuitable species operating during the year.

The process for creating the committee will include:

- Finalizing the specific mandate for the committee.
- Finalizing the committee work process. (The committee will meet via conference call frequently to start with, and work via email between meetings.)
- Finalizing the criteria and qualifications for committee members. (These will include: having written/published reviews or ratings of marine ornamentals species suitability, research on reef species, extensive husbandry or aquarium keeping experience.)
- Selecting committee members and officers. (The committee will consist of 10-15 members that represent a balanced mix of qualified members from science, conservation, and industry. At least one member of the MAC Board member participating. The committee will elect a Chair and Vice-Chair. The MAC Certification Systems Director, Peter Scott, will be Secretary to the Committee.)
- Determining the workplan and specific timelines.
- Determining the specific timelines, milestones and outputs.

If the initial list of unsuitable species relevant to MAMTI has not already been developed by the time MAMTI project starts, it will be determined within 6 months of the beginning of MAMTI, according to the following timetable:

- Developing species selection criteria - months 1-2
- Undertaking species selection - months 3-4
- Evaluating species and developing recommendations - months 5-6

When the unsuitable species list has been formally reviewed, edited as needed and adopted as part of MAC Standards, all MAC Certified collectors and exporters involved in MAMTI will be required to comply with this or risk de-certification.

The sub-committee will ensure that the exceptions for research on unsuitable species are allowed only for legitimate purposes by aquarists with a track record of research.

At the collection area level, the evaluation and management of rare species can be effectively implemented through existing procedures. The EFM Standard and the development and implementation of the CAMP already require MAQTRAC resource assessment and monitoring of species abundance. If the analysis of species abundance indicates that some species are found to be in very low abundance and/or there is a significant trend of decreasing abundance, Reef Check will require that the CAMP be revised to reduce or stop collecting those species until resurveys indicate that their populations have recovered. This provides a very clear method to ensure species that are locally rare or depleted will not be subject to continued harvest.

For purposes of reference, the text below is taken from the MAC Core Standards:

MAC Core Standards: Unsuitable Species

A sub-committee of the MAC Standards Committee will identify marine aquarium organisms that are inappropriate to be collected, handled, or transported by anyone in the chain of custody seeking certification. Criteria for identifying such organisms will be based on a variety of inputs (e.g., expert opinion of committee members, expert opinion sought by the committee, Global Marine Aquarium Database data, MAC documentation on mortality). The initial designation of a marine aquarium organism as an “unsuitable species” will likely include organisms for which the requirements for keeping in captivity are well known and clearly impractical to fulfill. This will undoubtedly include:

- *organisms that get too large for most home aquariums (e.g., sharks and rays),*
- *organisms that are obligate feeders of food that is difficult or expensive to obtain (e.g., obligate coral polyp or sponge feeders), and*
- *organisms that are dangerous or highly venomous (e.g., blue ring octopus).*

The sub-committee will develop criteria for reasonable and responsible exceptions to allow for the small number of these organisms that should be able to go to:

- *public aquariums and scientific institutions (e.g., documentation that the end buyer is a public aquarium accredited to the appropriate body, such as the American Zoo and Aquarium Association) and*
- *home aquarium keepers who are conducting research into the conditions required to successfully keep these organisms in captivity.*

The sub-committee will periodically review and revise the list. The sub-committee will delete organisms from the list if and when they are determined to be viable in a certified trade and will add to the list when other animals are determined to not be viable. The sub-committee will review and revise the criteria for identifying unsuitable species as more information becomes available. This will likely include information on:

- *the ability of a species to survive collection, handling, and transport,*
- *the ability of a species to survive captivity for a considerable portion of its potential life span, and life history traits that make a species particularly vulnerable to over-exploitation (e.g., intrinsic low growth or recruitment rates).*

3.2.5 Incremental Cost Analysis

(see Annex 10)

3.2.6 Key Issues Addressed in the Project Design

Government PDF-B Proposal Review Issues

As part of endorsing the MAMTI PDF-B proposal, the government focal points and their agencies identified a number of items that they wished to be addressed in the project development. These issues, and the project partner response to them, are outlined in Annex 18 and have been incorporated in the project development.

IFC Project Brief Review Issues

During consultations between the IFC and the project partners, several issues were highlighted that would need addressing in the Project Brief. These topics have been dealt with in the project development and are outlined in Annex 19.

3.3. Sustainability

3.3.1 Overall

The MAMTI project is a promising model for ensuring long-term sustainability for mainstreaming the transformation of the marine aquarium market for the following reasons:

- The project will permanently transform a major portion of the marine ornamentals industry from a destructive force into a force of conservation, management and sustainable use. By increasing the value of the reefs for the private sector, coastal dwellers will work to protect them. By providing verified quality to the industry and market, buyers will begin to prefer certified products. When this transformation has been achieved, the industry will conduct business according to these standards for quality and reliability in ongoing operations in order to continue to achieve the associated business benefits.

- The import and retail portion of the industry is willing to pay for the assurance of quality products and sustainability of supply that MAC Certification provides. Market forces will be supporting reef conservation and, when certification reaches sufficient scale, industry will be able to fully fund the MAC Certification system for quality and responsibility as part of the functioning of a responsible and monitored marine aquarium trade.
- Recent ecological and economic successes using the tourism industry in the Philippines and Indonesia as an incentive for coral reef conservation and rehabilitation have provided a model for private-sector driven conservation. Standardized scientific reef and fisheries assessments will be undertaken to ensure the level of harvesting is sustainable and to help identify marine protected areas that will maintain the adjacent fishery.
- The project will catalyze sufficient market forces so that additional industry players will be compelled to adopt ecologically and socially responsible practices *even after the GEF funds have been fully utilized*.

3.3.2 Precautionary Approach

Limits on the volume and species of fish harvested are, and always will be, an essential part of the collection area management plans (CAMPs). At the initial stage of assessment, threatened local populations are identified and excluded from collection. In many cases the reef will have to be monitored closely to ascertain the sustainability of any given collection regimen, and to make the necessary adjustments. In the meantime, the MAMTI team is fully committed to the precautionary principle in the establishment of the initial management plans. (For example, the Batasan, Philippines CAMP includes provisions whereby a 30% reduction in CPUE for any organism for more than 3 months will be immediately be brought to the attention of the CAMP committee and all collection stopped of the organism(s) in question.)

A few words about the process the MAMTI will use: In most collection areas, the abundance of the marine aquarium resources is not known. MAQTRAC is now used to assess the status and condition of reefs and fish stocks in collection areas, evaluate the effectiveness of management by monitoring 'control areas', and determine if effects are ecologically significant compared to natural spatial and temporal variation.

A formal MAQTRAC assessment carried out by a Reef Check-trained scientist is required as part of the CAMP to determine the species-specific volume restrictions as necessary. The MAQTRAC information is used to develop other important mitigation and management measures, e.g. location and size of no-take zones. Additional data on the status and trends in reef resources will become available through the periodic monitoring and provides the basis for revising total allowable catches for species and how and other management and mitigation efforts specific to each collection area and CAMP.

3.3.3 Social

Resource use behavior that recognizes the limits of island resources and the need for stewardship, husbandry and wise use are consistent with the traditional social and cultural values communities in archipelagic countries like Indonesia and the Philippines. The MAMTI project will facilitate a community-based management and decision making process based on local norms and values that encourages local stakeholders to take a wider and more long term view of resource management and use. The project will alter the actions of collectors away from destructive practices and provide the skills and knowledge to engage in sustainable, environmentally sound fishing practices. The project will also encourage community stakeholders away from accepting unsustainable, unmanaged fisheries by providing the tools and capacity to create and implement management plans for their reef areas.

In developing the management plans, the MAMTI multi-stakeholder process of open communications and exchange of information empowers fishers and other stakeholders to participate in a more transparent and inclusive dialogue to determine the future of their marine resources. The management planning process cultivates viable, lasting civil society relationships while promoting accountability to ensure that government legal and regulatory requirements and market-based economics take root. This institution and experience

building in good governance develops and enhances citizen participation in civil society and democratic local governance.

The MAMTI project is designed to ensure that the aquarium industry operates in a way that promotes transparency and traceability in the documentation, e.g. collector identification, collection numbers, species collected, collection locations, exporter order identification, order amounts and pricing set before collection, and buyer identification, creating a more level playing field for both sellers and buyers to negotiate a fair price of the product. This will in turn ensure not only stable business relationships but also a shared sense of responsibility for resource stewardship.

3.3.4 Institutional

The major focus of the MAMTI project is creating the capacity within the target groups to assume responsibility for continuing to ensure that their fisheries are well managed and sustainable. The project driven economic incentives will provide the motivation for community stakeholders and collectors to continue to undertake and manage the trade according to the MAC Standards.

From an institutional standpoint, the MAMTI project will transform organizational infrastructure and processes in the following ways that ensure the changes are sustainable:

- **Government:** At both the local and regional levels, the MAMTI project will establish important partnerships with governments in the Philippines and Indonesia. The project will drive the creation of a grass roots-level institutional framework in the form of the village cooperatives that will give a more unified voice to the previously fragmented aquarium fish trade, on which so many coastal residents depend for their livelihoods. Governments may also necessarily benefit by the aggregation of the aquarium fish trade through the enhancement of the local tax base.
- **Community Business Organizations:** The creation of village-level cooperatives will be based on the establishment of sustainable harvesting, handling, trading and transportation techniques, all of which will lead to income and cash flow predictability increases relative to the status quo. These increases will represent the enhancement of livelihoods critical to the sustainability of local-level organizations.
- **Exporters:** Aquarium fish exporters, which represent an important component of regional economies in Indonesia and the Philippines, will benefit from the efforts of the MAMTI project to organize collectors and link them to exporter demand. Exporters will no longer be required to purchase fish that cannot be sold on the export market because collectors will target their catch based on what the export market will bear. Exporters will also benefit from the enhanced health of reef fisheries driven by the project driven industry transformation. These structural enhancements to the trade will contribute to the long-term sustainability of aquarium fish exporters.
- **Importers and Retailers:** Developed world importers and retailers will benefit by the efforts to bring verified sustainable supply into the marketplace. Certification creates documentation, quality assurance and control, traceability and improved inventory management. These aspects of the certification create business benefits that ensure the certification becomes institutionalized.
- **NGOs and Academic Institutions:** Where appropriate and possible, the MAMTI project will work with local NGOs and academic institutions with a proven track record to undertake components of the project for which they have, or can develop, the capability to deliver. For example, local NGOs may be well suited to provide capacity building services to collector communities, such as community organizing, small and medium enterprise development, etc. NGOs and academic institutions are often already involved in community development and/or local conservation efforts and are increasingly interested in sustainable enterprise and environmentally sound resource use that alleviates poverty while creating sustainable communities and conservation benefits. The skills and experience obtained during the project implementation will enable them to develop expertise, staff and ongoing capacity for this.

3.3.5 Financial

A business plan has been developed that projects the fact that the MAC Certification system will become self-financing when 30% of the marine aquarium trade is participating. This is based on an industry (importer and

retailer) willingness and ability to pay fees and/or 2% of wholesale purchase value to MAC for the goods and services that certification provided. This could be accomplished in the next 3-5 years, with the MAMTI project alone targeting to deliver over half of this output, but two types of initial support would be necessary to overcome high upfront costs and barriers:

- *Grant funding* is required to enable CCIF, Reef Check, and MAC to coordinate, train, facilitate certification, and monitor a comprehensive network of sustainable collection operations throughout the Philippines and Indonesia. Grant funding is also required to provide cover the initial infrastructural and working capital costs to start up these operations. These costs are relatively small (typically <\$2,500 per cooperative) and are best grant funded – setting up micro-lending capacity for this purpose alone would not be cost-effective. The sustainable collection operations will generate a critical mass of certified marine ornamental exports that will enable US and European importers and airlines to make MAC Certification a condition of purchase and transportation.
- *Investment capital* is required to help capitalize the industry's efforts to integrate its supply chain and comply with MAC Standards. They are needed to modernize the supply chain management infrastructure, and to install the required tracking software. It is expected that the marine ornamentals industry will raise these funds as part of their business development activities.

MAMTI will leverage maximum contributions for biodiversity conservation, sustainable development and poverty alleviation. The three partnering NGOs will commit over \$1,000,000 per year to this program. The private sector will match all investments by a significant factor. In the Philippines and Indonesia, there is, and will be, significant cash and in-kind contributions to the implementation of the certification from local governments and early adopters in the industry. In addition, there has been a continuing interest from major U.S. foundations to provide matching funding for this project. GEF participation in the MAMTI project will provide the critical final component to the establishment of sustainably collected, handled and transported aquarium-related species.

Financially, the MAMTI project will improve collector income in a number of ways:

- Increased bargaining power and level “playing field”. Middlemen and exporter “screeners”, who accept or reject fish, can have an inappropriate level of influence on the success of collectors. Under the MAC system, collectors have greatly increased bargaining power due to:
 - Verification of quality: MAC Certification reduces arbitrary or discriminatory screening practices. Standard screening criteria have been successfully developed as part of the certification and their implementation is being enhanced through the dialogue created by the MAC Certified Collectors and Exporters Group in the Philippines.
 - Transparency of information: Collectors know the price of their catch in advance, and, in many cases, are fishing to fulfill specific orders. For the first time, they are paid immediately for their catch - at predictable rates. For the first time, the trade, including all interactions between sellers and buyers, is systematically documented (i.e. order forms, delivery receipts, mortality and reject rate, etc.) – conflicts can be addressed directly by the collector coordinator. In the Philippines, MAC instituted and facilitated the MAC Philippines Certified Collectors and Exporters Group (CCEG) in which exporters have agreed to work methodically towards certification to ensure that demand can be matched closely to available supply, that all MAC Certified exporters and collectors associations have developed a common pricing that ensures a fair and agreed minimum price for MAC Certified organisms and address other key economic aspects of the collector relationship with the exporter, e.g. exporter agreement to cover a certain percentage of transport costs, exporter agreement to provide packing boxes.
- Greater efficiency and economies of scale. The lower mortality rates associated with improved collection and port-harvest handling and holding translate into higher profits. Data show mortality rates of 10% from 50% are almost eliminated with MAC Certification. The efforts of MAMTI's community organizers and

collector coordinators will result in significant economies of scale, such as shared, commonly owned holding facilities, greater bargaining power with exporters, volume discounts on nets and other equipment, etc.

- Higher prices. There has been an increased understanding on the part of the exporters of the costs involved to ensure the collection of high quality organisms. In the MAC pilot sites, collectors have realized increased price premiums since becoming certified. MAC will continue to do everything possible to facilitate the pass-through of premium pricing to collectors, including:
 - Distribution of pricing information
 - Capital assistance in the purchase of nets, holding stations, shipping equipment, etc.
 - Linkage of collector's cooperatives to available sources on micro-finance
 - Elimination of collector's dependence on a single middleman/exporter.

(Note: While the retailers will be able to obtain higher prices for premium fish, the distribution of benefits to collectors must be considered in the context of the economics of this trade. Because of the extraordinary shipping and handling costs, the price of an organism roughly doubles at each step of the value chain – for example, a \$0.18 clownfish, handled by 6 intermediaries, exporters, importers, jobbers and retailers, can sell in New York for \$5.80 (profits are generally modest - only the most integrated and savvy operators achieve operating margins exceeding 15% in this business). Therefore, even in a perfect premium pass-through scenario, a 30% price premium translates to \$1.74 to a retailer, but only to \$0.06 to the collector, since transport and handling costs do not change. While \$0.06 may appear small, it is a 33% increase in income for that organism. In addition, retailers, exporters and importers have to pay for the cost of certification – which in many cases involves new pumping systems, tanks, inventory management systems, etc. The collector's income is thus driven more directly by the introduction of modern inventory management, stable price structures and an assured market for their products - that is why MAC's efforts in this regard are so important.)

To provide a complete picture of the economics of certification, a cost-benefit analysis of certification at the collector level can be described in following matrix.

Table 1: Cost-Benefit Analysis for Collectors

Standards Requirement	Cost	Benefits
• Improved collection technique	Training cost, equipment (nets, jars, etc.), etc.	Lower mortality, increased price
• Improved post harvest handling and holding technique	Training cost, new equipment (nets, jars, etc.), etc.	Lower mortality, increased price
• Improved documentation system	Time, office supplies	Accurate records of mortality and reject leading to accurate payment, etc.
• Improved collectors organizational capacity	Time, office supplies, meeting cost	Shared strategy, negotiating power with buyer, etc.
• Improved inventory – “Catch on demand”	Training cost, business development cost – exporters	Through better value chain integration, collectors catch only what can be sold resulting in reduced effort and increased price
• Improved cash flow	Training cost	Collectors paid immediately under MAMTI collection area strategy
• Improved information	Information collection and dissemination	Pricing transparency throughout the value chain
• Access to start-up capital	About \$2500 per	Capital currently unavailable;

	cooperative	highly improved operations; cooperative's cash flows unburdened by interest costs.
--	-------------	--

The MAMTI project places a premium on outcome indicators addressing the quality of lives in the villages working as part of a certified trade. Improvements in the quality of life of fisherfolk at MAMTI sites will be a powerful recruiting incentive for attracting collectors to certification. An in-depth analysis of collector and village economics will be undertaken in 2004 to establish clear and practical methods for determining the baseline economic conditions of collectors and the methods for tracking and documenting changes, addressing issues such as the major drivers and risks pertaining to individual and collective income levels, cash vs. non-cash economies, the local measures of wealth, the “hierarchy of needs” defining local quality of life, existing power structure and the impact of new wealth, etc. From this, MAMTI will develop specific indicators that will be regularly tested by the project's M&E team. These indicators will not merely measure increase in collector income, but also the more relevant measures of improved lives: improved access to health care, better housing, improved ability to pay school tuition, etc.

Artificial live rock is a well-developed technique currently used extensively in Fiji. While not all collection areas are suitable (some, for example, are too remote to make shipment of the rocks economically feasible), MAC will systematically investigate the opportunity of introducing and advancing this. MAC will report back to IFC by the end of 2004 about the feasibility of this approach, and will at that time propose a detailed action plan.

Generally speaking with respect to sustainability, it is important to note that many of the efforts (and associated costs) of the MAMTI project over the five-year projected horizon represent startup work to catalyze a shift in the ornamental trade in Indonesia and the Philippines. Therefore, the MAMTI project is not intended to indefinitely support the personnel infrastructure required to do so. Rather, MAMTI is intended to catalyze the creation of the local conditions under which widespread application of sustainable collection practices and MAC certification can be achieved. At the end of the projected horizon, the Partners believe that the aforementioned certification rollout goals will have been achieved, and a substantial infrastructure employed by MAMTI will be absorbed in the marine ornamentals industry value chain. At such time, the Partners also believe that MAMTI cooperatives will be on sound technical and financial footing, and as such will be able to continue operating their businesses sustainably with periodic technical assistance from MAMTI project participants, as well as independent access to microfinance services (provided by independent financial institutions lending to the ornamentals sector solely because of the profit potential associated with doing so).

3.4 Replicability

At the site level within each country, success of the MAC certification will lead to higher profits for all involved. This will increase demand for certified fish and have the follow-on effect of increasing demand from local governments and fisheries cooperatives to have their collection areas and collectors certified. To respond to this, a critical feature of the MAMTI project is the franchise model developed by the partners. Under this model, assessment and reef monitoring protocols will be standardized according to Reef Check methods, and recruitment, organization and training of collectors within village cooperatives will be standardized according to the MAC model. The project will also provide a uniform means to access local microfinance credit facilities where appropriate. Instead of the project suffering from complexity as it grows, greater efficiencies will accrue with growth based on the standardized nature of the franchise model. One of the most important jobs that MAMTI management will undertake will be the uniform and leveraged application of the model.

Through this “franchise model” strategy, replicability is a fundamental feature of the MAMTI project and replication will be achieved on several levels:

Other communities beyond the target sites.

Some aspects are likely to be replicated by market forces alone (i.e., because they make business sense). For example, if fishing villages begin to make more money by adopting sustainable practices, then neighboring

villages will likely also adopt sustainable practices over time. Likewise, if export and import companies profit by offering sustainably harvested fish, then competitors may also follow suit.

If this project's investment vehicle is successful at overcoming the barriers (e.g., high upfront cost, lack of financing) that hinder collectors and the industry from converting to sustainable practices, then the GEF and other "green investors" should consider establishing similar investment vehicles to help shift companies in other industries towards sustainable practices.

Other countries involved in the marine aquarium trade.

Many other countries where the marine aquarium trade currently operates are closely watching the marine aquarium trade transformation in the Philippines and Indonesia. As successes build up, many of these other countries will request MAC to help them to set up certification in their collection areas. Thus the GEF funding will have major global benefits through a private sector incentive.

Other kinds of fisheries and wildlife trade.

With the successful transformation of the aquarium industry, there is significant potential for replicating the model and approach implemented through the MAMTI project in other kinds of fisheries and wildlife trade. For example, the live food fish trade, which is very similar to the marine aquarium industry.

3.5 Stakeholder Involvement

3.5.1 Overview

Addressing the challenge of mainstreaming MAC Certification in the Philippines and Indonesia requires multi-stakeholder efforts that bring together key players with common interests. The objectives of this collaboration of marine aquarium industry and consumer associations, NGOs and government agencies all converge on common interests of: healthy reefs and fisheries; sustainable livelihoods and communities; and sustainable trade and healthy, high quality reef organisms. The MAMTI project is a unique and innovative alliance that can collectively contribute and leverage new resources to work with those of GEF. Other partners will be as identified during the implementation of the MAMTI project and brought into the project efforts.

MAC, Reef Check and CCIF have an extensive interaction with a wide range of stakeholders in Indonesia and the Philippines, as listed in Annex 11. There are many more stakeholders with whom MAC interacts in other countries, as exemplified by the representation on the MAC Board of Directors (Annex 11). Examples of key stakeholders in Indonesia and the Philippines with whom the project partners have consulted and collaborated are listed below. A strong participatory mechanism in intervention planning, implementation, and monitoring and evaluation is built into the design of the project. The MAMTI Partners further believe that it is necessary for stakeholder analysis to be part of a dynamic process that continually reevaluates relevant stakeholders. The involvement and participation of representatives of LGUs and organized groups and target beneficiaries as partners in coral reef resource use management and conservation are part of the goal and strategy of the MAMTI Project.

At the site level, the project will involve ongoing interaction with target beneficiaries and stakeholders in community organizing, awareness raising and capacity building. The multi-stakeholder process of developing the Collection Area Management Plan (CAMP) already specifically requires that that other uses of the reef (e.g., live reef food fishery, artisanal fishery) are documented, the other stakeholders and their interests are identified, and that these interest groups participate in the CAMP Committee. This ensures other reef resource use groups are directly involved in designing the project interventions and that they participate in the development of the management area and management measures, including the designation of no-take areas. Through this process, the impacts and benefits relevant to other users of the reef resources will be identified, analyzed and incorporated into the decision making at the local level.

3.5.2 Key stakeholders: Indonesia

National Government

Ministry of Marine Affairs and Fisheries - Departmen Kelautan dan Perikanan (DKP)
Ministry of Trade and Industry - Departmen Industri dan Perdagangan (Deperindag)

Sub-National Government

Provincial Government of Bali Fisheries Division
Many provincial and local authorities and agencies in pilot areas

NGOs

Yayasan Terumbu Karang Indonesia (Terangi) (Indonesia Coral Reef Foundation)
WWF - Indonesia
The Nature Conservancy - Indonesia
Indonesia Ecolabeling Institute - Lembaga Ekolabel Indonesia (LEI)
Yayasan Telapak Indonesia

Collectors and Industry

Many individual collectors, collection groups and export companies
Indonesia Coral Shell and Ornamental Fish Association - Asosiasi Koral, Kerang, dan Ikan Hias Indonesia (AKKI)

3.5.3 Key stakeholders: Philippines

National Government

Bureau of Fisheries and Aquatic Resources (BFAR)
Fishery Resource Management Program (FRMP)
National Fishery and Aquatic Resource Management Council (NFARMC)

Sub-National Government

Palawan Council for Sustainable Development (PCSD)
Many provincial and local authorities and agencies in areas that are certified or actively seeking certification including governors, Provincial and Municipal BFAR offices, FARMCs and LGUs.

NGOs

WWF Philippines (KKP)
Bantay-Dagat (community-based protection of coastal resources)
Coastal Conservation and Education Foundation, Inc.
Haribon Foundation
University of the Philippines

Collectors and Industry

Many individual collectors, collection groups and export companies
Aquarium Fish Collectors Cooperatives/Associations in certification sites
Philippine Tropical Fish Exporters Association (PTFEA)
Many individual exporters

3.5.4 Gender issues

Transforming the marine aquarium trade and ensuring that it is based on sustainable livelihoods, communities and resource use brings together the gender, governance and environment dimensions of poverty alleviation and sustainable development. At the community level, both men and women are involved in the civil society, multi-stakeholder process for resource management planning that is catalyzed by MAC. Women's participation in this process is essential and encouraged as part of increasing the potential for positive outcomes in transforming the marine aquarium trade.

Creating this interface of governance and environment at the community level establishes or expands the possibilities for gender equality in the control and use of natural resources and the benefits that accrue from this.

This creates equal opportunities to make choices about the future of the community's marine resources and income generation and mainstreams the opportunity for the community's men and women to work in partnership to achieve agreed upon goals.

At the global level, several prominent female academics, NGO officers, and policy specialists have actively contributed to both the design phase and inception stage of the international MAC standards development process. A team of women are involved in the review of the draft standards document through their membership in the MAC standards advisory group (SAG), as well as specific technical workshops and consultations.

More specifically in relation to the MAMTI project, balanced gender participation will be ensured in the program development and coordination activities. For example, the program will seek to ensure balanced representation and involvement of women in the three regional workshops that will be convened with a variety of stakeholders to review MAC progress and experience in developing and implementing MAC Certification in the Philippines and develop a draft workplan and timeline for the MAMTI project.

The site level interventions that form the core of the MAMTI program will also be undertaken to ensure balanced gender involvement. The role of women in the community and the marine aquarium trade will be documented in the activities to establish baseline socio-economic conditions. While the actual aquarium fishing activities are mostly dominated by men, other aspects of the implementation of activities related to certification implementation involve women, usually the spouses of fishers. These include the quality control (screening and packaging activities) and documentation aspects (organizing and updating log book entry, order processing, meeting minutes) of MAC Certification. This links these women to the marine resource livelihoods and in the process helps to ensure resource use is responsible and sustainable. This results in greater gender balance and women's participation in the economic, social and environmental decision-making process and benefits of a sustainable marine aquarium trade.

The site-based management planning by community stakeholders will be undertaken to enable balanced gender involvement through the multi-stakeholder process. Active and meaningful involvement of key stakeholders of both genders in developing and implementing a management plan for the reef area and resources is crucial. This activity will bring stakeholders together to develop the awareness of the need for a management plan for their area's reef and its resources.

3.6 Monitoring and Evaluation

3.6.1 Lessons Learned

The MAMTI project design has drawn on a variety of experience from previous undertakings by the project Partners and others to develop sustainable fisheries, implement coral reef management and conservation, establish protected areas, create standards and certification, transform markets, achieve mainstreaming of transformation, work in partnerships, work with rural communities, etc. Some of the major lessons learned that have been considered in the project design are outlined below. The MAMTI project will work to share its experience with these ongoing initiatives and facilitate replication of project successes. These will include disseminating reports of the project assessments and external reviews and exchanging of information and lessons learned at relevant meeting and workshops.

At the community level there is no replacement for the time, effort and good community organizing skills that it takes to secure buy-in from stakeholders in the early stage of the multi-stakeholder management planning process. A significant amount of time, effort, staff and funds are required at this community level for multi-stakeholder management planning and the MAMTI partners estimate that a consistent involvement over at least two years is required to permanently “turn around” a local collective. There are a limited number of people with the appropriate skills to undertake the community level capacity building and it is critical to find the right people and engage them in capacity building early on.

It is necessary and important to work with partners to achieve objectives at the community level. However, even with good and conscientious organizations as partners, significant energy and attention must be given to

partnership oversight and management, preferably with frequent on-site involvement. Even with significant and active oversight, management and reporting requirements, it is possible to have partners who don't achieve their objectives and it is important to evaluate progress and be prepared to make necessary changes to plans and partners to ensure overall progress.

Much can be learned from existing efforts to combine economic development and conservation ("integrated conservation and development projects"). In many cases, these projects relied on economic development efforts to reduce poverty-related pressure on natural resources. Many of these projects have failed, for a variety of reasons: The economic development efforts were ill chosen, markets proved elusive and remote, management skills were lacking, etc. In most cases, this indirect approach to conservation simply proved too slow and cumbersome to stem the tide of resource destruction. The MAMTI approach was designed specifically with these failures in mind. It provides a direct and highly relevant incentive to existing economic interests to protect coral reefs, it relies on proven, existing markets and distribution networks, and it invests heavily in building the local technical and business skills to make the collectives a success.

The art and science of managing marine protected areas has also greatly improved in the past five years, and the MAMTI team is in regular contact with MPA management teams throughout the area (Komodo, Tubbataha, Bunaken, etc.). Applying western "best practices" in park management to severely under funded MPAs in the Philippines and Indonesia has proven to be a complex task. The model which has emerged as best suited for these countries involves the creation of a park management board which features key local stakeholders, as well as representatives from foreign (funding) agencies. Much has also been learned about "soft" enforcement models, best approaches to obtain community support, etc.

A great deal of funding has gone towards integrated coastal management and marine conservation projects over the past 30 years. While the MAMTI approach is quite different than that used in most previous projects, the ultimate success will be judged in the same way. In his 2003 paper, "Frameworks and indicators for assessing progress in integrated coastal management initiatives" in *Coastal and Ocean Management* (46:347-61), Stephen Olson provides a clear framework for assessing success in this field. Success may be judged by improvements in both the biophysical environment and in the quality of life of local residents. Both of these are primary goals of MAMTI. Two major lessons that will be applied in the MAMTI project are the need for a participatory approach and to focus on building up local capacity to continue the work in a sustainable fashion. The use in MAMTI of fishermen's cooperatives in the design of the Collection Area Management Plans will ensure the participatory approach is followed.

3.6.2 M & E System Approach and Development

MAMTI financial performance management is fundamentally based on a highly detailed, bottom-up budget/pro forma (see Annex 7). This budget has been designed to provide a detailed framework for budgeting, planning and performance tracking. The budget will be updated frequently to reflect changing operational conditions. It will also be used to develop key monthly, quarterly and yearly performance milestones for key functions within the MAMTI organization.

MAMTI managers at the country and regional level will be required to provide (electronically) detailed and consistent financial and operational performance data to the project's headquarter staff. These data will include:

- Detailed updates on operational and capital spending, as outlined by the budget's chart of accounts.
- Detailed updates on program performance vs. milestones, such as number of training sessions completed, CAMPs developed and certified, boxes of certified fish shipped, etc.
- Detailed updates on all indicators as listed in section, above.
- Detailed updates on the financial performance of the fishermen's cooperatives and collector coordinators. Although these are independent financial entities, they are required to adhere to the terms of cooperative agreements. MAMTI will track their performance in this regard, as well as their overall financial health.
- Updates on emerging issues and risks that require headquarters attention.

IFC will hire an external evaluator at the end of the first, third, and fifth year to assess the performance and impact of MAMTI. The evaluator(s) may visit a selected sample of collection areas in both Indonesia and the Philippines. In addition, the evaluators will use a participatory process to seek input from all affected stakeholders, including:

- Industry chain representatives ranging from fishermen representatives to U.S. importers.
- Government representatives ranging from village leaders to the staff at the relevant ministries.
- MAMTI Partners.

3.6.3 Corruption

A key component of the monitoring and evaluation effort will be to seek additional measures to minimize corruption, since the project will effectively create new rent-seeking opportunities. The MAMTI team will design regular rotations for key field staff (e.g. collector coordinators), which will counteract corruption. Additionally, the MAMTI team will keep extensive records on shipments, pricing, etc. While this can help spot corruption issues, we are well aware that records can be forged. Our business advisory team will therefore perform regular audits to ascertain the veracity of all records, to spot suspicious behavior by the community organizers and collector coordinators, and to take appropriate action. It will be made clear to all involved that collective decertification will be the consequence of individual corruption.

4. FINANCING AND COST EFFECTIVENESS

CCIF, MAC and Reef Check have developed a custom pro forma business model for the purposes of assessing the total funding needs of the MAMTI project. In doing so, special attention has been paid to creating a model that not only serves the goal of pre-project cost assessment and fundraising, but also acts as a dynamic operational budgeting tool with built-in scalability to clearly define tasks of the project, determine hiring needs, and track project operational and financial performance to a specific level of detail over the life of the project. Sections 4.1 – 4.3 below contain data taken directly from the budget model. The full budget model is available from the MAMTI project partners.

4.1 Project Budget

The projected budget for the project is shown below. Total costs are shown as allocated among the major activities of the project, as well as among the categories of funders associated with the project.

MAMTI Budget

US Dollars

	IFC, MAC, CCIF, RC Co-Finance	Exporters, Importers & Retailers	GEF	TOTAL
1: Community Capacity Building - Ecosystem Mgmt. Plans	\$ 595,932	\$ -	\$ 893,898	\$ 1,489,829
- Site selection Process	89,390	-	134,085	
- Community organizing / CAMP development	238,373	-	357,559	
- Collection area certification facilitation	119,186	-	178,780	
- Management, enforcement & surveillance capacity building	148,983	-	223,474	
2: Assessment - Reef/Fish Monitoring to Inform Management	\$ 380,828	\$ -	\$ 364,087	\$ 744,915
- Baseline resource assessment & monitoring of collection areas	247,538	-	236,657	
- Management recommendations from CAMPs developed	133,290	-	127,431	
3: Reef Health - MPAs, Reef Enhancement, Restoration	\$ 411,735	\$ -	\$ 874,936	\$ 1,286,671
- MPA / No-take zone establishment	288,214	-	612,455	
- Collection area reef enhancement & restoration program	123,520	-	262,481	
4: Collector Capacity Building for Certification	\$ 900,138	\$ -	\$ 860,570	\$ 1,760,708
- Collector training program for certification	522,080	-	499,130	
- Collectors and collection area certification facilitation	288,044	-	275,382	
- Standards compliance monitoring and extension	90,014	-	86,057	
5: Collector Financial & Business Capacity for Sustainability	\$ 830,896	\$ -	\$ 794,372	\$ 1,625,269
- Determination of short-term cooperative financial needs	290,814	-	297,890	
- Determination of long-term capital needs / sustainable livelihoods	207,724	-	218,452	
- Microfinance program development	83,090	-	-	
- Collector training program for co-op / business skills	166,179	-	198,593	
- Capital needs and availability coordination	83,090	-	79,437	
6: Exporter, Importer, Retailer Certification	\$ 1,097,056	\$ 8,073,597	\$ 121,895	\$ 9,292,549
- Industry awareness and demand for MAC certification raised	493,675	-	54,853	
- Facilitate industry understanding of MAC certification	603,381	-	67,042	
- Industry infrastructure and personnel investments	-	8,073,597	-	
7: Consumer Certification Awareness Building	\$ 518,054	\$ -	\$ 91,421	\$ 609,476
- Consumer awareness and demand for MAC certification raised	518,054	-	91,421	
8: Project Management, Coordination, Implementation	\$ 2,281,064	\$ -	\$ 2,063,820	\$ 4,344,885
- Project management infrastructure & process	600,844	-	825,528	
- Capacity building - CAMPs, Co-ops & training	570,266	-	309,573	
- Capacity building - Reef assessment & monitoring	570,266	-	309,573	
- Legal context & business model for Co-op certification	507,860	-	350,849	
- Cyanide detection testing	31,829	-	268,297	
9: Performance Monitoring & Evaluation	\$ (91,566)	\$ -	\$ 554,768	\$ 463,202
- Monitoring & evaluation	(59,518)	-	360,599	
- Regular performance reporting & evaluation	(32,048)	-	194,169	
TOTAL PROJECT & INDUSTRY INVESTMENT	\$ 6,924,137	\$ 8,073,597	\$ 6,619,767	\$ 21,617,502

4.2 Monitoring and Evaluation Costs

The table below details the monitoring and evaluation costs associated with the MAMTI project, and distinguishes between those dedicated to financial M&E and operational M&E. Additionally, the ExCom will leverage its resource base to provide additional monitoring and evaluation to the MAMTI project in the form of consulting and guidance provision. Costs associated with the ExCom M&E activities are not shown below.

MAMTI Monitoring and Evaluation Costs					
	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
MONITORING & EVALUATION COSTS					
Operational M&E					
Monitoring & Evaluation Director	20,933	22,208	23,561	24,995	26,518
Independent Project Evaluation	41,200	-	43,709	-	-
Total	62,133	22,208	67,270	24,995	26,518
Financial M&E					
Part-Time Accountant - Central Organization	10,467	11,104	11,780	12,498	13,259
Auditing - Central Organization	5,639	5,808	5,982	6,162	6,346
Accountant / Controller - Philippines	15,700	16,656	17,670	18,747	19,888
Accountant / Controller - Indonesia	15,700	16,656	17,670	18,747	19,888
Total	47,505	50,224	53,103	56,152	59,382
Total M&E Costs	109,638	72,432	120,373	81,148	85,899

4.3. Co-financing and Leverage

The table below is a brief overview of project financing, including the portion that the partners in the project will bring in terms of co-financing (including both cash and in-kind contributions), relevant industry investment and the amount of GEF financing requested. A full breakdown of MAMTI Co-financing is included in Annex 7.

MAMTI Co-financing	
TOTAL CO-FINANCING	\$ 14,997,735
Cash Sources	5,858,422
In-Kind Contributions	1,065,715
Industry Investment	8,073,597
GEF FINANCING	\$ 6,619,767

4.4 Cost Effectiveness

(see Annex 9)

4.5 Alternative Project Approaches Considered

4.5.1 Alternative: Focus MAMTI project on one country

The project Partners considered the possibility of targeting only one of the main marine ornamentals supply countries, i.e. either Indonesia or the Philippines. This approach was rejected because a critical mass of certified marine aquarium organisms is needed to mainstream the transformation of the marine aquarium market. The Indonesia and the Philippines are the two dominant exporters of marine ornamentals. The MAMTI project Partners believe that working in either country alone would not result in sufficient amount of marine aquarium trade participation and volume of certified products to effect a market transformation at enough scale that leads to mainstreaming.

4.5.2 Alternative: Focus MAMTI project on many countries

The project Partners also considered the possibility of targeting numerous of the main marine ornamentals supply countries as a way to ensure that a majority of the supply areas for marine ornamentals were being engaged in market transformation. This approach was rejected for several reasons. There are significant costs and logistic difficulties to undertaking the project activities in a large number of the key marine ornamentals supply countries, many of which are located a considerable distance apart. There are also major costs and difficulties in starting up MAC efforts in areas where there have not been previous efforts by MAC and there is no network, staff or infrastructure in place. Indonesia and the Philippines are adjacent countries, where MAC Certification has achieved a pilot level of success following several years of activity to develop relations, build networks and lay the groundwork for significant new and incremental efforts to mainstream market transformation.

4.5.3 Alternative: Have MAC as sole implementer of a MAMTI project

In the initial discussions of a possible project, the Partners evaluated the possibility that MAC could undertake the project itself, as the main organization concerned with the transformation of marine aquarium trade. This approach was rejected due to the difficulty and size of the task of mainstreaming the transformation of the marine aquarium trade in countries as complex as the Philippines and Indonesia. The project Partners bring skills and expertise that complement those of MAC and create a unique team capable of undertaking the challenge of the goals of the MAMTI project.

4.5.4 Alternative: Enable the marine ornamentals industry to drive reform of their suppliers.

The project team evaluated the possibility of supporting US and European importers, as well as major Indonesian and Philippine exporters, to transform their suppliers to more sustainable practices. However, the industry chain is too complex for this approach to succeed. Major importers have very little control over the widely fragmented collection industry. They are also financially not equipped to undertake the extensive community-level training program and resource assessments that are required. While the industry will financially support an established sustainable collection infrastructure, it has neither the resources nor the capacity to build it.

5. INSTITUTIONAL COORDINATION AND SUPPORT

5.1 Core Commitments and Linkages

MAMTI Project linkage to IA/EA programs and projects in the Philippines and Indonesia

The MAMTI project is complementary to the following programs and projects that are being undertaken by GEF Implementing Agencies (IA's) and Executing Agencies (EA's), including the Asian Development Bank, and related agencies, such as the French Global Environment Facility (FFEM). The project partners are coordinating with the associated implementers/stakeholders, as appropriate, during project formulation and implementation. These include the following programs and projects (some of which are not yet in the implementation phase):

- Regional

- Regional Technical Assistance for Strengthening of Regional Networking for Small and Medium Enterprises in Brunei, Indonesia, Malaysia, Philippines – East ASEAN Growth Area
- Building Partnerships for the Environmental Protection and Management of the East Asian Seas (PEMSEA)
- Coral Reef Targeted Research and Capacity Building
- French Global Environment Facility (FFEM) Project on post-larval fish collection for aquarium trade.

- Philippines

- Asian Conservation Foundation (ACF)
- Asian Conservation Company (ACC)
- Marine Resource Evaluation Project (MREP)
- Biodiversity Conservation and Management of the Bohol Islands Marine Triangle

- Integrated Coastal Resources Management Project
- Indonesia
- Coral Reef Rehabilitation and Management Program II (COREMAP II)
- Komodo National Park Collaborative Management Initiative

It is important to clarify how MAMTI is complimentary and creates synergies (and does not create duplication or overlap) with several of the GEF projects that are closely related to MAMTI:

Coral Reef Rehabilitation and Management Program II (COREMAP II)

There are particular opportunities for coordination and collaboration between MAMTI and the COREMAP II project in Indonesia, which is due to commence in 2004. IFC and the project partners have been in discussion with the COREMAP Phase 2 program planners and IA representatives. Although COREMAP 2 is still in the appraisal phase, project planners have requested that the MAMTI team collaborate at several COREMAP 2 sites. There is a high level of programmatic synergy possible that will benefit both programs. There are two of the COREMAP II districts in which there is substantial aquarium fishing effort. The MAMTI partners will work with the COREMAP in these areas, creating synergy and savings by bringing the MAMTI experience and team to efficiently and effectively enable COREMAP to address the aquarium trade in these areas. As described in the rationale for the MAMTI project, to mainstream the transformation of the marine aquarium trade and realize the global benefits, it is necessary to achieve a critical mass of participation. The bulk of the marine aquarium trade is conducted in areas that are not covered by COREMAP and will be addressed by MAMTI to apply these efforts to the number of sites needed to attain a critical mass for mainstreaming.

Asian Conservation Company (ACC)

The MAMTI Partners, particularly CCIF, have a good working relationship with ACC, another GEF-funded, IFC-sponsored project in MAMTI's region of focus. The ACC project in the Philippines is not involved in marine aquarium fisheries, so there is no duplication or overlap. While ACC's tactics (i.e., principal investments in for-profit, conservation-related companies) are quite different than those proposed herein, the overall strategy to promote coastal marine conservation goals is shared. The MAMTI partners are in regular contact with the ACC to ensure there is transfer of experience and knowledge regarding the development of sustainable enterprise.

Coral Reef Targeted Research and Capacity Building

The MAMTI partners, especially Reef Check, interact regularly with key partners of the Coral Reef Targeted Research and Capacity Building project. The MAMTI activities will contribute to the research project's objectives and outputs of analyzing management options, scientific capacity building and creating science-based management and policy tools. The MAMTI partners are in regular contact with the Coral Reef Targeted Research and Capacity Building project's one Center of Excellence that is in the MAMTI countries (i.e. the University of the Philippines). MAMTI site assessment and monitoring data will be forwarded to Reef Base, the recognized global database on coral reefs that is maintained by the World Fish Center, one of the key partners in the research initiative.

French Global Environment Facility (FFEM) Project on methods of post-larval fish collection.

The MAMTI partners will liaise with the French agencies involved in this work to determine if and how there can be linkages, including the possible testing of methods by MAMTI.

Sector-Related Country Assistance Strategy (CAS) Goals in the Philippines and Indonesia

- Philippines

The 2003-2005 CAS for the Philippines notes that broad-based rural development and management of the natural resources, the foundations of sustainable rural livelihoods, are core elements of the Bank's assistance to the Philippines, as the declining resource base threatens not just the environment but the very welfare of rural

people and the sustainability of their livelihoods. The Bank's overall CAS objective to assist the Philippine government to reestablish a pattern of rapid and sustained poverty reduction includes strategies for “improving programs to protect the environment and natural resource base so that these vital resources can be sustained over time.” This includes elements such as: strengthening community-based rural development and resource management to protect the environment and cultivating effective partnerships of national and local governments, community stakeholders, the private sector, NGOs, and the academic community. The CAS Private Sector Strategy identifies the need to assist the private sector to improve the business environment, including support for microfinance institutions.

- Indonesia

The MAMTI project complements and supports important aspects of the Indonesia CAS, including: strengthening marine resource management, supporting community based management, and reducing poverty. Key components of the World Bank’s strategy for protected areas in Indonesia, outlined in an earlier CAS progress report: “decentralization of management authority, promotion of livelihood systems based on sustainable use of biodiversity, and building local constituencies for environmental protection...”.

MAMTI Project linkage to other IA/EA programs and projects

The MAMTI project is relevant to other programs and projects that are being undertaken by GEF IA’s) and EA’s. The MAMTI project partners will seek to interact with these programs and projects as much as possible to share knowledge and lessons learned. Some of the most relevant of these programs and projects are the following:

- Regional - Conservation and Sustainable Use of the Mesoamerican Barrier Reef
- Papua New Guinea - Community-based Coastal and Marine Conservation in the Milne Bay Province
- Seychelles - Marine Ecosystem Management Project

Annex 1: Project Design Log Frame

Project Component and Outputs	Targets	Monitoring Mechanisms	Key Assumptions
Component 1: Building capacity of community stakeholders to develop and implement certified ecosystem management plans			
Funding: GEF; Co-finance			
1.1 Site Selection Process Developed and Implemented	<ul style="list-style-type: none"> Site selection criteria and process developed 12 sites selected by year 1 30 sites selected by year 3 78 sites selected by year 5 	<ul style="list-style-type: none"> Site selection process documents Reports on site selection results each year 	There are sufficient sites that meet the selection criteria
1.2 Community Organizing Undertaken and Collection Area Management Plans Developed	<ul style="list-style-type: none"> 4,000+ sets of education / certification materials published / distributed in local languages 75+ communities trained in multi-stakeholder ecosystem management and have developed certified Collection Area Management Plans 	<ul style="list-style-type: none"> Education materials Stakeholder meeting minutes 	Local and national laws and regulations regarding control of reef resources do not block communities from developing management plans
1.3 Certification of Collection Areas Facilitated	<ul style="list-style-type: none"> 39,000 hectares of collection areas are managed and certified 	<ul style="list-style-type: none"> Certifier reports 	Local community authority will develop the capacity and means for surveillance of the collection area
1.4 Capacity for the Management, Enforcement and Surveillance of Collection Areas Built	<ul style="list-style-type: none"> Key stakeholders and partners in 75+ communities trained in management, enforcement and surveillance Effective linkage of certification development with LGUs Increased surveillance and enforcement of protected areas 	<ul style="list-style-type: none"> Collection area management committee reports 	Collectors will respect the management plan, including reserves and no-take areas
Component 2: Ensuring scientific assessment and monitoring of coral reefs and marine ornamentals stocks, with results contributing to management			
Funding: GEF; Co-finance			
2.1 Baseline Resource Assessment and Monitoring of Collection Areas Conducted	<ul style="list-style-type: none"> Sufficient MAQTRAC monitoring completed in each area to assess ecosystem and stocks of key species 	<ul style="list-style-type: none"> MAQTRAC data and analysis reports 	It is possible to use the monitoring results to improve management
2.2 Management Recommendations for Integration into CAMPs Developed and Communicated	<ul style="list-style-type: none"> Management recommendations are incorporated into the CAMP or CAMP revisions Assessment results and recommendations are communicated to stakeholders 	<ul style="list-style-type: none"> CAMPs that include recommendations 	Support will be available for long term monitoring

Annex 1: Project Design Log Frame

Project Component and Outputs	Targets	Monitoring Mechanisms	Key Assumptions
Component 3: Ensuring the health of certified coral reef harvest areas through no-take zones, marine protected areas and reef enhancement or restoration			
Funding: GEF; Co-finance			
3.1 No-take Zones/MPAs in Each Collection Area Established	<ul style="list-style-type: none"> 7,800 hectares of no-take zones/marine protected areas delineated and established in certified collection areas 	<ul style="list-style-type: none"> Collection Area Management Plans Certifier reports 	Other impacts (e.g. coral bleaching, blast fishing, pollution) do not degrade potential for reefs or stocks to support sustainable marine ornamentals harvest
3.2 Reef Enhancement / Restoration Program for Each Collection Area Developed	<ul style="list-style-type: none"> Reef enhancement / restoration activities (e.g. fish restocking with juveniles reared from larval capture) are conducted (e.g. 1 pair fish per 25 sq m on 5 reefs) 	<ul style="list-style-type: none"> Collection area management committee reports 	Appropriate and effective MPAs, no-take zones and reef enhancement or restoration techniques can be achieved
Component 4: Building capacity of marine ornamentals collectors to become certified			
Funding: GEF; Co-finance			
4.1 Collector Training Program for Fisheries Conducted	<ul style="list-style-type: none"> 75+ training workshops conducted 2,300+ collectors trained in certifiable collection techniques 	<ul style="list-style-type: none"> Training workshop reports 	Sufficient number of trainers of collectors are available or can be trained
4.2 Certification of Collectors and Collection Areas Facilitated	<ul style="list-style-type: none"> 2,000+ certified collectors 	<ul style="list-style-type: none"> Certifier reports 	Collectors will maintain use of certified skills
4.3 Standards Compliance Monitored and Extension Services Provided	<ul style="list-style-type: none"> Certified collectors and collection areas receive monitoring of compliance and extension support No certified collectors and collection areas are decertified 	<ul style="list-style-type: none"> Monitoring and extension visit reports 	Collectors are unable to hide non-compliance
Component 5: Ensuring collectors have sufficient financial resources and business skills to participate in a sustainable trade and fisherfolk livelihoods are enhanced			
Funding: GEF; Co-finance			
5.1 Short-term Cooperative-Level Capital Needs Determined	<ul style="list-style-type: none"> Funding needs assessments completed in 50 municipalities (e.g., nets, collection stations, local office space, communications needs, transportation, etc.) 	<ul style="list-style-type: none"> Cooperative capital support program component of project budget model 	None
5.2 Long-term growth capital/ Other Local Sustainable Livelihood Funding Needs Determined	<ul style="list-style-type: none"> 50 municipalities assessed 	<ul style="list-style-type: none"> Project reports (externally reviewed) 	Alternative sustainable livelihoods are possible in the target municipalities

Annex 1: Project Design Log Frame

Project Component and Outputs	Targets	Monitoring Mechanisms	Key Assumptions
5.3 Micro-finance Program and Cooperative-level Lending Protocol via MFI Established	<ul style="list-style-type: none"> Lending criteria developed by MAMTI and MFIs (terms, borrower profiles, etc.) Contractual relationships with a micro-finance institution in each country is established 	<ul style="list-style-type: none"> Contracts with micro finance institutions (MFI) 	There are national and local MFIs available and interested in working with aquarium fishery co-ops
5.4 Collector Training for Co-op and Business Skills Conducted	<ul style="list-style-type: none"> 2,300+ collectors trained in co-op development and business skills 	<ul style="list-style-type: none"> Training reports 	Required business skills are reasonable for collectors to attain
5.5 Coordination between Capital Needs and Capital Availability Established and Implemented	<ul style="list-style-type: none"> MFI representative fully integrated into community development team 	<ul style="list-style-type: none"> Project reports (externally reviewed) 	There are needs for micro-finance capital at the community level
	<ul style="list-style-type: none"> 		
Component 6: Creating awareness of, and demand for, MAC Certified marine aquarium organisms among exporters, importers, and retailers			
Funding: Co-finance			
6.1 Industry Awareness on MAC Certification, and Demand for MAC Certified Products, Expanded	<ul style="list-style-type: none"> 200+ marine ornamentals exporters, importers and retailers are aware of MAC Certification 200+ sets of awareness raising materials developed and distributed 	<ul style="list-style-type: none"> Project reports (externally reviewed) 	Sufficient interest by the industry in a sustainable trade
6.2 Industry Understanding and Application for MAC Certification Facilitated	<ul style="list-style-type: none"> 20+ MAC Certified exporters, importers and retailers 21% of export, import and retail of marine ornamentals from Indonesia and the Philippines are MAC Certified (Representing 17% of worldwide market) 	<ul style="list-style-type: none"> Certifier reports Company and GMAD trade statistics 	MAC Certification will be sought and achieved by exporters, importers and retailers
Component 7: Creating awareness of, and demand for, MAC Certified marine aquarium organisms among consumers			
Funding: Co-finance			
7.1 Consumer Awareness on MAC Certification, and Demand for MAC Certified Marine Ornamentals, is Expanded	<ul style="list-style-type: none"> 2000+ marine ornamentals hobbyists are aware of MAC Certification 600+ sets of awareness raising materials developed and distributed 21% of sales of marine ornamentals from Indonesia and the Philippines are MAC Certified (Representing 17% of worldwide market) 	<ul style="list-style-type: none"> Project reports (externally reviewed) Company and GMAD trade statistics 	Markets for marine aquarium organisms remain open

Annex 1: Project Design Log Frame

Project Component and Outputs	Targets	Monitoring Mechanisms	Key Assumptions
Component 8: Building capacity for market transformation, including project management, coordination and implementation			
Funding: GEF; Co-finance			
8.1 Project Management Infrastructure and Process Established	<ul style="list-style-type: none"> Project Steering Committee and process for interacting with government and stakeholders established Contracts developed among project partners Project manager experienced in complex, multi-site operations/implementation hired Project management office established (in Bali or Manila) 	<ul style="list-style-type: none"> Project reports (externally reviewed) Project management meeting reports 	There are suitable candidates for key project positions
8.2 Capacity for Creating Management Plans, Establishing Fisher's Co-ops and Training Collectors Built	<ul style="list-style-type: none"> 6 trainers of community organizers hired and trained 22 technical fisheries trainers hired and trained 2 co-op business advisers hired trained 3,000 sets of training materials developed, translated into relevant languages and distributed 	<ul style="list-style-type: none"> Progress reports (externally reviewed) Training materials 	There are sufficient candidates qualified and available to become trainers
8.3 Capacity for Ongoing Coral Reef Assessment and Monitoring Built	<ul style="list-style-type: none"> Workshop on stock assessment and management Recommendations for integration of MAQTRAC data into CAMPs 9 local teams trained to carry out MAQTRAC and other monitoring methods 	<ul style="list-style-type: none"> Workshop report Training program reports 	There is sufficient scientific expertise available and interested to be trained in reef monitoring
8.4 Legal and Policy Context and Business Model for Implementing Site-level Certification and Collectors Co-ops Developed	<ul style="list-style-type: none"> Legal and policy constraints and opportunities for site-level certification reviewed Information and ideas on legal and policy changes for transforming the marine aquarium trade Scenarios described (e.g. open access) and strategies developed (e.g. community zoning) for site-level intervention Franchise business model and process for co-ops developed 	<ul style="list-style-type: none"> Legal and policy report w information on possible changes Scenarios, strategies and procedures for site-level certification documented Franchise business model documents 	The legal and policy context does not preclude certification for aquarium fisheries

Annex 1: Project Design Log Frame

Project Component and Outputs	Targets	Monitoring Mechanisms	Key Assumptions
8.5 Cyanide Detection Test (CDT) Potential Evaluated, Sampling Protocol and Program Developed and Pilot Labs Established	<ul style="list-style-type: none"> • CDT methods evaluated for appropriateness and effectiveness, including on possible import country CDT • Sampling protocol and program developed • 2 pilot CDT labs established (1 each in Philippines and Indonesia) • A significant % of MAC Certified fish are sampled beginning year 2 of MAMTI • Decrease in % of fish that test positive for cyanide 	<ul style="list-style-type: none"> • Report evaluating existing CDT methods and possible import level CDT • Document of sampling protocol • Report of pilot lab operations • Lab reports on test results 	There are CDT methods that could be appropriate and effective at export and/or import level
Component 9: Provide regular and rigorous evaluation of MAMTI's programmatic, financial and operational performance			
Funding: GEF; Co-finance			
9.1 M & E Plan Developed	<ul style="list-style-type: none"> • Rigorous M & E plan which is based on financial reporting and broad internal and external input 	<ul style="list-style-type: none"> • N/A 	None
9.2 Rigorous, Regular Performance Reporting and Evaluation Undertaken	<ul style="list-style-type: none"> • Monthly financial reports and performance briefs • Quarterly performance reports in relation to milestones • Yearly comprehensive evaluation of entire program 	<ul style="list-style-type: none"> • N/A 	None

Annex 2: Detailed Project Description of Activities and Outputs

Component 1:

Building Capacity Of Community Stakeholders To Develop And Implement Certified Ecosystem Management Plans

1.1 Develop and Implement Site Selection Process

a. Candidate site evaluation

The purpose of this activity is to produce an initial list of candidate sites. The project team will gather relevant information on all potential sites. These candidate sites will be examined and ranked based on a set of criteria (Annex 5) that consider factors such as the state of the reefs and resources, target species variety, level of illegal fishing practices, indication of local government support, and accessibility. In the Philippines, the newly established MPA rating and evaluation system will be valuable to ensure consistency in MPA design and in establishing common criteria for good MPA management. The site evaluation activity will produce a prioritized list of sites and an initial site profile. As the MAMTI project progresses, there will be a need to screen additional potential sites and the preliminary site screening activity process will be repeated once a year.

Specific Activities:

- Gather information on possible sites from national and local government agencies, development assistance agencies, collectors, exporters, and international organizations.
- Screen potential sites using preliminary screening criteria, including identification and evaluation of existing MPAs.
- Gather in-depth information on candidate sites from same and additional sources.
- Develop prioritized site list and initial site profiles.
- Review potential sites and identify new candidate sites.
- Undertake screening and prioritization of new sites.

Outputs:

- Preliminary list of candidate sites.
- Prioritized list of sites.
- Initial site descriptions/profiles.
- Periodically updated list of candidate sites.

b. Field Scoping

Based on the list of priority locations, field scoping will be conducted to gather, verify and evaluate more detailed information on each site. The entry point will normally be the municipal local government unit (LGU) in the Philippines or the Regency government in Indonesia. It is important to ensure the MAMTI project activities is coordinated with the local government agencies and their coastal resource management plan where appropriate.

The visits will be the first of a series of collector and community stakeholder consultations to raise awareness of the MAMTI project in order to ascertain the interest of the collectors and stakeholders in participating. Communities interested in moving forward with the project are expected to work with their local government agencies to produce a letter inviting the program to their area. The information obtained from field scoping allows the site profiles to be expanded and result in the list of target sites for capacity building. In places where there are many strong candidate collection areas, the MAMTI project will focus on one or two communities as demonstration sites in the beginning phase of the project.

Annex 2: Detailed Project Description of Activities and Outputs

During this visit the MAMTI team will undertake rapid resource assessment (RRA) of the target sites. The results of the assessment will be communicated to the collectors, community and stakeholders to raise their awareness of the state of the reefs and marine aquarium fish stocks. Presenting the results will also be used to create awareness of the methods and role of scientific assessment and monitoring.

Based on the information gathered during the field scoping, the MAMTI team will make decision whether to conduct follow-up with an in-depth certifiability analysis.

Specific Activities:

- Hold meetings and consultations with local government agencies, collectors and community stakeholders.
- Make presentations on MAC certification.
- Expand site profile information.
- Finalize list of target sites for each year.
- Conduct RRA.

Outputs:

- Expanded information base and site profile.
- Letters of invitation from interested sites.
- List of target sites.
- RRA results.

c. In-Depth Certifiability Assessment

The baseline socio-economic conditions of the collectors and the community will be documented at the site before interventions begin. The MAMTI project team will collect information on occupational structure, community infrastructure, governance structure (formal and informal), religion, ethnicity, education level, coastal and marine product value, environmental awareness, perceived problems, local legislation, various livelihoods, and so on. The critically important interest, resources and political will of the local leadership to support and implement reform of the marine ornamental trade in the area will also be determined. There is also a need to record the baseline level of reef use and users. This includes documenting, as best possible, the level of illegal practices (e.g. destructive fishing and poaching). The project team will also document the baseline level of marine aquarium trade practices and business arrangements (i.e. volume, value, kinds and trends in the collection of marine ornamentals at the site; transportation; market linkage; species mix). Assuming that the site has the potential to be certifiable, the findings from these assessment activities will determine the training needs and allow the project team to plan accordingly.

Specific activities:

- Undertake interviews, followed-up with telephone communication and correspondence with stakeholders and resource persons.

Outputs:

- Report on baseline socio-economic conditions of the collectors and community.
- Report on baseline conditions of reef use, including illegal practices.
- Report on baseline conditions of marine aquarium trade activities in the area.
- Draft workplan for training activities.

1.2 Undertake Community Organizing and Develop Collection Area Management Plans

The EFM Standard requires a Collection Area Management Plan (CAMP) to be developed for the collection area at each site through a multi-stakeholder process. Active and meaningful involvement of key stakeholders in developing and implementing a management plan for the reef area and resources is crucial. The MAMTI project team will bring local stakeholders together to develop the awareness of the need for a management plan for their

Annex 2: Detailed Project Description of Activities and Outputs

area's reef and its resources and outline the process. Local and regional government agencies (e.g. LGUs, regional BFAR officials) will be important participants in this process. Educational and training materials on multi-stakeholder management planning will be developed and translated into several local languages for the Philippines and Indonesia.

This participatory planning process will result in a CAMP Committee being formed to establish and follow through on a workplan for drafting the management plan. The CAMP Committee will be assisted to collate the information collected in the previous activities into a draft management plan. Gaps where more information is needed will be identified and the information obtained. The draft CAMP will be presented in individual and group meetings to stakeholders to discuss and resolve concerns and build support from the local leadership to develop and implement reef management for the area and resources used by collectors. This process will build the capacity of collectors and other stakeholders to understand reef resource management planning and develop management tools and interventions appropriate to their site, e.g. limiting entry, no-take zones, harvest limits on certain species, harvest rotation patterns.

A series of workshops with the community stakeholders will be conducted to review, revise and endorse the CAMP, using the training materials. The CAMP will be subject to ongoing improvement, especially as additional data on the status and trends in reef resources becomes available through the periodic monitoring of reef health and fish stocks through MAQTRAC resurveys.

The community organizing and CAMP development will be coordinated with the local coastal resource managements planning process, where it exists. Aquarium fish collection is only one of various activities impacting the coral reefs and near-shore fisheries of an area. Although the CAMP development is not a multi-sectoral ICM approach, however, the establishment of the CAMP Committees will ensure that many of the issues typically addressed in an ICM project will be introduced and considered. By focusing on the marine aquarium trade, MAMTI will be able to solve a major problem, and help the community, stakeholders and local government to begin the process of introducing the concepts, structures and process of ICM.

This includes taking account of marine tenure. Where local governments have authority in planning nearshore marine zone uses, to issue permits and to monitor these uses etc. In the Philippines, the Fisheries Code of 1998 does allow local governments to issue permits for its resident fishers and implies that they can be excluded from adjacent local government jurisdictions. Marine tenure and zoning can build on the experience of previous projects to establish and monitor zonation as part of effective implementation of CAMPs and associated MPAs.

Specific activities:

- Identify relevant stakeholders and conduct individual meetings with stakeholder groups.
- Develop training materials on multi-stakeholder management planning.
- Identify potential CAMP Committee members and establish the planning committee and create a work plan to develop the CAMP.
- Conduct meetings with individual stakeholders and groups to develop draft CAMP content.
- Convene CAMP committee meetings to review the draft plan, identify gaps and obtain missing information.
- Undertake a series of local stakeholder workshops to review and revise the CAMP.
- Finalize the CAMP through endorsement from stakeholders.
- Identify existing monitoring and enforcement ordinances and programs.
- Identify and assess the capabilities of monitoring and enforcement groups.

Outputs:

- Report on stakeholders.
- Training materials on multi-stakeholder management planning in several languages.
- Management planning committee formed and operating.
- Work plan to develop the CAMP.
- Collectors and stakeholders with capacity to develop management interventions.
- Collection Area Management Plan (CAMP) adopted by stakeholders.
- Collection area able to be certified and ready for certification pre-assessment by MAC.

1.3 Facilitate Certification of Collection Areas

(see Activity 4.2 below)

1.4 Build Capacity for Management, Enforcement and Surveillance of Collection Areas

Although the stakeholders and collectors will be involved in the development of the management plan, there will still be those from inside and outside the community who try and violate the management provisions. There will thus be a need for close watch over the collection areas, especially in the early period of the management being implemented. This means that there must be serious enforcement and surveillance by the appropriate authorities and in relation to local regulations. For example, the MAMTI project will not encourage the use of compressors where they are not already used and will support the ban where they are in place. However, there are LGU's and communities that have sought to replace a compressor ban with a MAC Certified fishery and the MAMTI project will respond to the interest of stakeholders in these situations.

There are existing agencies and authorities with the interest and mandate to undertake management, enforcement and surveillance of the collection areas. In the Philippines, for example, this includes BFAR officials, members of the BFAR Management Councils (BFAR MC), municipal authorities, such as the Municipal Agricultural Officers (MAO), LGU authorities and the Bantay Dagat. The role of LGUs is important to assist to sustain and institutionalize the project at the local level, monitor the Collection Area Management Plans (CAMPs) that need to be integrated in the municipal or city development plans. The problem is often a lack of capacity and means for appropriate management authorities to serve their function in monitoring, inspection, surveillance and over-all enforcement/regulation of the marine aquarium trade. The MAMTI project will address this through training and logistical support for appropriate agencies and authorities relevant to each collection area to undertake their role in management, enforcement and surveillance. The strategy in providing such support will be to catalyze and develop the capacity and experience of the agency personnel to undertake the surveillance and enforcement. The MAMTI project will work with the agencies to integrate the monitoring of MAC Certified collection areas as part of their ongoing activities and budgets.

Training in the context of the legal framework is important for monitoring, control and surveillance to be effective. Although local stakeholder communities are important in the management process, being the primary stakeholders of a given fishery, communities operate under the laws of the local government, and the only organized and sustained enforcement, registration and licensing for small-scale fisheries, is through the local government unit (LGU). Localized law enforcement through the volunteer, "bantay dagat" groups in the Philippines although effective in some areas, is highly variable. The MAMTI project will work with these groups and with new developments, e.g. a system is emerging whereby the LGUs form a coastal law enforcement unit that coordinates with neighboring LGUs and has some support from the national Philippine National Police (PNP) and Philippine Coast Guard.

To ensure effective implementation of the site's CAMP, a credible monitoring program will be developed, especially to protect the coastal resources against illegal and destructive uses. The support and contribution of local government agencies in developing and implementing the enforcement of local ordinances are key components in this. Effective monitoring can be achieved in partnership with existing programs (e.g. community protection groups, fish warden training program, local maritime police, Coast Guard, BFAR law enforcement units and the volunteer-based sea patrol group - Bantay-Dagat.).

Paralegal training will be an important part of this effort. Local stakeholders, collectors and community members will be empowered by means of workshops in all aspects of law enforcement. This will develop a pool of stakeholders who can serve as the community's first line of defense against illegal fishers and poachers.

Specific Activities:

- Identify national, provincial and local authorities appropriate for management, enforcement and surveillance.

Annex 2: Detailed Project Description of Activities and Outputs

- Develop capacity building program relevant to each collection area, and for wider areas.
- Implement capacity building through support for surveillance and training.
- Paralegal training that will include: Routine monitoring for evidence of cyanide use; Credible collection of evidence of intrusion and chemical use; Collaboration with LGUs to train fish wardens in the CAMP; Enforcement and early warning techniques.

Outputs:

- Improved capabilities among national, provincial and local authorities.
- Increased management, enforcement and surveillance of collection areas.
- Improved compliance with the CAMP and relevant laws and regulations.
- Management, enforcement and surveillance of collection areas integrated into agency programs.
- Early warning detection and reporting of intruders into a MAC Certified collection area.
- Efficient and credible collection of evidence of intrusion and chemical use within a MAC Certified collection area.
- Collectors and CAMP committee members deputized as fish wardens.
- Stakeholders including collectors understand legal framework of collection area monitoring, control and surveillance.
- CAMP actively and effectively monitored and enforced.

Component 2:

Ensuring Scientific Assessment And Monitoring Of Coral Reefs And Marine Ornamentals Stocks, With Results Contributing To Management

2.1 Conduct Baseline Resource Assessment and Monitoring of Collection Areas

There is a need to collect and document information on baseline conditions of the reef and fishery resources as the basis for management recommendations and ongoing monitoring. The status of the site's marine resources, especially the condition of the reefs and abundance/diversity of species are vital information necessary before capacity building interventions begin. Initially, as part of the site selection process described above, rapid assessments will be made at candidate sites to evaluate reef type and the abundance and diversity of the target species.

If a given site is considered to be suitable for potential certification, then a detailed baseline survey will be carried out using the MAQTRAC monitoring protocol. The methods will include a regular survey of reefs that have been subject to harvesting by MAC certified operations, analysis of the effects on reef health of collection of fish and invertebrates from coral reefs by MAC Certified collectors, and comparison of the health of the reefs where collection occurs with reefs where no known harvesting is occurring.

The sampling design will depend on the size of the collection area, but typically would require a minimum of five surveys inside and five outside each collection area. This sample size has proven adequate for establishing the baseline condition. Each of the two countries will have a primary fisheries monitoring team comprising a Chief Fisheries Scientist and Assistant Fisheries Scientist. Additional teams will include a Fisheries Scientist and Assistant Fisheries Scientist. These teams will be responsible for all fieldwork, analysis and reporting with respect to monitoring. They will typically spend two weeks in the field and then two weeks in the office carrying out analyses, as they monitor new sites.

The MAQTRAC assessment may be started with manta tows to establish overall reef condition, followed by belt transects and timed swims. A list of 76 fish and 42 invertebrates (MAQTRAC Appendices 4 and 5) provides the primary target for monitoring, however, additional species may be added that are relevant to each area. The intensity of monitoring may be decreased or increased depending on the abundance of the target fish in order to obtain a representative sample size.

Annex 2: Detailed Project Description of Activities and Outputs

Training will be provided to local monitoring groups, e.g. local government and/or academic institutions, to continue to monitor each collection area and maintain in coordination and in collaboration with the stakeholders of the area.. Each area will be remonitored once per year by the project team and all data, including “catch-per-unit-effort” will be analyzed and management recommendations will be reviewed and adjusted as needed. Reef Check is working closely with the University of the Philippines and has full access to their databases, such as the Philippines Coral Reef Network, allowing Reef Check to have access to a wider set of information on Philippines reefs and collaboration with participants of the network.

Specific Activities:

- Conduct MAQTRAC assessment of the collection areas and nearby 'control' sites.
- Training of local monitoring groups.
- Annual monitoring, i.e. re-survey, of certified collection areas.

Outputs:

- MAQTRAC baseline assessment data.
- Local groups capable of collecting data.
- MAQTRAC monitoring data.

2.2 Develop and Communicate Management Recommendations for CAMPs

The baseline data will be analyzed with respect to diversity and abundance of target species as well as overall reef health. If a serious problem is detected in terms of the status of the aquarium fish and shellfish stocks or the reef health is considered very poor, and difficult to rehabilitate due to external conditions (e.g. pollution) then a recommendation will be made to not continue work in the area.

If the area is considered potentially certifiable, the analyses and recommendations on management of the collection area will be provided to the CAMP committee for integration in the CAMP. The monitoring will result in recommendations to be included in the ongoing improvement of the collection area management plan (CAMP), (e.g. location and size of no-take zones, instituting harvest limits on certain species, harvest rotation patterns).

The results of the MAQTRAC full assessment will be communicated to the collectors, community and stakeholders to increase their awareness of the state of the reefs and marine aquarium fish stocks and the importance of scientific monitoring.

Specific Activities:

- Collate and analyze data collected.
- Produce recommendations to be included in revision of the CAMP.
- Communicate results to collectors, community and stakeholders.

Outputs:

- Report compiling and analyzing assessment and monitoring data.
- Analysis of fish and invertebrate stocks and overall coral reef health.
- Recommendations to the CAMP for improved management of the area.
- Collectors, community and stakeholders aware of the status of reefs and stocks.

Component 3:

Ensuring The Health Of Certified Coral Reef Harvest Areas Through No-Take Zones, Marine Protected Areas And Reef Enhancement Or Restoration

3.1 Establish No-take Zones/MPAs in Each Collection Area

Annex 2: Detailed Project Description of Activities and Outputs

The lack of information on the extent of fishing effort, the lack of long term data on the status of the coral reefs and stocks of aquarium organisms and the difficulty in establishing species specific management measures mean that a precautionary approach must be taken to ensuring the sustainability for the marine aquarium fishery. Every collection area will include at least one and typically, several, no-take areas. These areas would be completely off-limits to all aquarium fishing and will act as reseeding sources for the surrounding collection areas through the movement of larvae, juveniles and adults from inside to outside the no-take zone.

The MAMTI project will promote more and improved MPAs to help sustain target aquarium species stocks. This is needed but since most MPAs in the two countries are established for multiple reasons, including improved food fish catch as well as developing tourism opportunities in some areas, the planning for MPAs will need to be flexible and consider all the conservation concerns of a given area and community or LGU. The newly established MPA rating and evaluation system in the Philippines will be valuable to ensure consistency in MPA design and in establishing common criteria for good MPA management. Also, since many MPAs are legalized in the Philippines and Indonesia that are not yet functional or have deteriorated in their effectiveness, the project will be open to rehabilitating established MPAs that are no longer functional since this is often more efficient and acceptable to LGUs and communities than starting entirely new MPAs.

The size and location of the no-take zones would be proposed based on the results of the MAQTRAC baseline assessments. The proposed reserves would be developed and discussed with collectors and other stakeholders through the CAMP Committee process. The no-take zones would be included in revisions to the CAMP that are agreed upon by the committee. The no harvest areas would be mapped and marked and informational materials made available to ensure collectors were well informed and aware of the reserves.

Specific Activities:

- Identify potential no-take areas.
- Conduct workshops with collectors and community stakeholders through the CAMP Committee to finalize no-take areas
- Develop maps, informational materials and boundary markers.

Outputs:

- CAMP with no-take zones established.
- Maps and informational materials on location and reason for no-take areas.
- Marked boundaries of reserves.
- Increased reproduction inside and outside collection area.
- Increased juvenile and adult fish inside and outside collection areas.
- Sustainable supply of target species.

3.2 Develop Reef Enhancement / Restoration Program for Each Collection Area

The baseline MAQTRAC data on the diversity and abundance of target species will be analyzed. If the status of aquarium organism stocks are low then the need and opportunity for enhancement of the stocks will be evaluated. If restoration is possible, then the type of rehabilitation needed will be reviewed and selected.

Following the baseline monitoring, typically, rehabilitation will focus on fin fish. Two basic methods will be employed. The first method will be to use crest nets and light traps to collect fish post-larvae. The post-larvae will be held in floating cages until they reach marketable size. If sufficient post-larvae are obtained, then following a two-month grow-out, a percentage can be used as direct restocking and the remainder sold.

The second method used to rehabilitate the collection areas will be restocking. Reproductive age fish will be purchased from the fishermen and released into the rehabilitation area. The stocks will be monitored at frequent intervals to determine very precisely the increase in reproductive output and population growth of the

Annex 2: Detailed Project Description of Activities and Outputs

rehabilitation area and any spillover effect. Together these two techniques are expected to build up populations within two years to fully sustainable levels. This expectation is based on modeling this increase in reproductive adults.

The reef rehabilitation team consists of a coral reef fisheries biologist and an assistant biologist. The team will choose rehabilitation sites based on the likelihood of success as measured by ecological and socio-economic measures, particularly the level of local support for strict management and the observed level of stakeholder buy-in.

Specific Activities:

- Evaluate status of stocks and need for enhancement/restoration.
- Evaluate and determine appropriate type of rehabilitation.
- Develop and implement site enhancement/restoration plan.

Outputs:

- Rehabilitation of reef fish stocks.
- Increased reproduction inside and outside collection area.
- Increased juvenile and adult fish inside and outside collection areas.
- Sustainable supply of target species.

Component 4:

Building Capacity Of Marine Ornamentals Collectors To Become Certified

4.1 Conduct Collector Training Program for Fisheries

Collectors will be trained, or have refresher training, in net collection, proper post-harvest handling and holding, documentation (i.e. logbooks), and order management (i.e. invoicing and inventory control). The technical training program will be undertaken by a team of specialists contracted by the program, as the different skill areas require different trainers. The training will be specifically designed and adapted to address the needs of the collectors at each site and local conditions. Following the training, the skills of trainees will be rated and follow-up extension training scheduled where needed. This activity will also include training of trainers whereby a number of the best collectors will be trained to work as trainers at other sites, expanding the possibilities for replication of success.

In addition to the technical training, collectors' organizational capacity will be strengthened by developing a collector's cooperative at each site. The cooperative will receive training in basic technical skills to enable collectors develop and run the business profitably by organizing collection, holding, packing and transporting activities according to market demands, seasonal variations, and other factors.

Specific Activities:

- Hold training orientation for collectors.
- Adapt training materials to site conditions.
- Conduct underwater training in net collection techniques.
- Conduct training in post harvest holding, handling, and packing.
- Conduct training in log book/documentation and traceability.
- Undertake skills rating of collectors.
- Conduct training of trainers.
- Assist collectors to form a cooperative and create processes for collective efforts.
- Conduct training in organizational and business development.
- Conduct training in financial and inventory management.

Annex 2: Detailed Project Description of Activities and Outputs

Outputs:

- Collectors trained in responsible, non-destructive marine aquarium fish collecting.
- Collectors trained in best practices of documentation and post-harvest handling.
- Collectors able to be MAC Certified and ready for certification pre-assessment.
- A growing pool of trainers from among trained collectors.
- Collector's cooperative formed.
- Collectors capable of operating as a unified group.

4.2 Facilitate Certification of Collectors and Collection Area

At the end of the MAMTI site capacity building activities, the readiness of the site and collectors for formal third-party MAC Certification will be evaluated through a pre-assessment, i.e. a certification "dry run", undertaken by the project team. The pre-assessment usually identifies some deficiencies, especially in situation involving the first preparation and a new certification system. Based on these findings, a gap analysis will be conducted and a series of corrective action recommendations produced. The MAMTI project team will work with the collectors and community to develop a workplan, implement corrective actions and re-evaluate the readiness for formal MAC Certification assessment.

Formal certification assessment will be the ultimate verification of compliance with the MAC Standards by the site and collectors. The assessment is carried out by an independent, MAC-Accredited certifier who will conduct document review, interviews collectors' skills examination, etc. The certifier produces a certification assessment report. If there are deficiencies, these will be identified and a series of corrective actions required in order for the site and collectors to finalize their certification.

Specific Activities:

- Undertake pre-assessment visit with MAC Certification checklist.
- Conduct gap analysis.
- Develop list of corrective actions recommendations and workplan.
- Implement corrective actions and re-evaluate readiness.
- Certification assessment by independent MAC-Accredited certifier.
- Develop corrective action recommendations and workplan, if needed.
- Implement corrective actions, if needed.

Outputs:

- Pre-assessment report and corrective actions recommendations.
- Implement corrective actions.
- Site and collectors fully ready for formal MAC Certification assessment.
- Certification report.
- MAC Certified collection area and collectors.

4.3 Monitor Standards Compliance and Provide Extension Services

An important aspect of MAC Certification implementation, especially in the early years, is to monitor the collectors and their management system (e.g. no-take zone, species list, collect-to-order requirements, log-book keeping, collectors skills rating) to ensure they maintain compliance with the MAC Standards. To achieve this, MAMTI project team will conduct extension work through periodic field visits to monitor compliance for a year. This compliance monitoring will also occur off-site where collector's shipment and delivery records are periodically evaluated to detect anomalies (e.g. unusually high numbers of hard-to-catch species--that may indicate cyanide use, high mortality and reject rates) and trace them to individual collectors. Indication of non-compliance will be the basis for possible detailed on-site investigations and extension efforts to correct problems, e.g. through refresher training or on-going skills improvement. Monitoring will also be done on the

Annex 2: Detailed Project Description of Activities and Outputs

business practices of the collectors' cooperative to make sure that activities continue to be profitable beyond the life of the project.

Specific Activities:

- Conduct periodic site monitoring visits for 12 months.
- Monitor collector shipment and delivery records for 12 months.
- Provide targeted extension work, e.g. skills and business training, where needed.
- Record and query anomalies.
- Conduct field investigations if necessary.

Outputs:

- Report of 12 month monitoring and compliance record.
- Continued and consistent compliance by certified sites.

Component 5:

Ensuring Collectors Have Sufficient Financial Resources And Business Skills To Participate In A Sustainable Trade

5.1 Determine Short-Term Cooperative-Level Capital Needs

An important aspect of the MAMTI project will be the provision of initial capital to finance infrastructural and working capital start-up costs of the cooperatives. The adoption of sustainable harvesting, handling and transportation practices requires investment on the part of aquarium fish collectors. Currently, the lack of access to capital and financial services is a significant barrier to surmounting these costs of transformation. Through the further development of the MAMTI budget model, as well as on-the-ground experience, cooperative-level microfinance needs will be assessed for each of the cooperatives to be formed within MAMTI.

Specific Activities:

- Quantify specific and standard infrastructure needs relative to certification process.
- Develop needs assessment framework.
- Conduct interviews with collectors once local community organizer has been hired.
- Write needs assessment survey for each cooperative to be reviewed and authorized by members / local community organizers.

Outputs:

- A unique needs assessment document for each collectors cooperative to be involved in the project.
- Detailed information on: Collectors, current revenue, current costs, investment needs and available capital sources.

5.2 Determine Long-term Growth Capital and Other Local Sustainable Livelihood Funding Needs

After initial start-up costs of the cooperatives have been financed through grant funding, it is anticipated that long-term growth capital (if required) will be provided by local micro-finance institutions. In addition to addressing the livelihoods of aquarium fish collectors, the MAMTI project will seek to identify other local sustainable livelihoods that possess a synergistic relationship to the aquarium trade and face a similar shortage of capital availability. The project partners take a holistic view of the economies that drive the health of villages that largely depend on the aquarium fish trade. To the extent that there are activities that, through enhancement, could alleviate some pressure on local aquarium fisheries, they will be identified and evaluated for support by local microfinance facilities which are affiliated with MAMTI..

Specific Activities:

- Assess growth capital requirements for collector cooperatives

Annex 2: Detailed Project Description of Activities and Outputs

- Conduct survey of the range of trades supporting livelihoods in each of the collection areas.
- Study linkages of other livelihoods to aquarium trade.
- Conduct capital needs assessments for trades with synergistic relationship to aquarium trade.
- Integrate relevant local businesspersons into the cooperative-level pool of borrowers.

Outputs:

- Report assessing long-term capital needs for financing expansion of cooperatives.
- Overview of linkages between other local businesses and the aquarium trade at each site.
- Standardized needs assessment documents for relevant local businesses.
- Capital availability through local microfinance providers affiliated with MAMTI.

5.3 Establish Micro-finance Program and Cooperative-level Lending Protocol via MFI

The micro-financing scheme envisioned for MAMTI involves loans to existing business groups, i.e. cooperatives of collectors, not individual fishermen. Such business groups have a track record of reasonable loan use and repayment in the Philippines and Indonesia. The MAMTI project team is currently involved in discussions with two MFIs who have expressed an interest in providing microfinance services to MAMTI cooperatives: QUEDANCOR (Philippines) and BRI (Indonesia). It is anticipated that these discussions will develop into a memorandum of understanding between the MAMTI project and these MFIs initially. In cooperation with local MFIs, the MAMTI team will develop a cooperative-level lending protocol that establishes the terms under which village cooperatives may borrow capital.

Specific Activities:

- Establish terms of agreement between MAMTI and MFIs.
- Establish lending protocol that governs cooperative borrowing from MFIs (financial terms, repayment periods, use of funds, collateral, etc.).

Outputs:

- MOU with MFIs.
- Lending protocol that provides each cooperative with a roadmap for borrowing from MFI facilities.

5.4 Conduct Collector Training for Co-op and Business Skills

In addition to providing capital to cooperatives to enable the transition to sustainable practices, the MAMTI project will also provide the critical training needed at the village level to build the capacity among participants in the marine aquarium trade. The capacity building will focus on the two areas and levels. The project will assist the collectors to understand and implement the process of forming a working association or cooperative. The co-op forms the collective basis from which they organize their transformation to sustainability, including: identifying who is committed to responsible fishing, engaging other stakeholders in the community, working with the trainers on achieving certifiable fishing skills, etc. Secondly, the project will assist the collectors to develop their business skills, such as quality control in documentation, post harvest handling, and packing, developing and maintaining reliable communications and interactions with their buyers and implementing sound and well documented financial transactions.

The capacity building will result in well developed co-ops of collectors with solid business skills, which are preferred candidates as eventual borrowers from the microfinance facility. In order to fully leverage the benefits provided by enhanced capital access, the MAMTI project will enhance the understanding of these collectors groups to access and use credit for supporting the transformation of the aquarium trade in their area.

Specific Activities:

- Conduct training and follow up assistance in co-op development.

Annex 2: Detailed Project Description of Activities and Outputs

- Conduct training and follow up assistance in business skills development, especially in relation to achieving certification.
- Conduct training seminars to introduce microfinance, explain steps to obtaining business credit, appropriate use of funds and repayment terms, provide capacity relative to savings facilities also offered by MFIs, introduce concepts for optimizing cash flow streams relative to cooperative fish market and loan repayments, etc.

Outputs:

- Report on the training program and co-ops developed and operating in target sites.
- Report on the training of collectors to achieve business skills to engage in market transformation.
- Reports detailing cooperative level capacity for engaging in business borrowing.

5.5 Establish and Implement Coordination between Capital Needs and Capital Availability

In addition to working with MFIs to establish the lending protocol and working with cooperatives to build the capacity to access the microfinance facilities, the MAMTI team will build programmatic capacity to provide a systematic linkage between the capital needs of the cooperatives, and the lending capacity of local MFIs. Primarily, this will be the responsibility of the MFI Liaison. MAMTI will hire one MFI Liaison in the Philippines and one in Indonesia. This employee will likely be seconded from local MFIs, and their primary function will be to act as the conduit between village-level capital needs and the capital pool represented by local MFIs.

Specific Activities:

- Hire MFI Liaisons for Philippines and Indonesia.
- Conduct initial seminar between MFI Liaison, Local Community Organizer, cooperative representatives and MAMTI team to introduce the lending protocol and the needs assessments drafted for each cooperative.
- Conduct regular meetings with cooperatives, local community organizers and MFI Liaison to determine evolving capital needs.
- Regular meetings between MFI Liaison and MFI to ensure rapid processing of loan requests.

Outputs:

- Regular, auditable reports from cooperatives to MFI (via MFI Liaison with copy to MAMTI Central Organization) detailing loan requests.
- Regular, auditable reports from MFI to cooperatives (via MFI Liaison with a copy to MAMTI Central Organization) detailing planned loanmaking activities.

Component 6:

Creating Awareness Of, And Demand For, MAC Certified Marine Aquarium Organisms Among Exporters, Importers, And Retailers

6.1 Expand Industry Awareness of MAC Certification and Demand for MAC Certified Products

The MAMTI project staff and MAC staff will work with importers and retailers in major market countries in North America, Europe, and East Asia to improve their understanding of the issues and implementation of certification. By using their own communications networks, industry associations can inform the industry members of the project's successes in certification and availability of MAC Certified organisms.

Working with the MAC staff in the market countries and the MAMTI project team to develop materials targeted to inform the industry about the environmental as well as the business benefits of MAC Certification. Appropriate members of the MAMTI project team will participate in, and make presentations at, industry conferences and trade shows to expand the dissemination of information. In addition, the MAMTI project can facilitate field visits by individual companies, trade associations representatives, and the media to program sites

Annex 2: Detailed Project Description of Activities and Outputs

to observe and report on the implementation of MAC Certification of the entire resource chain of custody to industry, consumers and the public.

Specific Activities:

- Develop and disseminate communication materials targeted to industry operators.
- Participate in trade shows and conferences to raise awareness and demand.
- Facilitate industry visits to MAMTI project sites.

Outputs:

- Communications materials for industry operators.
- Increased industry awareness of MAC Certification.
- Increased industry demand for MAC Certified products.

6.2 Facilitate Industry Understanding and Application for MAC Certification

The MAMTI project team will also identify exporters, importers and retailers that are interested in finding out more about MAC and in becoming MAC Certified. Consultations with these exporters, importers, retailers will be undertaken to understand their information and communications needs regarding the marine aquarium trade, sustainability, certification, and MAC. Special emphasis will be placed on the linking of demand in the market countries with supply chains resulting from MAMTI project activities in Indonesia and the Philippines. The project team will also develop MAC Standards implementation manuals to provide industry members with step-by-step guidelines on how to implement MAC Standards in the facilities.

Specific Activities:

- Identify industry members interested in MAC Certification.
- Develop implementation manuals.
- Undertake consultations and pre-assessment visits with interested industry operators.

Outputs:

- List of exporters, importers and retailers signing Statement of Commitment to be MAC Certified.
- Implementation manuals for exporters, importers and retailers.

Component 7:

Creating Awareness Of, And Demand For, MAC Certified Marine Aquarium Organisms Among Consumers

7.1 Expand Consumer Awareness of MAC Certification and Demand for MAC Certified Marine Ornamentals

In the market countries, there is limited knowledge or experience of MAC Certification among consumers. A campaign to raise awareness of MAC Certification and its benefits with the consumers will be undertaken, thus creating a demand for MAC Certified marine aquarium organisms from the Philippines and Indonesia. Working with the MAC Communications Director, the MAMTI project team will develop multi-media materials for raising awareness about MAC Certification amongst the hobbyists. These materials, along with MAC Certification documents, will be translated into the key languages of the main market countries and will be published and widely distributed. In collaboration with public aquariums the MAMTI project can organize special events to raise awareness of the general public. In addition, the MAMTI team can facilitate field visits by representative of hobbyists clubs to travel to program sites to observe the implementation of MAC Certification of the entire resource chain of custody. MAC will participate in hobbyist meetings and conferences in key market countries to disseminate information on progress achieved in transforming the industry in the Philippine and Indonesia.

Specific Activities:

Annex 2: Detailed Project Description of Activities and Outputs

- Develop communication materials targeted to hobbyist and general public.
- Engage public aquariums in developing and disseminating communication materials.
- Participate in hobbyist conferences and meetings.
- Facilitate hobbyist visits to MAMTI project sites.

Outputs:

- Communications materials for marine aquarium keepers and the general public.
- Increased consumer awareness of MAC Certification.
- Increased consumer demand for MAC Certified marine ornamentals.

Component 8:

Building Capacity For Market Transformation, Including Project Management, Coordination And Implementation

8.1. Establish Project Management Infrastructure and Process

The MAMTI Partners will review progress and experience achieved thus far in developing and implementing MAC Certification in the Philippines and Indonesia. The MAMTI members will set up MAMTI Central Organization by developing detailed terms of reference for project positions, recruiting staff for the positions and developing a more detailed workplan and timeline for the MAMTI project in the Philippines and Indonesia. The MAMTI Central Organization office will be established, as well as the other project infrastructure and processes.

Specific Activities:

- Develop terms of reference for project positions.
- Recruit and hire project positions.
- Establish MAMTI Central Organization office, infrastructure and processes.

Outputs:

- MAMTI Central Organization staff hired.
- MAMTI Central Organization office, infrastructure and processes in place.

8.2 Build Capacity for Creating Management Plans, Establishing Fisher's Co-ops and Training Collectors

It will be necessary to prepare MAMTI field team members before engaging in site level activities. The preparation includes the training of potential local community organizers and technical team in the implementation of the project activities at the sites. The training team will be familiarized with the “franchise model” of the MAMTI project, the technical aspects of the MAC Standards and methods for conducting training. The MAMTI project team will develop training modules to guide the field team members in undertaking their training and their work. The capacity building will take account of the lessons learned in previous MAC site and field training and organizing activities.

Specific Activities:

- Recruit field team members (i.e. local community organizers, technical trainers, etc.).
- Train field team members on MAC Standards and Certification.
- Train field team members on training and community organizing.
- Develop training materials and modules.

Outputs:

- MAMTI field teams trained as trainers and community organizers.
- MAMTI field teams understand MAC Certification and the development MAMTI “franchise model”.
- Training modules of ecosystem management and collectors training.

Annex 2: Detailed Project Description of Activities and Outputs

- MAMTI field teams fully prepared for site level responsibilities.

8.3 Build Capacity for Coral Reef Baseline Assessment and Monitoring

Field survey teams capable of undertaking MAQTRAC assessment and monitoring of coral reefs and aquarium organism stocks will need to be created before engaging in site level activities. The preparation includes the training of the field scientists in the use of the MAQTRAC methods, the compilation and analysis of the data, and the development of management recommendations. The capacity building will build on the lessons learned in previous MAC site and field survey work using the methods.

One management option is to adjust catch limits based on catch recorded and independent stock monitoring. On the other hand, it is possible that a more viable option (to adaptive management) would be to set catch limits from the outset based on the baseline information and to incorporate into the CRM and CAM plans and establish that by local ordinance. A 3-day experts workshop will be held to review the MAQTRAC methods, the kind of data that is gathered and develop management options that can be used to develop recommendations to the CAMPs.

Specific Activities:

- Recruit field survey team members.
- Train field survey team members in MAQTRAC methods.
- Train field survey team members on data compilation and analysis.
- Hold 3-day workshop on developing management options from MAQTRAC survey results.

Outputs:

- MAQTRAC field survey teams are trained.
- Options for management and developing recommendations for CAMPs identified.

8.4 Develop Legal and Policy Context and Business Model for Implementing Site-level Certification and Collectors Co-ops

The MAMTI Partners will develop a detailed “franchise model” for the transformation of the marine aquarium trade at the site level. The MAMTI business model will be refined to include greater clarity on cooperative-level economics, and methods for enhancing collectors’ livelihoods (e.g., “supply-to-demand” linkage with exporter needs, timely payments, better pricing). The business model for transformation at the site level will be packaged into informational and training materials that will be used to introduce and implement the rollout of the MAMTI model in each target area.

It will be important for the MAMTI Partners to develop as complete an understanding as possible of the legal and policy context within which the project will establish cooperatives and catalyze the industry transformation at the site level. The management of the aquarium fishery needs to be part of the evolving policy of integrated coastal management (and fisheries) so that it is part of more comprehensive management of coastal and nearshore marine areas and resources. Particular aspects of these policies can be tailored to address outstanding policy issues regarding the management of the live marine fish and invertebrate export. The partners will interact with the appropriate government agencies in each of the countries (e.g. BFAR, DENR, DKP) and appropriate NGOs (e.g. WWF) to provide information and ideas on possible changes to the legal and policy situation to create a climate more favorable for the transformation of the marine aquarium industry and the mainstreaming of the sustainable trade. This will be linked to broader multi-sectoral and multi-stakeholder ICM policy development.

The MAMTI team will identify the range of aquarium trade site and fishery types in the Philippines and Indonesia and their relation to the legal and policy context, including political and administrative systems, agencies and processes. A series of scenarios will be developed that define the kinds of site situations likely to

Annex 2: Detailed Project Description of Activities and Outputs

be encountered and provide the basis for developing intervention strategies for each scenario and site specific implementation plans. As part of this process, MAMTI project staff will receive training and material to actively promote the transformation of the marine aquarium trade at the site level and collectors and stakeholders and with local and regional government officials.

Specific Activities:

- Develop franchise business model as template for site level work with the collectors.
- Develop various subsets of the MAMTI franchise methodology to allow for flexibility in its application.
- Build cooperative-level business finance and economics model and tailor village-level business strategies accordingly.
- Integrate into cooperative-building handbook to be used in cooperative rollout.
- Develop material that describes village-level benefits of the MAMTI project.
- Conduct detailed research on legal and policy context relevant to the marine aquarium trade transformation.
- Develop scenarios and site level strategies and plans for MAMTI project interventions.
- Provide information to government agencies and NGOs on the legal and policy context favorable to industry transformation and mainstreaming.

Outputs:

- Franchise business model and guidance on developing local adaptations.
- Cooperative-level finance and economics model.
- Report on legal and policy context relevant to the marine aquarium trade transformation.
- Information and recommendations on possible changes to the legal and policy context, if and as needed.
- Project intervention scenarios, strategies and plans for MAMTI project interventions.

8.5 Evaluate Cyanide Detection Test (CDT) Potential, Develop Sampling Protocol and Program and Establish Pilot Labs

The use of cyanide is not allowed under MAC Certification. At this time the principal destructive practice issue is sodium cyanide and the extent of its use in the Philippines and Indonesia. The MAC Certification of collection and export operations in the Philippines without an approved cyanide detection test (CDT) and a monitoring and sampling program have raised concerns that cyanide caught fish (or fish of unknown origin) are knowingly or unknowingly mixed with organisms coming from MAC Certified collection areas in a MAC Certified export facility. As MAC Certification began to be implemented with collectors and their communities it became evident that improving and expanding the technical solution to cyanide use (i.e. CDT) was not necessarily the best and most needed response to the issue, although CDT can serve as an important threat and deterrent. With MAC Certification, there are other approaches that can be used to create broad scale, longer lasting changes in behavior among fishers.

The long term role and applicability of CDT testing as the principle response to cyanide use has a number of issues: the cost and difficulty of sustainable financing for maintaining a network of CDT labs; the complicated science of cyanide detection; the variations of cyanide presence in fish due to variability in the time it takes to get fish to the lab; the possibility of "false positives" (i.e. fish that were caught without cyanide but have the chemical when tested) due to background cyanide on reefs from pollution or other fishing activities; the difficulty of trying to use the CDT to monitor a significant portion of catch or shipments; the serious constraints to developing and implementing a credible CDT lab network in large archipelagic countries. With MAC Certification the non-use of cyanide is part of a larger context of responsible fishing practices, i.e. one of a range of practices for which individual fishers need to take responsibility for their personal behavior and be able to be held accountable for. In implementing MAC Certification, a significant amount of effort has focused on developing a variety of mechanisms for preventing cyanide use in the first place, and not only on seeking to detect cyanide after it has been used. Nonetheless, MAC Certification in locations where cyanide use is known to occur or have occurred must include a program of monitoring, sampling and testing for cyanide by credible, accurate, and reliable methods used by internationally accredited laboratories.

Annex 2: Detailed Project Description of Activities and Outputs

There is thus a need to determine which cyanide detection test (CDT) is appropriate, cost-effective and practical for indicating whether fish have been caught using cyanide. There are several CDT methods that have been used and these need to be evaluated. The MAMTI team will work with laboratories, government agencies, research institutions and chemical detection equipment manufacturers to create a network and partnerships for evaluating CDT. However these are only potentially useful during a short period after potential exposure of fish to cyanide due to the biological transformation of the cyanide into secondary products. The MAMTI project will research the potential for these later by-products of cyanide exposure to be detected at the point of import.

If any of the methods available for use are determined to be appropriate and effective, the MAMTI project will establish a pilot cyanide detection testing laboratory in both the Philippines and Indonesia. Lab staff would require training in the CDT methods. The lab must be run by credible and independent organizations, such as a scientific body, research institution or NGO. However, the laboratory should have an appropriate level of association with to the national government fisheries agencies, e.g. BFAR and DKP. The MAMTI project will develop and implement a protocol for random sampling of certified fish as a requirement of certified collectors and exporters. A sampling program would train and manage a group of individuals to collect random samples from fishing boats, holding pens, and exporters for delivery to CDT labs. The fish samplers would make unannounced visits to obtain whichever fish they chose, within the limits of the established protocol and strict documentation and tracking system for the samples.

The intermediate goal would be to have two CDT labs functioning by year two of the MAMTI project, with a significant per cent of the MAC Certified fish being sampled and tested according to the program. The longer term goal for the end of the project is to develop a “user pays” system whereby the industry pays, as much as possible, for the costs of the sampling program and the CDT labs that are operated by credible, independent institutions that have an appropriate affiliation with government.

Specific Activities:

- Develop network of experts to evaluate existing CDT methods.
- Undertake research on detecting cyanide long after exposure.
- Evaluate possible methods for detecting cyanide long after exposure.
- Establish CDT lab in each country, including lab staff training.
- Develop sampling protocol and program, including training of fish samplers.
- Develop “user pays” system with industry

Outputs:

- Report evaluating existing CDT methods.
- Report on potential for import level CDT.
- 2 pilot CDT labs established (1 each in Philippines and Indonesia).
- A significant % of MAC Certified fish is sampled for cyanide beginning year 2 of MAMTI.
- Long term CDT “user pays” situation is in place.

Component 9:

Provide regular and rigorous evaluation of MAMTI’s programmatic, financial and operational performance

9.1 Develop M & E Plan

A rigorous and efficient monitoring and evaluation plan will be developed at the outset of the project. The key first step in this process will be to hire a professional whose sole function will be to establish linkages throughout the organization that enable regular monitoring and evaluation of project successes and challenges. The M&E professional will report directly to the MAMTI Project Office Director, and will be responsible for producing regular reports on the progress of the MAMTI project.

Annex 2: Detailed Project Description of Activities and Outputs

An important part of the M&E plan will be developing appropriate and useful targets and indicators. The indicators should be simple so that stakeholders can easily understand them. It will be useful to review indicators of several long-term CRM projects in the Philippines and Indonesia for compatibility and for what is practical. For example, the Monitoring and Evaluation System for the Philippines CRM project is established under the DENR through its Coastal and Marine Management Office (CMMO) at the national level and the CMM Division at the regional level and is implemented by LGUs and could provide a model for how monitoring and evaluation of the CAMPs and to some extent the overall objectives of the MAMTI project.

Specific Activities:

- Recruit and hire a monitoring and evaluation director.
- Review indicators of several long-term CRM projects in the Philippines and Indonesia.
- Link MAMTI business model to M & E plan through the development of milestones that can be used by management as one measure of the project's success.
- Draft and approve a comprehensive operational and financial monitoring and evaluation plan that covers all levels of MAMTI (i.e., the fishery level, the site level, multi-site support teams, country-level personnel and the central office).

Outputs:

- Document outlining project milestones, targets and indicators.
- Comprehensive monitoring and evaluation plan.

9.2 Undertake Rigorous, Regular Performance Reporting and Evaluation

The monitoring and evaluation director will undertake and provide regular reporting in response to the requirements of the M & E Plan as a tool for the MAMTI project manager and Ex Com to assess performance. This will include both regular internal reports, as well as regular external reports provided by independent auditors (both operational and financial) of the MAMTI project. The project partners and the monitoring and evaluation director will consult with collectors and relevant stakeholders (IFC, local government units, etc.) regarding the confidentiality of information and the dissemination of reports.

Specific Activities:

- Develop reporting requirements to govern both operational and financial information flows within MAMTI.
- Produce regular internal reports.
- Coordinate external review and reporting activities.

Outputs:

- Monthly financial reports and performance briefs (to be reviewed by MAMTI Project Office Director and ExCom).
- Quarterly reports detailing performance relative to established project milestones and metrics.
- Annual or biennial comprehensive operational and financial report written by an independent evaluators.

Annex 3: Detailed Project Timeline

Annex 3: Detailed Project Timeline

Project Component and Outputs	Year 1				Year 2				Year 3				Year 4				Year 5			
Quarter	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Component 1: Building capacity of community stakeholders to develop and implement certified ecosystem management plans																				
1.1 Site Selection Process Developed and Implemented	x	x			x				x				x				x			
1.2 Community Organizing Undertaken and CAMPs Developed		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
1.3 Certification of Collection Areas Facilitated				x				x				x				x				x
1.4 Capacity for the Management, Enforcement and Surveillance Built		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Component 2: Ensuring scientific assessment and monitoring of coral reefs and marine ornamentals stocks, with results contributing to management																				
2.1 Baseline Resource Assessment and Monitoring of Collection Areas Conducted	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
2.2 Management Recommendations for CAMPs Developed and Communicated		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Component 3: Ensuring the health of certified coral reef harvest areas through no-take zones, marine protected areas and reef enhancement or restoration																				
3.1 No-take Zones in Each Collection Area Established		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
3.2 Reef Enhancement / Restoration Program for Collection Area Developed			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Component 4: Building capacity of marine ornamentals collectors to become certified																				
4.1 Collector Training Program Conducted		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
4.2 Certification of Collectors and Collection Areas Facilitated				x				x				x				x				x
4.3 Standards Compliance Monitored and Extension Services Provided			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Component 5: Ensuring collectors have sufficient financial resources and business skills to participate in a sustainable trade																				
5.1 Short-term Co-op Microfinance Needs Determined	x	x																		
5.2 Long-term Growth And Sustainable Livelihood Funding Needs Determined		x	x																	
5.3 Micro-finance Program and Co-op Lending Protocol via MFI Established		x	x																	
5.4 Collector Training for Co-op and Business Skills			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
5.5 Coordination between Capital Needs and Availability Implemented			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

Annex 3: Detailed Project Timeline

Component 6: Creating awareness of, and demand for, MAC Certified marine aquarium organisms among exporters, importers, and retailers																				
6.1 Industry Awareness on MAC Certification, and Demand for MAC Certified Products, Expanded	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
6.2 Industry Understanding and Application for MAC Certification Facilitated	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Component 7: Creating awareness of, and demand for, MAC Certified marine aquarium organisms among consumers																				
7.1 Consumer Awareness on MAC Certification, and Demand for MAC Certified Marine Ornamentals, is Expanded	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Component 8: Building capacity for market transformation, including project management, coordination and implementation																				
8.1 Project Management Infrastructure and Process Established	x	x																		
8.2 Capacity for Creating Management Plans, Establishing Fisher's Co-ops and Training Collectors Built	x	x	x																	
8.3 Capacity for Ongoing Coral Reef Assessment and Monitoring Built	x	x	x																	
8.4 Legal and Policy Context and Business Model Developed	x																			
8.5 Cyanide Detection Test (CDT) Potential Evaluated, Sampling Protocol and Program Developed and Pilot Labs Established		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Component 9: Provide regular and rigorous evaluation of MAMTI's programmatic, financial and operational performance																				
9.1 M & E Plan Developed	x	x																		
9.2 Rigorous, Regular Performance Reporting and Evaluation Undertaken		x		x		x		x		x		x		x		x		x		x

Annex 4: Detailed Site Timeline

Annex 4: Detailed Site Timeline

Month	1	2	3	4	5	6
MAMTI Team Capacity Building						
Scoping						
Field Scoping						
In-Depth Certifiability Assessment						
MAQTRAC Survey						
Community Organizing/CAMP Development						
Collector Training						
MAC Certification pre-assessment						
Formal MAC Certification assessment						
Standards Compliance Monitoring and Extension*						

* Monitoring and extension will be conducted for up to a year after formal MAC Certification assessment.

Annex 5: Site Selection Criteria

Potential for synergies with pre-existing programs/projects in the site

1. Are there any current or previous programs/projects on sustainable fisheries/coastal management in the area (e.g. CRMP, USAID, FRMP, COREMAP, etc.)?
2. Are there any current or previous NGO programs/projects on sustainable fisheries/coastal management in the area?
3. Are there any programs/projects in the area that have specifically focused on the collection of aquarium organisms?
4. Is there an existing marine protected area (MPA)? If yes, (Philippines) has the existing the MPA been rated and evaluated?
5. (Philippines) Has the Protected Area Management Board (PAMB) or Protected Areas and Wildlife Bureau (PAWB) verified that a candidate collection site does not fall within a marine protected area?

Local governments' commitment to coastal resource management

1. Does the local government have in place a coastal resource management plan?
2. Is the local government in a process of developing coastal resource management plan?
3. Does the local government plan to develop coastal resource management plan?

Potential for market chain linkage with MAC Certified Exporters

1. Do MAC Certified Exporters buy marine ornamentals from the site?
2. Have MAC Certified Exporters expressed interest in buying from the site if the site was certified?
3. Are non-certified exporters who are actively working towards MAC Certification buying marine ornamentals from the site or expressing interest in buying from the site?

State of the reef resources

1. Is the resource considered by most as a long-term viable fishery?
2. Have previous reef inventory studies been done in the area and are the results available?
3. Does the site have the species variety in demand by the market?

Fishing practices

1. Was cyanide used in the area? When did cyanide use stop/reduce? Why did cyanide use stop/reduce?
2. Is cyanide still used now?
3. Is there poaching within the area? If yes, where do the fishers come from? Is there legal/authorized fishing by non-resident fishers?
4. Are there other users (food fish, sea cucumber, etc) within the area? If yes list other users. Do they use destructive fishing methods?
5. Is marine ornamental the primary source income for the collectors?
6. Do collectors have access to proper equipment e.g. jars etc.?
7. Are the majority (>50%) of resident collectors in the collection area certifiable?
8. How many potential collectors are there?
9. Do they fish within the collection area?
10. Do they also fish elsewhere?
11. If yes, do they fish legally there?
12. If yes, is the other area potentially certifiable?

Perception of other stakeholders towards marine aquarium fishery

1. Is the collection of marine ornamentals legal?
2. Is the local government interested in sustainable fishery, certification, and being "entry point" in the area?
3. If there is a ban/moratorium/suspension on marine ornamental collection will it be possible to lift it?
4. Is it likely for the program to get an invitation from the local government and the collectors group to work in the area?
5. Is it possible to define clearly the boundaries of the collection area?

Annex 5: Site Selection Criteria

6. Is there dispute concerning collection area boundaries?
7. Is there dispute concerning administrative boundaries (e.g. municipal boundaries) in the area?
8. Can stakeholders in the area be easily determined?

Access, transportation and communication

1. Is there an easy access to the area? If yes, how?
2. Are there reliable transportation methods to the exporters for the organisms?
3. Do collectors live away from each other making communication difficult?
4. Does the location of the site have strategic leverage (i.e. the ability to pull nearby sites into the certification development)? If yes, what, where, how?

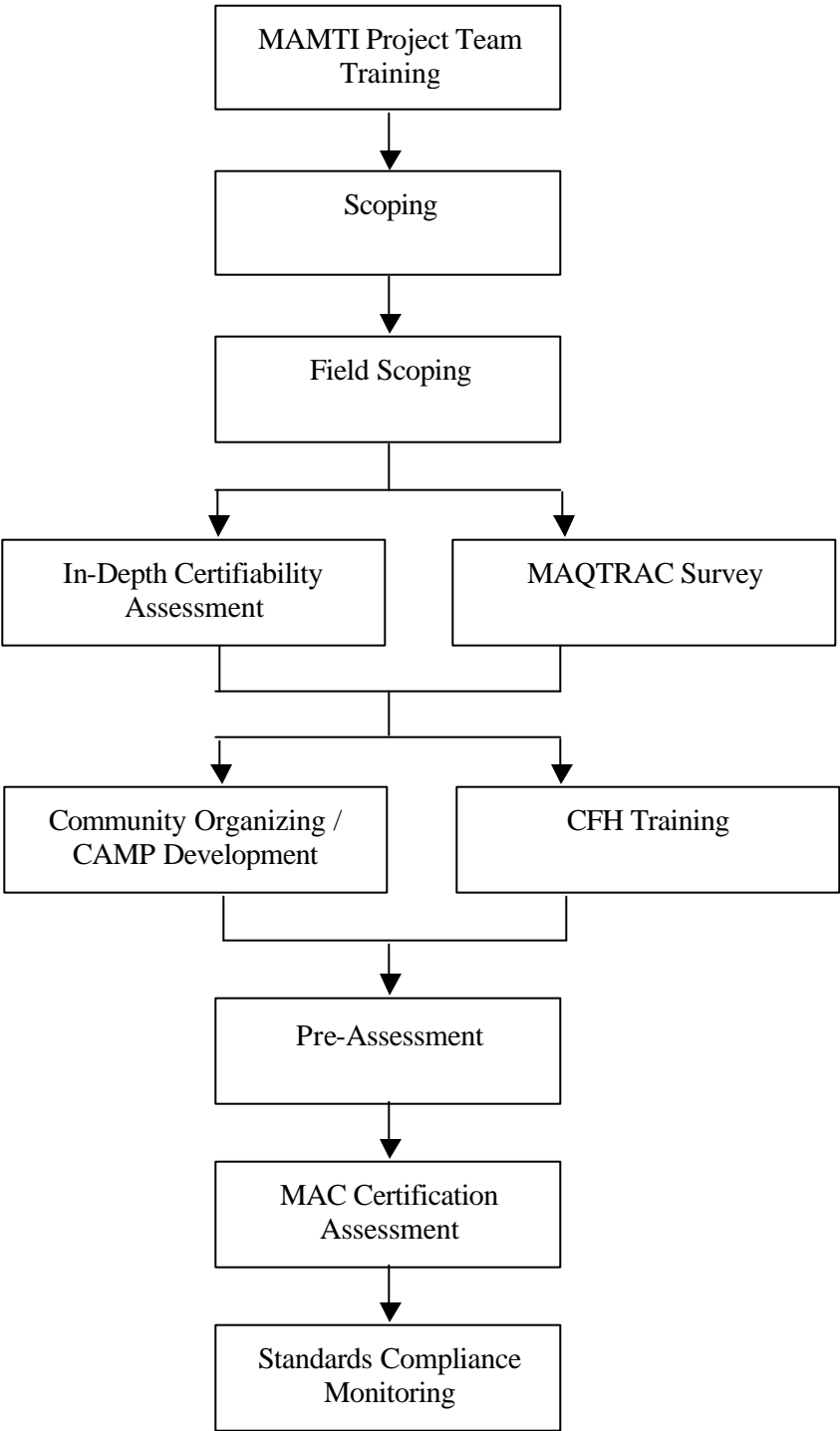
Investment needs

1. What is the current scale of the existing local marine aquarium industry in terms of:
 - Volume (boxes, number of fish)
 - Species Diversity (relative volume of exotic vs. “bread and butter” fish)
 - Economic value (net profits, return on investment) generated at all levels of the local present value chain (i.e. collectors, middlemen, exporters, etc.)
2. What is the projected scale of the local marine aquarium industry in terms of:
 - the estimated potential sustainable yield of available local reefs
 - the availability of growth capital/local microfinance capacity
3. What type of investments will be required to reach projected scale at sustainable levels (in addition of investments already made)
 - Fixed assets, including fish storage and handling sites, boats, safe diving equipment, trucks, etc.
 - Operating expenses, such as gasoline, depreciation, on-shore support, etc.
 - Economies of scale: What is the optimal scale of local marine ornamentals operations
 - Timing/phasing: How quickly should these investment be made?

Capital delivery

1. Who are reliable local recipients of investment capital (i.e. individual fishermen, fishermen collectives, middlemen, exporters, etc.), in terms of:
 - Ability to effectively leverage capital into MAC Standards implementation
 - Ability to meet financial obligations (i.e. service and amortize loans)
2. Through which channels should these investments be delivered?
 - Grant funds
 - Local channels, such as banks, savings institutions
 - Regional channels, such as existing micro lenders
 - National channels, such as existing/expanded local IFC lending capacity

Annex 6: Site Capacity Building Module Flow Chart



Annex 7: Project Budget and Co-Financing

The two tables below present the MAMTI budget according to the project design log frame as well as according to line-item costs such as personnel, travel, equipment, offices, etc.

MAMTI Budget				
<i>US Dollars</i>				
	IFC, MAC, CCIF, RC Co-Finance	Exporters, Importers & Retailers	GEF	TOTAL
1: Community Capacity Building - Ecosystem Mgmt. Plans	\$ 595,932	\$ -	\$ 893,898	\$ 1,489,829
? Site selection Process	89,390	-	134,085	
? Community organizing / CAMP development	238,373	-	357,559	
? Collection area certification facilitation	119,186	-	178,780	
? Management, enforcement & surveillance capacity building	148,983	-	223,474	
2: Assessment - Reef/Fish Monitoring to Inform Management	\$ 380,828	\$ -	\$ 364,087	\$ 744,915
? Baseline resource assessment & monitoring of collection areas	247,538	-	236,657	
? Management recommendations from CAMPs developed	133,290	-	127,431	
3: Reef Health - MPAs, Reef Enhancement, Restoration	\$ 411,735	\$ -	\$ 874,936	\$ 1,286,671
? MPA / No-take zone establishment	288,214	-	612,455	
? Collection area reef enhancement & restoration program	123,520	-	262,481	
4: Collector Capacity Building for Certification	\$ 900,138	\$ -	\$ 860,570	\$ 1,760,708
? Collector training program for certification	522,080	-	499,130	
? Collectors and collection area certification facilitation	288,044	-	275,382	
? Standards compliance monitoring and extension	90,014	-	86,057	
5: Collector Financial & Business Capacity for Sustainability	\$ 830,896	\$ -	\$ 794,372	\$ 1,625,269
? Determination of short-term cooperative financial needs	290,814	-	297,890	
? Determination of long-term capital needs / sustainable livelihoods	207,724	-	218,452	
? Microfinance program development	83,090	-	-	
? Collector training program for co-op / business skills	166,179	-	198,593	
? Capital needs and availability coordination	83,090	-	79,437	
6: Exporter, Importer, Retailer Certification	\$ 1,097,056	\$ 8,073,597	\$ 121,895	\$ 9,292,549
? Industry awareness and demand for MAC certification raised	493,675	-	54,853	
? Facilitate industry understanding of MAC certification	603,381	-	67,042	
? Industry infrastructure and personnel investments	-	8,073,597	-	
7: Consumer Certification Awareness Building	\$ 518,054	\$ -	\$ 91,421	\$ 609,476
? Consumer awareness and demand for MAC certification raised	518,054	-	91,421	
8: Project Management, Coordination, Implementation	\$ 2,281,064	\$ -	\$ 2,063,820	\$ 4,344,885
? Project management infrastructure & process	600,844	-	825,528	
? Capacity building - CAMPs, Co-ops & training	570,266	-	309,573	
? Capacity building - Reef assessment & monitoring	570,266	-	309,573	
? Legal context & business model for Co-op certification	507,860	-	350,849	
? Cyanide detection testing	31,829	-	268,297	
9: Performance Monitoring & Evaluation	\$ (91,566)	\$ -	\$ 554,768	\$ 463,202
? Monitoring & evaluation	(59,518)	-	360,599	
? Regular performance reporting & evaluation	(32,048)	-	194,169	
TOTAL PROJECT & INDUSTRY INVESTMENT	\$ 6,924,137	\$ 8,073,597	\$ 6,619,767	\$ 21,617,502

MAMTI Budget

US Dollars

		PROJECT COMPONENTS								
		1: Community Capacity Building - Ecosystem Mgmt. Plans	2: Assessment - Reef/Fish Monitoring to Inform Management	3: Reef Health - MPAs, Reef Enhancement, Restoration	4: Collector Capacity Building for Certification	5: Collector Financial & Business Capacity for Sustainability	6: Exporter, Importer, Retailer Certification	7: Consumer Certification Awareness Building	8: Project Management, Coordination, Implementation	9: Performance Monitoring & Evaluation
MAMTI PROJECT COSTS	Total									
Personnel & Salary	\$9,104,335	1,001,477	500,738	864,912	1,183,564	1,092,520	819,390	409,695	2,920,671	311,368
Travel (Not Including Training)	\$1,429,624	157,259	78,629	135,814	185,851	171,555	128,666	64,333	458,623	48,893
Training & Capacity Building	\$866,071	95,268	47,634	82,277	112,589	103,929	77,946	38,973	277,836	29,620
Field Equipment & Supplies	\$351,501	38,665	19,333	33,393	45,695	42,180	31,635	15,818	112,762	12,021
Offices, Equipment & Communications	\$1,005,712	110,628	55,314	95,543	130,743	120,685	90,514	45,257	322,632	34,395
Professional Services	\$464,111	51,052	25,526	44,091	60,334	55,693	41,770	20,885	148,887	15,873
Other Equipment / Capital	\$322,550	35,481	17,740	30,642	41,932	38,706	29,030	14,515	103,474	11,031
Total	\$13,543,905	1,489,829	744,915	1,286,671	1,760,708	1,625,269	1,218,951	609,476	4,344,885	463,202
INDUSTRY INVESTMENT										
Total	\$ 8,073,597	-	-	-	-	-	8,073,597	-	-	-
GRAND TOTAL	\$21,617,502	\$1,489,829	\$744,915	\$1,286,671	\$1,760,708	\$1,625,269	\$9,292,549	\$609,476	\$4,344,885	\$463,202
BREAKDOWN										
Co-Financing (IFC, MAC, CCIF, RC)	6,924,137	595,932	380,828	411,735	900,138	830,896	1,097,056	518,054	2,281,064	(91,566)
GEF	6,619,767	893,898	364,087	874,936	860,570	794,372	121,895	91,421	2,063,820	554,768
Exporters, Importers & Retailers	8,073,597	-	-	-	-	-	8,073,597	-	-	-
MULTIPLE										
Co-Finance + Industry ÷ GEF Funding	2.3x									

Project Co-Financing

The table below presents a picture of the financing elements of the MAMTI project, including contributions by the partners (cash and in-kind) and local collection areas (\$2,000 per collection area), relevant investment on the part of industry, and GEF contribution. While the contributions of the MAC, CCIF and Reef Check are relatively self-evident based on the table, it is important to understand the assumptions that drive IFC co-financing and the industry investment calculations.

IFC Co-financing

IFC, through its Program for Eastern Indonesia SME Assistance (PENSA), would draw on its administrative and programmatic resources to support the MAMTI Project in PENSA target areas, most importantly Sulawesi (Wakatobi, Spermonde, Manado, Banggai), as well as the Southern Philippines (Mindanao/Davao, Cebu).

The PENSA office and the MAMTI partners have developed three areas of cooperation and in-kind contribution from IFC with an estimated value of \$ 100,000 (over the 5-year project horizon):

- Business development/capacity building, e.g. business capacity building program for the fisher cooperatives;
- Access to finance, e.g. PENSA experts' assistance to build and establish a network of local micro-finance providers and the skills to access and manage funds; and
- Development of business associations, e.g. developing the broadly applied modules/ tools to create a modular, "franchise" model for sustainably operated fisher cooperatives, customizing them to local use, and providing training services.

There is the potential for more specific ADB support to PENSA for developing linkages and a series of pilot programs for both Indonesia and the Philippines SMEs involved in the marine ornamentals trade, e.g. knowledge and skills sharing, with a focus on North Sulawesi (Manado) and Mindanao (Davao) and, at a later stage, projects might be scaled up to include other parts of the Philippines (Mindanao and Palawan).

Industry Investment

Using conservative assumptions, we have analyzed likely investment on the part of each of three components of the marine ornamentals value chain – exporters, importers and retailers.

Exporters

With respect to the export market in the Philippines and Indonesia, we have made the following assumptions:

- Approximately 25 exporters in the Philippines and 35 in Indonesia;
- Over a 5 year period, approximately 30% of exporters will make investments in infrastructure and personnel training related to MAC Certification;
- Average infrastructure investment of \$40,000; and
- Average personnel investment: \$10,000 (4 person months at \$2,500 each).

Importers

Regarding the import market in the United States and Europe, we have divided importers into 3 classes – Large, medium and small. We have made the following assumptions for each class of importers:

Large

- Approximately 7 large importers in the US and Europe combined;
- Over a 5 year period, at least 50% of large importers will make investments in infrastructure and personnel training related to MAC Certification;
- Average infrastructure investment of \$200,000 (by way of conservative comparison, a recent infrastructure and personnel investment was made by a large importer for \$800,000); and

Annex 7: Project Budget and Co-Financing

- Average personnel investment: \$10,000 (4 person months at \$2,500 each).

Medium

- Approximately 25 medium importers in the US and Europe combined;
- Over a 5 year period, at least 30% of medium importers will make investments in infrastructure and personnel training related to MAC Certification;
- Average infrastructure investment of \$100,000; and
- Average personnel investment: \$10,000 (4 person months at \$2,500 each).

Small

- Approximately 20 small importers in the US and Europe combined;
- Over a 5 year period, at least 30% of small importers will make investments in infrastructure and personnel training related to MAC Certification;
- Average infrastructure investment of \$40,000; and
- Average personnel investment: \$10,000 (4 person months at \$2,500 each).

Retailers

With respect to the retail market in the United States and Europe, we have made the following assumptions:

- Approximately 4,500 retailers in the US and Europe combined;
- Over a 5 year period, approximately 30% of retailers will make investments related to MAC certification; and
- Average investment of \$4,000.

Annex 7: Project Budget and Co-Financing

MAMTI Project Co-Financing Table						
TOTAL CO-FINANCING	\$ 6,923,500	\$ 4,049,272	\$ 1,572,014	\$ 1,153,536	\$ 1,299,412	\$ 14,997,735
Cash Sources	1,376,500	1,212,864	1,229,381	935,732	1,103,945	5,858,422
In-Kind Contributions	220,000	219,417	213,027	217,804	195,467	1,065,715
Industry Investment	5,327,000	2,616,990	129,607	-	-	8,073,597
MAC	\$ 1,056,500	\$ 1,156,553	\$ 1,174,710	\$ 854,285	\$ 992,884	\$ 5,234,933
Cash Grants	920,500	893,689	773,400	141,847	93,291	2,822,727
Existing / Confirmed Grants	738,500	644,175	531,153	-	-	1,913,828
Packard Foundation	100,000	97,087	-	-	-	197,087
MacArthur Foundation	92,500	89,806	87,190	-	-	269,496
Munson Foundation	5,000	-	-	-	-	5,000
Homeland Foundation	30,000	-	-	-	-	30,000
USAID GEM 2: MAC Phase 2	40,000	-	-	-	-	40,000
USAID GDA: TMAT Project	205,250	199,272	193,468	-	-	597,990
Netherlands Government Development Aid (DGIS)	150,000	145,631	141,389	-	-	437,020
EC Asia Pro Eco Program ⁽¹⁾	115,750	112,379	109,105	-	-	337,234
Currently in Application Process	102,000	99,029	96,145	-	-	297,174
EC Sustainable Development Program: I-SMART ⁽²⁾	102,000	99,029	96,145	-	-	297,174
Grants Under Development	50,000	121,359	117,824	114,393	66,637	470,213
Government Other	50,000	48,544	47,130	45,757	-	191,431
Other	-	72,816	70,695	68,636	66,637	278,782
MAC Partners: Likely Grants ⁽³⁾	30,000	29,126	28,278	27,454	26,655	141,513
Various Sources	30,000	29,126	28,278	27,454	26,655	141,513
Certification Cash Flow	36,000	154,126	295,739	587,979	810,744	1,884,589
Cash Flow	36,000	154,126	295,739	587,979	810,744	1,884,589
In-Kind Contributions	100,000	102,913	99,915	107,987	88,849	499,663
MAC & MAC Partners	100,000	97,087	94,260	91,514	88,849	471,710
Community and Collection Area Contributions	-	5,825	5,656	16,473	-	27,953
REEF CHECK	\$ 420,000	\$ 262,136	\$ 254,501	\$ 297,421	\$ 288,758	\$ 1,522,816
Cash Grants	320,000	165,049	160,241	205,907	199,910	1,051,106
MacArthur Foundation	45,000	43,689	42,417	-	-	131,106
MacArthur Foundation	-	-	-	91,514	88,849	180,363
Packard Foundation	100,000	-	-	-	-	100,000
Packard Foundation	-	48,544	47,130	45,757	44,424	185,855
EAPEI / USAID	100,000	-	-	-	-	100,000
US NOAA	30,000	29,126	28,278	27,454	26,655	141,513
UNEP	25,000	24,272	23,565	22,879	22,212	117,927
Other Miscellaneous Sources	20,000	19,417	18,852	18,303	17,770	94,342
In-Kind Contributions	100,000	97,087	94,260	91,514	88,849	471,710
Reef Check	100,000	97,087	94,260	91,514	88,849	471,710
CCIF	\$ 100,000	\$ -	\$ -	\$ -	\$ -	\$ 100,000
Cash Grants	100,000	-	-	-	-	100,000
Packard Foundation	100,000	-	-	-	-	100,000
IFC	\$ 20,000	\$ 19,417	\$ 18,852	\$ 18,303	\$ 17,770	\$ 94,342
In-Kind Contributions	20,000	19,417	18,852	18,303	17,770	94,342
INDUSTRY INVESTMENT	\$ 5,327,000	\$ 2,616,990	\$ 129,607	\$ -	\$ -	\$ 8,073,597
Exporter-Level	600,000	291,262	-	-	-	891,262
Percentage of Exporters Investing	20%	10%	0%	0%	0%	30%
Infrastructure Investment	480,000	233,010	-	-	-	713,010
Personnel Investment	120,000	58,252	-	-	-	178,252
Importer-Level	1,127,000	578,155	129,607	-	-	1,834,762
Large Importers	514,500	214,078	-	-	-	-
Percentage of Large Importers Investing	35%	15%	0%	0%	0%	50%
Infrastructure Investment	490,000	203,883	-	-	-	693,883
Personnel Investment	24,500	10,194	-	-	-	34,694
Medium Importers	412,500	266,990	129,607	-	-	-
Percentage of Medium Importers Investing	15%	10%	5%	0%	0%	30%
Infrastructure Investment	375,000	242,718	117,824	-	-	735,543
Personnel Investment	37,500	24,272	11,782	-	-	73,554
Small Importers	200,000	97,087	-	-	-	-
Percentage of Small Importers Investing	20%	10%	0%	0%	0%	30%
Infrastructure Investment	160,000	77,670	-	-	-	237,670
Personnel Investment	40,000	19,417	-	-	-	59,417
Retailer-Level	3,600,000	1,747,573	-	-	-	5,347,573
Percentage of Retailers Investing	20%	10%	0%	0%	0%	30%
Retailer-Level Investment	3,600,000	1,747,573	-	-	-	5,347,573
GEF FINANCING	\$ 6,619,767					

Annex 8: Project Staffing

International Level – Local Staff	
MAMTI Project Office Director (FT, New Position)	Execute overall MAMTI strategy, and ensuring efficient and successful rollout of replicable franchise business model. All other positions within MAMTI (with the exception of members of ExCom) report to the MAMTI Project Office Director.
Business Development Manager (FT, New Position)	Responsible for execution of MAMTI business strategy at the senior managerial level.
Senior Scientist (FT, New Position)	Direct all strategy related to the assessment and proactive monitoring of the health, viability and sustainability of the aquarium fisheries in the MAMTI collection areas.
Monitoring & Evaluation Director (FT, New Position)	Conduct monitoring and evaluation; develop targets; collect data to produce regular reports; supervise independent evaluations and audits.
Administrative Assistant (FT, New Position)	Provide administrative support to MAMTI Project Office Director.
Accountant (PT, New Position)	Coordinate the accounting functions of MAMTI through work with full-time accountants in each country.
International Level – Expatriate Staff	
MAC Executive Director (PT, Existing Position)	Provide overall project oversight and reporting responsibility for MAC activities in the project, ensure overall coordination with all partners, especially on technical and implementation aspects; assist with linking the project efforts with the industry and development of MAC Certification worldwide.
MAC Asia Director (PT, Existing Position)	Manage day to day management of MAC commitments to MAMTI project.
MAC Communications Director (PT, Existing Position)	Undertake regional and international media outreach and awareness raising regarding development and use of best practices in Indonesia coral trade; assist and guide outreach to industry, consumers, public and government in Europe and Indonesia; develop informational materials and coordinate project communications.
MAC Certification Systems Development Director (PT, Existing Position)	Assist and guide development of best practices for aquarium trade and documentation in implementation manuals; link collection areas/collectors groups and exporters with MAC Accredited certifiers; provide targeted training in certification.
MAC Americas and Pacific Director (PT, Existing Position)	Raise awareness of MAC Certification with importers and retailers; facilitate certification by industry; ensure certified supply from Indonesia and Philippines reaches certified buyers.
MAC Senior Accountant / Grants Manager (PT, Existing Position)	Provide accounting oversight of MAC role within MAMTI; manage grant funding commitments relative to MAMTI.
MAC Office Manager (PT, Existing Position)	Provide administrative support for MAC MAMTI activities.
Reef Check Executive Director (PT, Existing Position)	Provide overall project oversight and reporting responsibility for Reef Check activities in the project; ensure overall coordination with all partners, especially on technical and implementation aspects; ensure integration of Reef Check data into recommendations for MAMTI management.
Reef Check Project Manager	Undertake day to day management of Reef Check commitments to

Annex 8: Project Staffing

(PT, Existing Position)	MAMTI project.
Reef Check Database Manager (FT, New Position)	Manage database from assessment, monitoring and resurvey data; produce reports from those data to inform collection area management plan development.
CCIF Executive Director (PT, Existing Position)	Provide overall project oversight and reporting activities for CCIF activities related to MAC, especially with respect to franchise business model development and execution.
CCIF Senior Associate (PT, Existing Position)	Support for CCIF commitments to MAMTI project. Specifically responsible for assessing programmatic linkages between MAMTI and other regional marine conservation efforts.
CCIF Associate (PT, Existing Position)	Provide day to day support for CCIF commitments to MAMTI project. Specific functions: monitoring operational and financial performance reports, assisting ongoing budget development, supporting business consulting members of the MAMTI capacity building team, presenting management recommendations to Executive Committee, facilitating candidate review and hiring for MAMTI Central Organization, etc.
Country Level – Philippines	
MAC Philippines Country Director (FT, Existing Position)	Implement demand development portion of MAMTI business model in the Philippines; further political and business relationships in country sufficient to carry out MAMTI objectives; dotted line relationship to MAMTI Project Office Director.
Philippines Project Manager (FT, New Position)	Responsible for day-to-day implementation of all MAMTI operations in the Philippines, with the exception of demand development; reports to the Project Office Director.
Supply Development Manager (FT, New Position)	Develop, direct and monitor in-country strategy to bring certified sustainable supply online to the marketplace.
Supply Development Assistant (FT, New Position)	Support and assist Supply Development Manager.
Demand Development Manager (FT, Existing Position)	Develop solid, dependable relationships with exporters and importers to assess demand for sustainable aquarium fish; determine strategies to pull from and push to that demand.
Demand Development Assistant (FT, New Position)	Support and assist Demand Development Manager.
Office Manager (FT, New Position)	Provide administrative support for the Philippines offices of MAMTI.
Accountant / Controller (FT, New Position)	Keep business accounts; produce of regular GAAP-compliant financial statements on all MAMTI activities in the Philippines.
Country Level – Indonesia	
MAC Indonesia Country Director (FT, Existing Position)	Implement demand development portion of MAMTI business model in the Indonesia; further political and business relationships in country sufficient to carry out MAMTI objectives; dotted line relationship to MAMTI Project Office Director.
Indonesia Project Manager (FT, New Position)	Responsible for day-to-day implementation of all MAMTI operations in the Indonesia, with the exception of demand development; reports to the Project Office Director.
Supply Development Manager (FT, New Position)	Develop, direct and monitor the in-country strategy to bring certified sustainable supply online to the marketplace.
Supply Development Assistant	Support and assist the Supply Development Manager.

Annex 8: Project Staffing

(FT, New Position)	
Demand Development Manager (FT, New Position)	Develop solid, dependable relationships with exporters and importers to assess demand for sustainable aquarium fish, and determine strategies to pull from and push to that demand.
Demand Development Assistant (FT, Existing Position)	Support and assist the Demand Development Manager.
Office Manager (FT, New Position)	Provided administrative support for the Indonesia offices of MAMTI.
Accountant / Controller (FT, New Position)	Keep the business accounts; produce regular GAAP-compliant financial statements on all MAMTI activities in Indonesia.
Microfinance Liaison (FT, New Position)	Link capital needs at the village cooperative level with the capacity of the Indonesia MFI associated with MAMTI. Position may be seconded from MFI.
Fisheries Scientist (FT, New Position)	Direct all strategy related to the assessment and proactive monitoring of the health, viability and sustainability of the aquarium fisheries in the Indonesia MAMTI collection areas.
Multi-Site Support – Philippines	
Regional Community Organizers (FT as new municipalities come on line / PT otherwise, 3 New Positions)	Work at the village level to build relationships with local officials, assess the local aquarium fish business, and identify a Local Community Organizer in each collection area, who will be hired to implement the cooperative strategy.
Free Dive Technical Trainers (FT as new municipalities come on line / PT otherwise, 6 New Positions over 5 yrs.)	Conduct the in-water capacity building on the MAC Standards and Certification for free diving collectors.
Hookah Dive Technical Trainers (FT as new municipalities come on line / PT otherwise, 6 New Positions over 5 yrs.)	Conduct the in-water capacity building on the MAC Standards and Certification for hookah diving collectors.
Technical Consultants (PT, 2 New Positions over 5 yrs.)	Provide technical capacity related to the MAC Certification system.
Assistant Reef Check Scientists (FT, 6 New Positions over 5 yrs.)	Implement the Reef Check protocol to determine the baseline health of the fishery; set in place a monitoring program to track progress.
Resurvey Scientists (FT, 4 New Positions over 5 yrs.)	Visit each collection area one year after initial assessment to track progress or decline relative to the baseline.
Collection Area Management Specialists (FT, 4 New Positions over 5 yrs.)	Translate data from the Reef Check assessment and resurvey processes into meaningful management recommendations to be integrated into the collection area management plans.
Rehabilitation Scientist (FT, New Position)	Establish a reef rehabilitation program using post-larval and adult stock enhancement to restore degraded fisheries.
Assistant Rehabilitation Scientist (FT, New Position)	Support and assist the activities of the Rehabilitation Scientist.
Business Consultants (PT, 2 New Positions over 5 yrs.)	Undertake capacity building of Collectors Coordinators and Co-ops in business skills, marketing, quality control, etc.
Microfinance Liaison (FT, New Position)	Link capital needs at the village cooperative level with the capacity of the Philippines MFI associated with MAMTI. Position may be seconded from MFI.
Monitoring & Evaluation Assistants (PT, 2 New Positions over 5 yrs.)	Provide monitoring and evaluation services of MAMTI collection areas for purposes of analyzing and auditing financial and operational performance of the collection areas.

Multi-Site Support – Indonesia	
Regional Community Organizers (FT as new regencies come on line / PT otherwise, 3 New Positions)	Work at the village level to build relationships with local officials, assess the local aquarium fish business, and identify a Local Community Organizer in each collection area, who will be hired to implement the cooperative strategy.
Free Dive Technical Trainers (FT as new regencies come on line / PT otherwise, 5 New Positions over 5 yrs.)	Conduct the in-water capacity building on the MAC Standards and Certification for free diving collectors.
Hookah Dive Technical Trainers (FT as new regencies come on line / PT otherwise, 5 New Positions over 5 yrs.)	Conduct the in-water capacity building on the MAC Standards and Certification for hookah diving collectors.
Technical Consultants (PT, 1 New Position over 5 yrs.)	Provide technical capacity related to the MAC Certification system.
Assistant Reef Check Scientists (FT, 4 New Positions over 5 yrs.)	Implementing Reef Check protocol to determine the baseline health of the fishery, and set in place a monitoring program to track progress.
Resurvey Scientists (FT, 4 New Positions over 5 yrs.)	Visit each collection area one year after initial assessment to track progress or decline relative to the baseline.
Collection Area Management Specialists (FT, 4 New Positions over 5 yrs.)	Translate data from the Reef Check assessment and resurvey processes into meaningful management recommendations to be integrated into the collection area management plans.
Rehabilitation Scientist (FT, New Position)	Establish a reef rehabilitation program using post-larval and adult stock enhancement to restore degraded fisheries.
Assistant Rehabilitation Scientist (FT, New Position)	Support and assist the activities of the Rehabilitation Scientist.
Business Consultants (PT, New Position)	Undertake capacity building of Collectors Coordinators and Co-ops in business skills, marketing, quality control, etc.
Microfinance Liaison (FT, New Position)	Link capital needs at the village cooperative level with the capacity of the Philippines MFI associated with MAMTI. Position may be seconded from MFI.
Monitoring & Evaluation Assistants (PT, New Position).	Provide monitoring and evaluation services of MAMTI collection areas for purposes of analyzing and auditing financial and operational performance of the collection areas.
Site-Level – Philippines	
Local Community Organizers (FT through certification and for one year thereafter, 21 New Positions over 5 yrs.)	Identify local collectors, as well as a person who is capable of performing the job of collector coordinator; build relationships with local community officials; assist in franchise model implementation.
Protected Area/Collection Area Enforcement Personnel (PT, 96 New Positions over 5 yrs.)	Undertake patrol and enforcement over collection areas and protected areas / no-take zones. May be seconded from local authorities.
Site-Level – Indonesia	
Local Community Organizers (FT through certification and for one year thereafter, 12 New Positions over 5 yrs.)	Identify local collectors, as well as a person who is capable of performing the job of collector coordinator; build relationships with local community officials; assist in franchise model implementation.
Protected Area & Collection	Undertake patrol and enforcement over collection areas and protected

Annex 8: Project Staffing

Area Enforcement Personnel (PT, 60 New Positions over 5 yrs.)	areas / no-take zones. May be seconded from local authorities.
Fishery-Level – Philippines	
Collector Coordinators (Not MAMTI employees, 48 New Positions over 5 yrs.)	Broker fish trade at the village level; purchase fish from collectors and sell fish to exporters. Trained by MAMTI, but not paid by MAMTI (Collector Coordinators make money on the fish trade)
Collectors (Not MAMTI employees, 1,440 certified over 5 yrs.)	Aquarium fish collectors trained and certified according to MAC protocol. Make money on sale of fish (not paid by MAMTI)
Fishery-Level – Indonesia	
Collector Coordinators (Not MAMTI employees, 30 New Positions over 5 yrs.)	Broker fish trade at the village level; purchase fish from collectors and sell fish to exporters. Trained by MAMTI, but not paid by MAMTI (Collector Coordinators make money on the fish trade)
Collectors (Not MAMTI employees, 900 certified over 5 yrs.)	Aquarium fish collectors trained and certified according to MAC protocol. Make money on sale of fish (not paid by MAMTI)

Annex 9: Cost Effectiveness Analysis

1. Typical Cost of Conservation/Industry Transformation Projects

To date, place-based preservation of coral reef ecosystems in the Philippines and Indonesia has been achieved almost exclusively by protected area projects. Very few attempts have been made to use the coral reef's intrinsic resource value as a primary tool for encouraging reef conservation. Protected area costs are very high. According to a detailed study by CCIF (commissioned by the World Congress on Protected Areas), an endowment of approximately \$180 million would be required to make all the national marine parks of Indonesia and the Philippines an operational reality. Endowment costs for protected areas range from \$11/acre for very large, remote national parks (such as Komodo and Wakatobi) to \$236 for small parks near major population centers (such as Bali Barat). Since the great majority of these national parks tend to be pelagic waters, the conservation cost per acre of actual reef is considerably higher (at least 5 x)

The MAMTI project would provide two levels of protection: collection areas would be managed under the terms of the collection area management plans (CAMPS), and the marine protected areas that will be associated with these collection areas. Collectively, the costs of implementing the MAMTI project will be about \$50 - \$100 per acre of protected/managed reef – considerably lower than any other place-based type of approach.

Attempts to develop “alternative livelihood” projects to reduce resource pressure on coral reefs have proven to be largely ineffective and very expensive to realize. The projects have involved seaweed farming, production of artifacts, development of grouper grow-out farms, etc. In most cases, the projects have failed due to a variety of factors, including lack of managerial capacity, ill-conceived marketing, lack of growth capital, catastrophic natural events (such as red tides), etc. Costs of these projects have varied dramatically.

2. Cost-Effective Design Features of the MAMTI Proposal

The industry reform/conservation projects in the MAMTI proposal are less costly than other comparable projects in Indonesia and the Philippines for the following reasons:

Financial Leverage. The MAMTI project features the collaboration of a number of stakeholders. Reef monitoring will be coordinated by Reef Check, who has pioneered the use of volunteers for global monitoring of reef health. The “train the trainers” approach used by the project will assure that the great majority of place-based training will be performed by local fishermen, rather than high-priced outsiders. The project will coordinate closely with the service provided by other initiatives, such as COREMAP 2 and the IFC's SME program in Bali, to ensure that there is no duplication of efforts. For example, MAMTI will use COREMAP's micro-finance infrastructure in Indonesia to coordinate low-cost loans to the fishing villages and cooperatives.

Managerial leverage. The central MAMTI organization will be responsible for the training, monitoring, and consultative support of over 100 sites. While project representatives (community organizers) are present at each site, the technical expertise and demand/supply coordination will be provided by a central team. The organization's fixed costs are therefore spread over an extremely broad base.

Leveraging Financing from other companies. MAMTI will work closely with Philippine/Indonesian exporters, as well as European/U.S. importers. Many of these companies will be investing significant funds in the upgrading of their infrastructure, including inventory management, direct communication links with collectors, certifiable fish handling and husbandry systems, etc.

Annex 10: Incremental Cost Analysis

Context and Broad Development Goals

1.) Southeast Asia is the global center of marine diversity. It contains more than one third of all the world's coral reefs, and houses over 600 of the 800 reef-building coral species in the world. A greater variety of species exist on a single island in this region than on all the coral reefs in the Caribbean. Indonesia and the Philippines together hold 77% of the region's coral reefs, including the majority of South East Asia's best-preserved reefs. The reefs of the Wallacea Bio-Region have been identified by the major conservation NGOs (TNC, WWF, WRI and CI) as a global priority conservation area.

The coastal areas of the Philippines and Indonesia are some of the most heavily populated in the world. With rapid population growth rates, the pressure on coastal resources is exceedingly high, with every member of each family often involved in resource extraction of some type. The pressures have now reached unsustainable levels.

The principal threats to the region's coral reefs are destructive fishing (primarily through the use of primitive bombs and sodium cyanide) and over fishing. The recent Reef Check report, "The Global Coral Reef Crisis," documents how destructive fishing and over fishing have led to ecological destabilization and are even pushing some high-value reef organisms to the brink of extinction.

The results of destructive coastal fishing have been devastating. According to WRI's "Reefs at Risk", almost 90 percent of the coral reefs in the Philippines and Indonesia (as well as Cambodia, Singapore, Taiwan, Vietnam, Malaysia and China) are degraded or threatened. Fish larger than a few centimeters in length have become rare on most reefs. Indonesia and the Philippines together hold nearly 80 percent of all the threatened reefs in the region.

2.) In recognition of the threat to their national economies that the degradation of these vital ecosystems poses, the governments of Indonesia and the Philippines have demonstrated their commitment to the health of coral reef ecosystems and the livelihoods they enable through legislation and various partnerships with international organizations. Such efforts are characterized by varying degrees of effectiveness.

The Government of Indonesia has identified coral reef ecosystems and improved coral reef management as national priorities in the National Strategy and Action Plan for Coral Reef Ecosystem Conservation and Management (Ministry of Environment, 1992), Sustainable Marine Program (1992), Indonesia Biodiversity Action Plan (1993), and Indonesia Agenda 21 (1996). Additionally, the Government of Indonesia, through a loan facility and in partnership with The World Bank, The Asian Development Bank, the GEF and the government of Japan (JICA), is supporting the Coral Reef Rehabilitation and management Program (COREMAP), a 15-year program to protect, rehabilitate and promote sustainable use of reefs and associated ecosystems in Indonesia.

The Government of the Philippines has also addressed marine ecosystem health and sustainability through the National Agenda for Sustainable Development for the 21st Century (Philippine Agenda 21), National Biodiversity Strategy and Action Plan (NBSAP), the Fisheries Code of the Philippines and the National Marine Policy. Other relevant policies and programs of the national government include: Department of Environment and Natural Resources (DENR) programs, such as the Coastal Environment Program and National Integrated Protected Areas System, the Community-Based Coastal Resources Program, and the Coastal Resources Management Training Program; The Bureau of Fisheries and Aquatic Resources (BFAR) programs, such as the Fisheries Resource Management Program (FRMP) supported by JICA. Relevant externally supported projects addressing the sustainable development of coastal areas and marine resources include: USAID projects (Coastal Resource Management Program, Growth with Equity in Mindanao), GTZ projects (Visayan Sea Coastal Resources and Fishery Management), and AusAID

projects (Provincial Support Program). The Government of the Philippines also has a history of placing substantial funding behind broad fisheries goals, through programs such as the Fisheries Sector Loan Program (initiated in 1989), under which the Philippines borrowed upwards of \$80 million from the Asian Development Bank to finance major fisheries policy reform measures.

Baseline Scenario

3.) In the absence of GEF funding, it is anticipated that the governments of Indonesia and The Philippines, in partnership with local and international NGOs, would continue to focus their scarce resources on projects to catalyze primarily national benefits and other benefits largely unrelated to the aquarium fish trade. Current baseline projects -- while critically important in establishing the structural environment in which the GEF alternative can succeed -- do not address the health and sustainability of the aquarium fish trade, nor the damage to reef ecosystems as a result of it. The most relevant baseline projects include:

Philippines

- Fisheries Sector Loan program (FSLP): Established in 1989, the purpose of the \$80 million FSLP loan facility was to catalyze major fisheries policy reform measures (i.e., control of fishing license issuance, decentralization of municipal water management, enactment of municipal fishing ordinances, and provision of trade incentives and privatization of fishing ports). The FSLP was successful in raising awareness of government policymakers and local communities, and contributed to biodiversity conservation and improved catches. However, it is widely viewed as a program that overreached, was not properly coordinated, and did not meet the majority of its objectives as a result.
- Destructive Fishing Reform Program (DFRP): IMA and BFAR program to establish network of cyanide detection testing centers throughout the Philippines, and train collectors in sustainable techniques.
- Coastal Resources Management Program: \$19 million program funded from 1996 – 2001 to promote decentralized control and management of coastal resources in the Philippines (USAID-funded, DENR-implemented).

Indonesia

- COREMAP Program: The Coral Reef Rehabilitation and Management Program is a three-phase program dedicated to establishing a viable coral reef rehabilitation and management system. Phase 1 (approximately \$42.5 million) is nearing completion, as is the planning process for Phase 2. While the total amount of the COREMAP program is yet to be determined, it is clear that the entire effort will be funded with more than \$100 million through World Bank loans to the Government of Indonesia and grants from the GEF and others (e.g., JICA).
- Coastal Resources Management Program (*Proyek Pesisir*): Formed in 1997 and scheduled to operate through the end of 2003 (\$7.5 million total), the Indonesian Coastal Resources Management Program is part of the Natural Resources Management Program II, which is a partnership between USAID, the Government of Indonesia and the Coastal Resources Center of the University of Rhode Island. Its primary objective is to support the decentralization of coastal resources planning and management. The project is integrating the use of MPAs into its overall strategy.
- Coastal Community Development and Fisheries Resources: ADB loan from 1998 – 2003 (\$71 million). Project goal is to support coastal resources management and preservation and poverty eradication in coastal areas.

The overall baseline scenario in the Philippines and Indonesia is described below in terms of the 9 components of the MAMTI Project. It is important to note that the baselines shown are estimated without including any of the co-financing funds that the MAMTI project will catalyze. All MAMTI co-financing is assumed to be new funding that will be brought by the Partners or catalyzed throughout the industry value chain by the project itself.

1. Community Capacity Building – Ecosystem Management Plans: Investments have been made in the Philippines and Indonesia with respect to the decentralization of control over coastal resources. Particularly through the USAID-funded CRMP programs, community stakeholders have become much more involved in the management of local resources. These efforts, however, have not provided a full programmatic solution to link livelihoods in those areas with technical and financial capacity to implement fully certified ecosystem management plans that enhance both biodiversity and livelihoods. **Estimated Baseline: \$500,000**
2. Reef Health – MPAs, Reef Enhancement & Restoration: The most relevant baseline project related to reef enhancement and restoration is COREMAP. It is clear that there are synergies between COREMAP and MAMTI, particularly with respect to capacity building, microfinance and the promulgation of protected areas. To that end, the partners and the team implementing COREMAP have begun to discuss ways to leverage each other's efforts. COREMAP, however, will not address reef health with the specific goal of addressing the degradation of aquarium fisheries and their attendant reefs. **Estimated Baseline: \$1,000,000**
3. Assessment – Reef / Fish Monitoring to Inform Management: Once again, it is anticipated that there will be important linkages between COREMAP and MAMTI with respect to reef assessment and monitoring. However, this baseline effort will not employ the Reef Check protocol, which is critical to linking reef health data with the MAC Certification protocol and thereby producing actionable data that can be translated into collection area recommendations. **Estimated Baseline: \$1,000,000**
4. Collector Capacity Building for Certification: As mentioned, the Destructive Fishing Reform Program set out to address the need for certification of sustainable supply of aquarium fish through the establishment of cyanide detection testing centers. At present, however, the DFRP has not made a demonstrable impact relative to its stated goals, and momentum appears to be lacking. That being said, it is clear that in addition to the global benefits of capacity building for certification, national benefits such as enhanced local livelihoods will grow directly from MAMTI. **Estimated Baseline: \$750,000**
5. Collector Financial & Business Capacity for Sustainability: Microfinance is not a new concept in Indonesia and the Philippines. The Grameen Bank replication model is active in both countries, as are homegrown microcredit facilities. While the initial start-up costs of the collector cooperatives will be grant funded, the presence of these lenders provides an excellent foundation on which to build for purposes of funding future expansion of these cooperatives, as well as other village-based alternative livelihood opportunities. Microcredit in Indonesia and the Philippines has traditionally been directed towards the agricultural sector, but institutional capacity to meet the capital needs of small-scale village-level aquarium fishing cooperatives is expected to grow sufficiently over the project horizon. **Estimated Baseline: \$1,250,000**
6. Exporter, Importer, Retailer Certification Awareness: The certification of the entire aquarium fish value chain is unique to the MAC protocol, and while its benefits are largely global, the awareness of Indonesia and Philippines-based exporters will add national benefits related to improved local sustainable business practices. **Estimated Baseline: \$500,000**

7. Consumer Certification Awareness Building: Certain organizations such as IMA, WRI, TNC, the International Coral Reef Initiative and Action Network, the US Coral Reef Task Force, and others have brought the issue of cyanide fishing to the fore, and created a market for information that is invaluable in countering its devastating effects. To date, however, no certification system other than MAC's is operating in the market, and there have been no efforts (other than MAC's) to drive customer awareness through the provision of a method to purchase certified fish. In addition to the critical role that consumer certification awareness building will play in the overall reform of the industry, a limited baseline investment will result from those efforts. **Estimated Baseline: \$50,000**
8. Project Management, Coordination and Implementation: A substantial portion of the prospect for success of the MAMTI project relies on the ability to assemble a competent, passionate and experienced management team to implement the franchise model necessary to achieve the global benefits that derive from conservation of aquarium fish and their reef ecosystems. Fortunately, there are several local and international NGOs working in the Philippines and Indonesia whose skills and experience may be leveraged by the MAMTI project. Where appropriate, the MAMTI project will contract with such NGOs. **Estimated Baseline: \$1,500,000**
9. Performance Monitoring and Evaluation: At present, there are no systems or organizations on the ground with the capacity to provide the level of operational and financial monitoring and evaluation required for a project of this scope. The MAMTI project will therefore, through its relationships with local organizations with relevant technical expertise, catalyze moderate national benefits over and above the global benefits provided by a rigorous monitoring and evaluation program. **Estimated Baseline: \$500,000**

Under the baseline scenario, it is likely that projects in the Philippines and Indonesia will continue to focus on issues such as coastal resource management decentralization, municipal water quality, mangrove rehabilitation and aggregate maximum sustainable yield determination. While these types of projects will provide critical support to the environment of the Philippines and Indonesia, they will not ensure the long-term viability of reef ecosystems and fish stocks, and thereby will not catalyze large-scale global benefits because:

- Fisherfolk, who exert the most direct influence on reefs and their fish stocks, will not gain the technical and financial capacity at scale to adopt sustainable harvesting techniques;
- Capital sources will continue to favor large export operations, rather than village-level collectors, thereby missing the opportunity to catalyze the conservation and sustainable livelihood gains provided by access to a microfinance facility tailored to profitably meet the needs of local fisherfolk;
- Integration between exporter-led demand and the health of reefs and fish stocks will remain disjointed due to the lack of current investment in the infrastructure to effect such coordination; and
- The market will likely remain void of meaningful investments that fully integrate continuous monitoring of reef health, local technical capacity and financial flexibility at the community level to create an end-to-end management plan for community fisheries.

Global Environmental Objective

5.) The global environmental objective of the MAMTI project is to promote the health and sustainable use of vital reef ecosystems through the transformation of the aquarium fish industry, which will catalyze the national benefits of sustainable livelihoods and increased incomes, as well the global benefits of biodiversity conservation, species restoration and habitat preservation. 77% of Southeast Asia's reefs are

found within the waters of Indonesia and The Philippines. Given Southeast Asia's position of vast prominence relative to the world's reef ecosystems, *de facto* global benefits accrue directly from the success of the MAMTI project.

GEF Alternative

6.) With GEF support, the MAMTI project will provide national and global benefits based on the following project components:

1. Community Capacity Building – Ecosystem Management Plans: Through training sessions and the distribution of project materials, the GEF alternative will raise community awareness relative to the benefits of certification and integrated ecosystem management plans. Collection area plans will be developed and certification of those collection areas will be facilitated. **GEF Alternative: \$1,989,829**
2. Reef Health – MPAs, Reef Enhancement & Restoration: As part of the GEF alternative, no-take zones / Marine Protected Areas will be established to serve each collection area, and the enforcement capacity crucial to the success of these sanctuaries will be built. Reef enhancement and restoration programs for each specific collection area will also be developed. **GEF Alternative: \$1,744,915**
3. Assessment – Reef / Fish Monitoring to Inform Management: The GEF alternative will provide for ongoing coral reef monitoring, baseline resource assessments and related management recommendations for each of 75+ collection areas. **GEF Alternative: \$2,286,671**
4. Collector Capacity Building for Certification: Under the GEF alternative, more than 2,300 collectors will be trained in sustainable harvesting handling and transport techniques, and will become certified according to MAC guidelines. An appropriate number of training materials will be developed, translated into Bahasa Indonesia, Tagalog, Cebuano and other relevant languages, and distributed. **GEF Alternative: \$2,510,708**
5. Collector Financial & Business Capacity for Sustainability: The GEF alternative will build on baseline microfinance foundations by assessing cooperative-level capital needs for fisherfolk as well as other local livelihoods, developing an affiliated relationship with local MFIs, , and provide for the significantly improved livelihoods of collectors through the facilitation of a business model enhanced through improved pricing, payment timing and access to sustainable supply. **GEF Alternative: \$2,875,269**
6. Exporter, Importer, Retailer Certification Awareness: Through the GEF alternative, industry awareness of the need, availability and benefits of certification will be raised, and facilitation of MAC certification amongst the export, import and retail communities will be executed. Significant investments (>\$7.5 million) in infrastructure and personnel training will also be catalyzed. **GEF Alternative: \$9,792,549**
7. Consumer Certification Awareness Building: The GEF alternative will provide a funded and comprehensive plan to raise awareness amongst consumers of the necessity and benefits of MAC certification. **GEF Alternative: \$659,476**
8. Project Management, Coordination and Implementation: Under the GEF alternative, a professional organization will be developed, and a world-class project management and support framework will be created. The legal and policy context for developing site-level certification plans will be vetted, and site selection criteria will be chosen accordingly. Critically, a modular and replicable franchise business model will also be established and implemented through the development of substantially uniform village-level cooperatives. Furthermore, capacity for a reliable cyanide detection testing protocol will be developed in

order to provide crucial data points on the efficacy of sustainable efforts in the collection areas. **GEF Alternative: \$5,844,885**

9. Performance Monitoring and Evaluation: Through the GEF alternative, a monitoring and evaluation plan will be developed and one professional will be hired for the express purpose of carrying out the plan. MAMTI will also hire independent evaluators on a regular basis to provide a program-wide progress assessment. Accurate and transparent financial controls, auditing and reporting will also be enabled through the GEF alternative. **GEF Alternative: \$963,202**

7.) Implementation of the GEF alternative will secure effective and incremental long-term protection of the globally important biodiversity of marine ecosystems in the Philippines and Indonesia. The GEF alternative will catalyze both domestic and global benefits.

Domestic benefits include:

- Support and strengthening for local marine resource management plans at the village and municipality / regency level;
- More efficient coordination between local governments and local economies (e.g., local aquarium fish trade);
- Improved management and enforcement of protected areas;
- The provision of a powerful, direct linkage between biodiversity conservation and improved livelihoods / incomes; and
- Improved access to credit and banking services at the village and municipality / regency level.

Global benefits of the GEF alternative include:

- Intense and sustainable preservation of the most critical reef ecosystems in the world;
- The creation of a franchise model approach to biodiversity conservation, bringing private sector management tools to complex and scattered conservation challenges;
- The “spillover effect” attendant to the establishment of rigorously enforced MPAs and no-take zones; and
- The further integration of stakeholders of all strata into the singular cause for biodiversity conservation.

Incremental Costs

8.) The difference in cost between the baseline scenario and the GEF alternative is estimated to be \$21,617,502.

9.) GEF support for MAMTI project development through PDF-B financing has assisted in the development of substantial financial support for the incremental costs of the project. It is expected that the partners will be able to demonstrate co-financing (including grant and in-kind contributions) of \$6,924,137. It is also expected that the MAMTI project will catalyze \$8,073,597 of industry investment in infrastructure and personnel training. Taken together, these co-financing sources represent 2.3x leverage of GEF resources of \$6,619,767.

INCREMENTAL COST MATRIX

Component	Cost Category	Cost (US\$)	Domestic Benefit	Global Benefit
1: Building capacity of community stakeholders to develop and implement certified ecosystem management plans	Baseline	\$500,000	Supporting and strengthening local resource management infrastructure	Involving more stakeholders more deeply in the vital effort of biodiversity conservation
	GEF Alternative	\$1,989,829		
	Increment	\$1,489,829		
2: Ensuring the health of certified coral reef harvest areas through no-take zones, marine protected areas and reef enhancement or restoration	Baseline	\$1,000,000	Enhancing local fish stocks and marine livelihoods	Creating important biodiversity outcomes and spillover effects through effectively-managed protected areas
	GEF Alternative	\$1,744,915		
	Increment	\$744,915		
3: Ensuring scientific assessment and monitoring of coral reefs and marine ornamentals stocks, with results contributing to management	Baseline	\$1,000,000	Enabling more efficient aquarium fish business model to enhance fish stocks and marine livelihoods	Providing standardized data on important reef ecosystem baseline and ongoing health and creating a replicable conservation model
	GEF Alternative	\$2,286,671		
	Increment	\$1,286,671		
4: Building capacity of marine ornamentals collectors to become certified	Baseline	\$750,000	Enhancing local fish stocks, organizing local fisherfolk and enhancing pricing payment for aquarium fish trade	Catalyzing widespread adoption of MAC certification process
	GEF Alternative	\$2,510,708		
	Increment	\$1,760,708		
5: Ensuring collectors have sufficient financial resources to participate in a sustainable trade	Baseline	\$1,250,000	Enhancing local access to credit / banking and improving the efficiency and equity of the aquarium fish trade	Promoting “catch on demand” model that will limit unwanted taking of fish and contribute to reef ecosystem health
	GEF Alternative	\$2,875,269		
	Increment	\$1,625,269		

Annex 10: Incremental Cost Analysis

Component	Cost Category	Cost (US\$)	Domestic Benefit	Global Benefit
6: Creating awareness of, and demand for, MAC Certified marine aquarium organisms among exporters, importers, and retailers	Baseline	\$500,000	Improving the operations of important local and regional export businesses	Adding certified exporters, importers and retailers to the MAC roster, thereby catalyzing global reef health benefits
	GEF Alternative	\$9,792,549		
	Increment	\$9,292,549		
7: Creating awareness of, and demand for, MAC Certified marine aquarium organisms among consumers	Baseline	\$50,000	Building International support for dangers and inequities of status quo aquarium trade livelihoods in the Philippines and Indonesia	Building demand for certified, sustainably-caught aquarium species
	GEF Alternative	\$659,476		
	Increment	\$609,476		
8: Building project management, coordination and implementation capacity	Baseline	\$1,500,000	Provide substantial local employment opportunities and support for local NGOs	Developing and demonstrating replicable franchise approach to biodiversity conservation
	GEF Alternative	\$5,844,885		
	Increment	\$4,344,885		
9: Providing regular and rigorous evaluation of MAMTI's programmatic, financial and operational performance	Baseline	\$500,000	Improving the business model and thereby local livelihoods and incomes	Providing rigorous and transparent programmatic and financial monitoring and evaluation to international conservation investors currently underserved in this capacity
	GEF Alternative	\$963,202		
	Increment	\$463,202		
TOTAL				
	Baseline	\$7,050,000		
	GEF Alternative	\$28,667,502		
	Increment	\$21,617,502		

Annex 11: MAMTI Stakeholders Involved in Project Design

This annex lists the organizations and agencies with whom MAMTI Partners interact or have undertaken consultations during the development of the project, as well as a list of the multi-stakeholder MAC Board of Directors.

Indonesia Stakeholders

A. Government

National

- Ministry of Marine Affairs and Fisheries - Departmen Kelautan dan Perikanan (DKP)
- Ministry of Trade and Industry - Departmen Industri dan Perdagangan (Deperindag)
- State Ministry of the Environment - Kantor Menteri Negara Lingkungan Hidup (LH)
- CITES Scientific Authority and CITES Management Authority
- Indonesia National Science Institute - Lembaga Ilmu Pengetahuan Indonesia (LIPI)
- Member of President's National Maritime Council - Dewan Maritim
- Department of Foreign Affairs, Ambassador-at-large for Law of the Sea/Maritime Affairs
- Provincial Government of Bali Fisheries Division

Provincial and Local:

- Many provincial and local authorities and agencies in pilot areas

B. Non-Governmental Organizations

- WWF - Indonesia
- The Nature Conservancy - Indonesia
- Indonesia Ecolabeling Institute - Lembaga Ekolabel Indonesia (LEI)
- Yayasan Telapak Indonesia
- International Marinelife Alliance (IMA) - Indonesia
- Wahana Lingkungan Hidup Indonesia (Walhi)
- Kehati - Indonesia Biodiversity Foundation
- Yayasan Terumbu Karang Indonesia (Terangi)
- Bogor Agricultural University, Center for Environmental Studies - Institut Pertanian Bogor (IPB), Pusat Studi Lingkungan
- Hasanuddin University, Center for Coral Reef Studies - Universitas Hasanuddin (Unhas), Pusat Studi Terumbu Karang
- Local groups in pilot areas

C. Marine Aquarium Industry (including collectors)

- Many individual collectors, collection groups and export companies
- Indonesia Coral Shell and Ornamental Fish Association - Asosiasi Koral, Kerang, dan Ikan Hias Indonesia (AKKII)
- Bali Ornamental Fish Association

D. Certification Companies and Other Industry

- PT Succofindo International
- Indonesian Chamber of Commerce
- Total Indonesia
- International Joint Venture Oil Corporation

E. International Organizations/Programs in Indonesia

- World Bank

- Coral Reef Rehabilitation and Management Program (COREMAP)

Philippines Stakeholders

A. Government

National:

- Department of Agriculture
- Bureau of Fisheries and Aquatic Resources (BFAR)
- Palawan Council for Sustainable Development (PCSD)
- Environment Management Bureau (EMB)
- Coastal Resource Management Program (CRMP)
- Fishery Resource Management Program (FRMP)
- National Fishery and Aquatic Resource Management Council (NFARMC)
- Philippine National Police Maritime Command (PNP-Maritime)
- Philippine Fisheries Development Authority (PFDA)
- Philippine Coast Guard

Provincial and Local:

- Many provincial and local authorities and agencies in areas that are certified or actively seeking certification

B. Non-Governmental Organizations

- International Marinelife Alliance -Philippines
- WWF Philippines (KKP)
- Environmental Legal Action Center (ELAC)
- Bantay-Dagat (groups carrying out community-based protection of coastal resources)
- PAMARCON
- Bantay-Kalikasan Foundation
- Coastal Conservation and Education Foundation, Inc.
- National Fish Wardens Association (NFWA)
- Save our Seas (SOS)
- Earthsavers Movement
- Haribon Foundation
- University of the Philippines
- University of Mindanao
- Many local groups in areas that are certified or actively seeking certification

C. Marine Aquarium Industry (including collectors)

- Many individual collectors, collection groups and export companies
- Aquarium Fish Collectors Cooperatives/Associations in 18 collection sites
- PTFEA
- Independent exporters

D. Certification Companies and Other Industry

- SGS-Philippines
- Lloyds Quality Assurance
- Henderson International

E. International Organizations/Programs

- German Technical Assistance Program (GTZ)
- United Nations Environment Program (UNEP)

Annex 11: MAMTI Stakeholders Involved in Project Design

- Australian Agency for International Development (AUSAID)
- Dutch Embassy
- Swedish Embassy

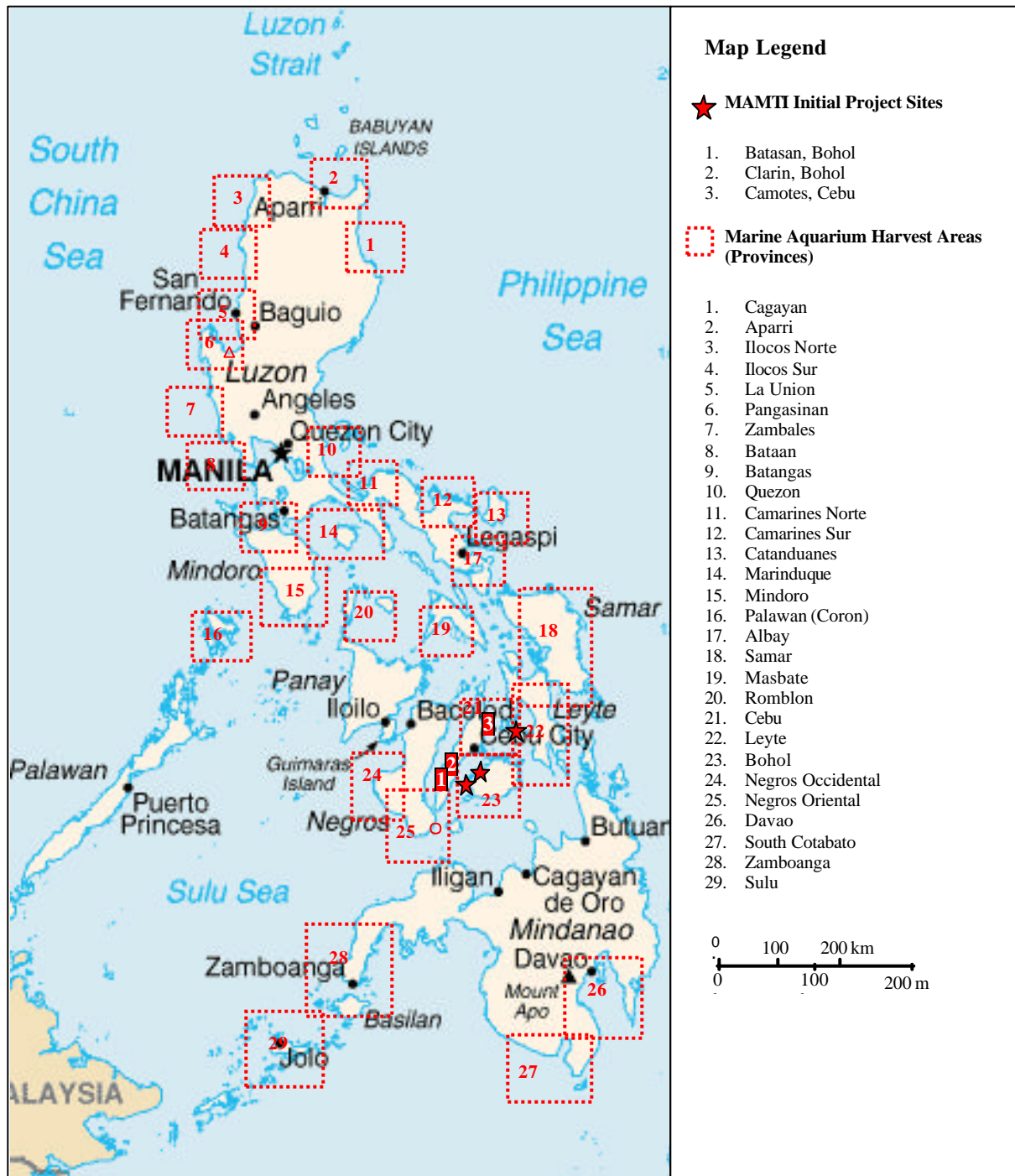
F. Media Organizations/Development Communicators

- National Press Club (NPC)
- Philippine Agricultural Journalists
- National Union

Marine Aquarium Council Board of Directors (in 2003)

- John Brandt; Board Member, Marine Aquarium Societies of North America [Hobbyist Association]
- Bruce Bunting; Vice President, Conservation Finance, World Wildlife Fund-US [International Conservation Organization] {Chair of MAC Board}
- Keith Davenport; Executive Director, Ornamental Aquatic Trade Association (OATA) [Industry/Trade Association]
- John Dawes; Secretary General, Ornamental Fish International (OFI) [Industry/Trade Association]
- Randall Goodlett; President, American Marinelife Dealers Association (AMDA) [Industry/Trade Association - Retail]
- Rex Horoi; Executive Director, Foundations of the Peoples of the South Pacific (FSPI) [International Conservation Organization]
- Marshall Meyers; Executive Director, Pet Industry Joint Advisory Council (PIJAC) [Industry/Trade Association]
- Joke Prawns; Chairman, Asosiasi Koral Kerang dan Ikan Hias Indonesia (AKKII) Indonesia Coral, Shell and Ornamental Fish Association (INSOFAR) [Industry/Trade Association - Export]
- Johannes Sibilant; Marine Policy Advisor, The Nature Conservancy - Indonesia Program [International Conservation Organization]
- Ms Lolita Tee; President, Philippine Tropical Fish Export Association [Industry/Trade Association - Export]
- Doug War molts; Assistant Director of Living Collections, Columbus Zoo and Aquarium/American Zoo and Aquarium Association (AZA) [Public Aquarium Association]
- Dradjad Wibowo; Executive Director, Indonesia Ecolabeling Institute-Lembaga Ekolabel Indonesia (LEI) [Environment/Sustainability Certification Organization]

Annex 12: Map: Philippines Marine Aquarium Trade and Initial Project Sites



Annex 13: Map: Indonesia Marine Aquarium Trade and Initial Project Sites

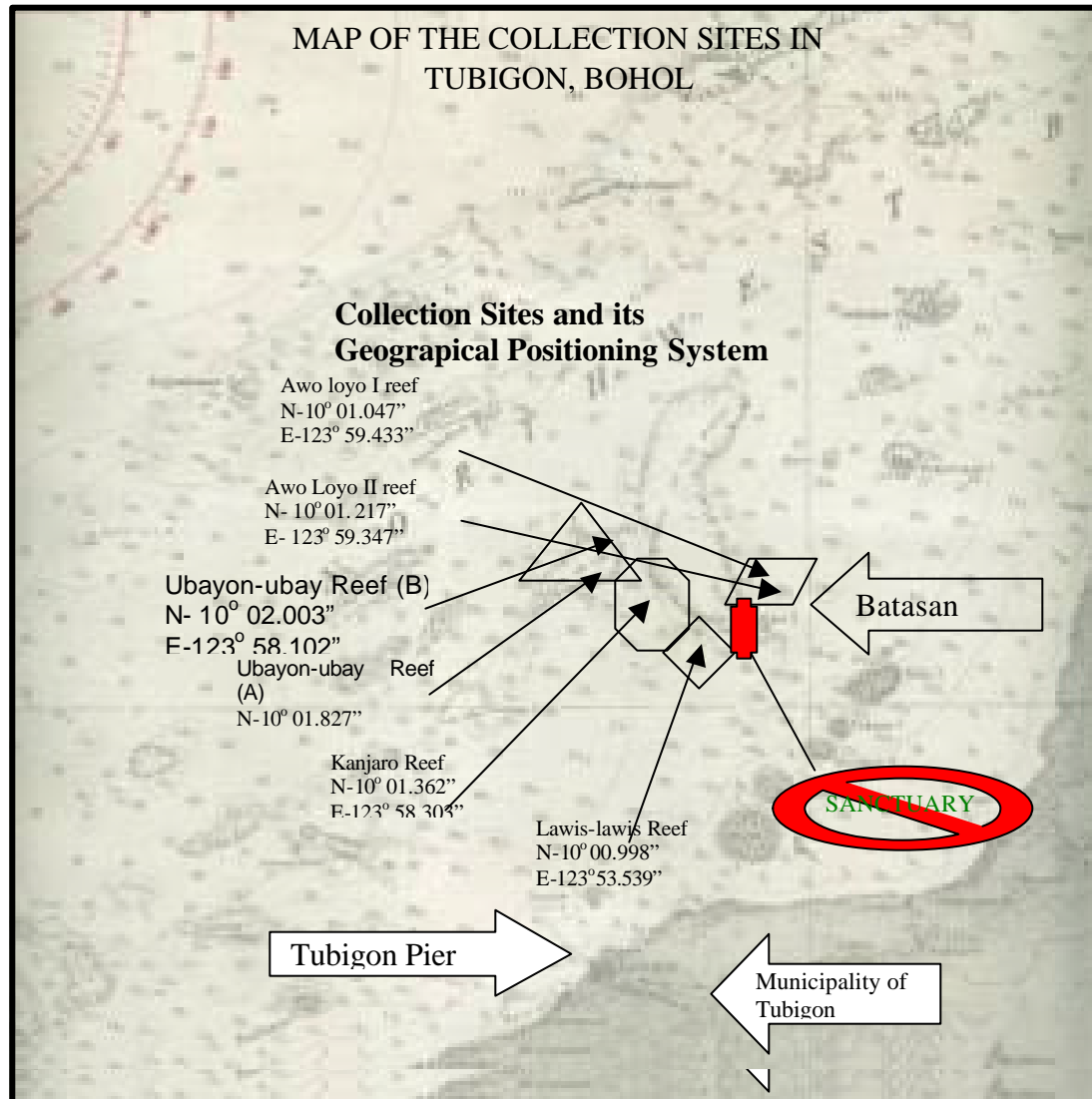


Annex 14: Year 1 Sites: Philippines and Indonesia

Philippines

1. Batasan, Tubigon, Bohol

1. Map:



2. General Description

Batasan is one of the island barangay in the municipality of Tubigon, province of Bohol. It is situated 54 kms northeast of the provincial capital, Tagbilaran City and 21 nautical miles almost directly south of Cebu City. Tubigon lies at the heart of Central Visayas, one of the richest and most diverse fishing grounds in the region.

3. Weather

Climate:	Type IV (no definite wet and dry season)
Temperature (average):	28 degrees C
Wind Direction	
- Northeast Monsoon	3-4 knots December-August
- Southwest Monsoon	strong in the months of Aug-September

4. Summary description of reef/fish; area, type, depth, status

Coral reefs are composed mainly of extensive fringing reefs along the main coastline and on the outer edges of the many islands. A recent assessment of the coral cover of the municipal waters had classified it as poor to fair with some areas classified fair to good. Seagrass abounds on the shores and coastal mud flats of Tubigon and on the coastal areas around its offshore islands.

Fish collected in Batasan	
Blue Face Angel fish	<i>Euxhiphops xanthometapon</i>
Blue Koran Angel fish	<i>Pomacanthus semicirculatus</i>
Emperor Angel fish	<i>Pomacanthus imperator</i>
Majestic Angel fish	<i>Euxhiphops navarchus</i>
Six bar Angel fish	<i>Pomacanthus sextriatus</i>
Stripe Koran Angel	<i>Pomacanthus semicirculatus</i>
Pinnatus Batfish	<i>Platax pinnatus</i>
Orbie Bat fish	<i>Platax orbioculares</i>
Tiera Longfin fish	<i>Platax teira</i>
Bennette's Butterfly fish	<i>Chaetodon bennetti</i>
Chelmon Butterfly fish	<i>Chelmon rostratus</i>
Red Checkerd Butterfly fish	<i>Chaetodon xanthurus</i>
Lunula Butterfly fish	<i>Chaetodon lunula</i>
Saddle Back Butterfly fish	<i>Chaetodon ephippium</i>
Vagabundus Butterfly fish	<i>Chaetodon vagabundus</i>
Rafflesi Butterfly fish	<i>Chaetodon rafflessi</i>
Falcula Butterfly fish	<i>Chaetodon falcula</i>
Eight Banded Butterfly fish	<i>Chaetodon octofasciatus</i>
Oval spot Butterfly fish	<i>Chaetodon speculum</i>
Tear drops Butterfly fish	<i>Chaetodon unimaculatus</i>
Pardis/ Brown Heniochus	<i>Heniochus chrysostomus</i>
African Clown fish	<i>Amphiprion clarkii</i>
Maroon clown fish	<i>Premnas biaculeatus</i>
Orange skunk clown fish	<i>Amphiprion sandaracinos</i>
Pink skunk clown	<i>Amphiprion perideraion</i>
False Percula clown fish	<i>Amphiprion ocellaris</i>
Saddle back Clown fish	<i>Amphiprion polymnus</i>
Egg shark	
Tomato Clown fish	<i>Amphiprion frenatus</i>
Half Black damsel fish	
Domino damsel fish	<i>Dascyllus trimaculatus</i>
Green eel	<i>Gymnothorax funebris</i>

Annex 14: Year 1 Sites: Philippines and Indonesia

Orange spot file fish	<i>Oxymonacanthus longirostris</i>
Green Mandarin	<i>Synchiropus splendidus</i>
Panther Grouper fish	<i>Cromileptis altivelis</i>
Spotted Grunt fish	<i>Plectorhinchus chaetodonoides</i>
Stripe sweet lips	<i>Plectorhinchus lineatus</i>
Zebra lion fish	<i>Dendrochirus zebra</i>
Black Peacock fish	<i>Pterois volitans</i>
Pilot fish	<i>Gnatodon speciosus</i>
Dwarf lion fish	<i>Scorpaena elachys</i>
Red/Brown Peacock	<i>Pterois volitans</i>
Radiata Lion fish	<i>Pterois antennata</i>
Stone Fish	<i>Antennarius sp.</i>
Fox Fish	<i>Bodianus frenchii</i>
Box Fish	<i>Ostracion sp.</i>
Cow Fish	<i>Lactoria cornuta</i>
Banded shark	<i>Chiloscyllium plagiosum</i>
Remora shark	<i>Echeneis sp.</i>
Hi-fin Snapper	<i>Symphoricarthus spilurus</i>
Assorted Angler	
Dusky Wrasse	<i>Halichoeres marginatus</i>
Bursa trigger fish	<i>Rhinecanthus verrocus</i>
Eight lined Wrasse	<i>Pseudocheilinus hexataenia</i>
Banner Wrasse	<i>Hemigymnus melapterus</i>
Green wrasse	<i>Halichoeres chloropterus</i>
Leopard Wrasse	<i>Macropharyngodon cyanoguttatus</i>
Red wrasse	<i>Coris gaimard</i>
Blue streak cleaner Wrasse	<i>Labroides dimidiatus</i>
Seahorse	

5. Summary description of fishery

- Number of collectors/village: 31 certified collectors in Batasan
- Number of middlemen: 1 collectors' coordinator
- Types of fishery: food fish collection, tropical fish collection, shell collection, aquaculture, and mariculture.
- Location of fishery/timing: Fishing is done within the perimeter of the barangay, aquaculture and mariculture done in the neighboring barangays.
- Main species traded: mandarin and maroon clown
- Other collection areas where collectors go to: Tropical fish collection is done only within the area.
- Transportation time to export facility: 2-3 hours to Cebu exporters, 4-5 hours to Manila exporters.

6. State of progress towards sustainable fishery:

The stakeholders of the Batasan Island Marine Ornamental Collection Area (BIMOCA), namely:

- Batasan Island Fisherfolk – food and ornamental fish collectors,
- Batasan Island Barangay Council,
- Batasan Island BFARMC,

- Batasan Island Youth Organization,
- Municipal Government of Tubigon,
- Municipal Agricultural Officer (Tubigon),
- NGOs;

have responded to the call for sustainable utilization and efficient management of their marine resources by making a Collection Area Management Plan (CAMP). Their primordial goal: help ensure that marine ornamental collection becomes a steady and reliable source of livelihood.

The marine fish collectors are now bound to monitor their rank, use only non-destructive fishing methods and gear, and will collect only ordered species and within the maximum number of fish specified by the CAMP.

7. State of trade

- Boxes/year: 320 export boxes per year
- Facility description: there is an on-site sea-pen holding facility
- Exporters: Aquarium Habitat, HD Marineworld, Aquascapes, AquaEx
- Price information and trend: MAC certified exporters buys fishes from the area at a higher price.
- The need of external financing: big motorized banca, big holding pen

8. Administrative context

The collection area falls under the jurisdiction of the Municipality of Tubigon in the Province of Bohol. Its use utilization, management, protection and conservation, taken as a whole, is guided by Tubigon's Coastal Resource Management (CRM) Plan. The five year plan, finalized in year 2000, is being implemented by the municipal government, the provincial government of Bohol, national agencies like the Department of Agriculture/Bureau of Fisheries and Aquatic Resources, the Department of Environment and Natural Resources, the Philippine National Police, the Coast Guard as well as Non-government Organizations and People's Organizations.

2. Tangaran, Clarin, Bohol

1. Map:



2. General Description

Clarin is a coastal municipality situated on the northwest part of the Province of Bohol. It is 61 kilometers away from the capital city of Tagbilaran. It has 24 barangays, seven (7) of which are located in coastal areas. One of these coastal barangays is Tangaran.

3. Weather

Climate:	Type IV (rainfall is more or less evenly distributed throughout the year)
Temperature (average):	Coollest month is January with an average temperature of 26.81 Degree centigrade. Hottest month with an average temperature of 29.31 degree centigrade
Wind Direction	
- Northeast Monsoon	3-4 knots December-August
- Southwest Monsoon	strong in the months of Aug-September

4. Summary description of reef/fish; area, type, depth, status

Coral reefs are composed mainly of extensive fringing reefs along the main coastline and on the outer edges of the island and mangrove areas are distributed throughout the coastline

A sizeable area of Tangaran's natural growth mangroves has been converted into fishponds or illegally cut for firewood or building materials. The corals have also been damaged by illegal fishing methods. The sea grass beds along the coast are quite intact but are also threatened by siltation especially along and near river estuaries.

The following marine ornamentals are collected within our collection area.

Ornamental fishes found and collected in Tangaran, Clarin, Bohol

Common Name	Scientific Name
Blue Face Angel fish	<i>Euxhiphops xanthometapon</i>
Blue Koran Angel fish	<i>Pomacanthus semicirculatus</i>
Majestic Angel fish	<i>Euxhiphops navarchus</i>
Queen Angel	<i>Chaetodontoplus mesoleucus</i>
Six-barred Angel fish	<i>Pomacanthus sextriatus</i>
Stripe Koran Angel	<i>Pomacanthus semicirculatus</i>
Pinnatus Batfish	<i>Platax pinnatus</i>
Orbie Batfish	<i>Platax orbiculares</i>
Tiera Batfish	<i>Platax teira</i>
Auriga Butterfly	<i>Chaetodon auriga</i>
Baroness Butterfly	<i>Chaetodon baronessa</i>
Black badk Butterfly	<i>Chaetodon melannotus</i>
Bennett's Butterfly fish	<i>Chaetodon bennetti</i>
Checkerd Butterfly fish	<i>Chaetodon xanthurus</i>
Chelmon Butterfly fish	<i>Chelmon rostratus</i>
Lunula Butterfly fish	<i>Chaetodon lunula</i>
Orna Butterfly fish	<i>Chaetodon ornatissimus</i>
Oval spot Butterfly fish	<i>Chaetodon speculum</i>
Rafflesi Butterfly fish	<i>Chaetodon rafflessi</i>
Saddle Back Butterfly fish	<i>Chaetodon ephippium</i>
Vagabundus Butterfly fish	<i>Chaetodon vagabundus</i>
African Clown fish	<i>Amphiprion clarkii</i>
Maroon clown fish	<i>Premnas biaculeatus</i>
Percula clown fish	<i>Amphiprion ocellaris</i>
Pink skunk clown	<i>Amphiprion perideraion</i>
Saddle back Clown fish	<i>Amphiprion polymnus</i>
Tomato Clown fish	<i>Amphiprion frenatus</i>
Domino damsel fish	<i>Dascyllus trimaculatus</i>
Green Chromis	<i>Chromis viridis</i>
Neon Damsel	<i>Pomacentrus coelestis</i>
Blue Goby	
Green Mandarin	<i>Synchiropus splendidus</i>
Panther Grouper fish	<i>Cromileptis altivelis</i>
Spotted Grunt fish	<i>Plectorhinchus chaetodonoides</i>
Stripe sweet lips	<i>Plectorhinchus lineatus</i>
Antennata Lionfish	<i>Pterois antennata</i>
Dwarf lion fish	<i>Scorpaena elachys</i>

Black Peacock Lionfish	<i>Pterois volitans</i>
Red/Brown Peacock Lionfish	<i>Pterois volitans</i>
Zebra lion fish	<i>Dendrochirus zebra</i>
Banded shark	<i>Chiloscyllium plagiosum</i>
Remora shark	<i>Echeneis sp.</i>
Banded Wrasse	
Banner Wrasse	<i>Hemigymnus melapterus</i>
Blue streak cleaner Wrasse	<i>Labroides dimidiatus</i>
Eight lined Wrasse	<i>Pseudocheilinus hexataenia</i>
Assorted Angler	<i>Antennarius sp.</i>
Banded Pipefish	<i>Doryrhamphus dactyliophorous</i>
Dogface Puffer	<i>Arothron nigropunctatus</i>
Goatfish	<i>Parupeneus sp.</i>
Green eel	<i>Gymnothorax funebris</i>
Pilot fish	<i>Gnatodon speciosus</i>
Seahorse	
Squirrel	
Yellow Seahorse	<i>Hippocampus kuda</i>
Anemone	
Banded Shrimp	
Banded Cleaner Shrimp	<i>Stenopus hispidus</i>

5. Summary description of fishery

- Number of collectors/village: there are 30 MAC certified collectors in Tangaran.
- Number of middlemen: One (1) collectors coordinator
- Types of fishery: food fish collection, tropical fish collection, shell collection, and aquaculture.
- Location of fishery/timing: within the vicinity. Usually, tropical fish collection is 3-4hours/day.
- Main species traded: green mandarin, maroon clown, chelmon butterfly, panther grouper
- Other collection areas where collectors go to: none
- Transportation time to export facility: 3-4 hours for Cebu exporters, 4-5hours for Manila exporters

6. State of progress towards sustainable fishery

Since the mid- 1990s, a number of initiatives have been put in place to make the sustainable management of the resource possible. This includes the establishment of a marine sanctuary in Tangaran. Also worth mentioning are laudable projects such as Bantay Dagat patrols, Artificial Reefs, Shell Garden and Mangrove Reforestation Projects. To date, the formation of the Collection Area Management Plan (CAMP) represents the first concrete attempt to put in place a formal management plan with a matching organizational structure for implementation. For the tropical fish collectors, having MAC certified exporters as ready customers for net-caught fishes enabled them to shun destructive fishing methods.

7. State of trade

- Boxes/year: 96 collectors' boxes per year

Annex 14: Year 1 Sites: Philippines and Indonesia

- Facility description: there is an on-site sea-pen holding facility
- Exporters: Aquarium Habitat, HD Marineworld, Aquascapes
- Price information and trend: Tangaran receives higher payment for their fishes from MAC certified exporters compared to those non-certified collectors.
- The need of external financing: big motorized banca, big holding pen

8. Administrative context

Tangaran collection area falls under the jurisdiction of the Municipality of Clarin in the Province of Bohol. Its utilization, management, protection and conservation, taken as a whole, is guided by Clarin's five-year Coastal Resource Management (CRM) Plan which was finalized in 2001. Apart from the municipal government, the other government bodies/ institutions that have authority over the collection area are the provincial government of Bohol, the Department of Agriculture, the Bureau of Fisheries and Aquatic Resources, the Department of Environment and Natural Resources, the Philippine National Police, the Coast Guard and the Philippine National Police Maritime Command.

Ornamental Fish Collected in San Francisco

Angel Fish	Scientific Name
Coral Beauty Angel	<i>Centropyge bispinosus</i>
Emperor (Imperator) Angel	<i>Pomacanthus imperator</i>
Half Black Angel	<i>Centropyge vroliki</i>
Keyhole (Melas) Angel	<i>Centropyge tibicen</i>
Lamark Angel	<i>Genicanthus lamarli</i>
Majestic Angel	<i>Euxophipops navarchus</i>
Midnight Angel	<i>Centropyge nox</i>
Oriole Angel	<i>Centropyge bicolor</i>
Queen Angel	<i>Chaetodontoplus mesleucus</i>
Regal Angel	<i>Pygoplites diacanthus</i>
File Fish	
Red Tail File Fish	<i>Pervagor melanocephalus</i>
Orange Spot File Fish	<i>Oxymonacanthus longirostris</i>
Clown Fish	
African Clown Fish	<i>Amphiprion clarkii</i>
Percula Clown	<i>Amphiprion ocellaris</i>
Saddle Back Clown	<i>Amphiprion polymnus</i>
Tomato Clown	<i>Amphiprion frenatus</i>
Pink Skun Clown	<i>Amphiprion perideraion</i>
Tang	
Sailfin Tang	<i>Zebrasoma veliferum</i>
Shoulder Tang	<i>Acanthurus olivaceus</i>
Lipstick Tang	<i>Naso lituratus</i>
Brown Tang	<i>Zebrasoma scopas</i>
Hawkfish	
Arc Eye Hawkfish	<i>Paracirrhites arcatus</i>
Longnose Hawkfish	<i>Oxycirrhites typus</i>
Ordinary Hawkfish	
Spotted Hawkfish	<i>Cirrhitichthys aprinus</i>
Butterfly	
Vagabundus Butterfly	<i>Chaetodon vagabundus</i>
Raflessi Butterfly	<i>Chaetodon rafflesi</i>
Red Checkered Butt	<i>Chaetodon xanturus</i>
Blenny	
Scooter Blenny	<i>Neosynchiropus ocellatus</i>
Striped Blenny	
Wrasse	
Comet Wrasse	
Red Coris Wrasse	<i>Coris gaimard</i>
Rainbow Wrasse	<i>Laboides dimidiatus</i>
Yellow Wrasse	<i>Halichoeres chrysus</i>
Lion Fish	
Antennata Lion Fish	<i>Pterois antennata</i>
Black Peacock Lion Fish	<i>Scorpaena elachys</i>
Dwarf Lion Fish	<i>Pterois volitans</i>
Goby/Blenny	
Green Mandarin	

Salarias Goby	Salarias sp.
Grouper	
Blue Line Grouper	
Ordinary Grouper	
Panther Grouper	Cromileptes altivelis
Yellow Grouper	
Anthias	
Yellow Anthias	
Purple Queen Anthias	Mirolabrichthys tuka
Damsels and Chromis	
Green Chromis	Chromis viridis
Sgt. Major Damsel	<i>Abudefduf saxatilis</i>
Others	
Orange Skunk Shrimp	Lysmata amboinensis
Fox Face	Siganus vulpinus
Coral Hog Fish	Bodianus mesothorax
Spotted Grunt	<i>Plectorhinchus chaetodonoides</i>
Malcolor Snapper	<i>Malcolor niger</i>
Diana Hog Fish	Bodianus Diana
Queen Trigger	Odonus niger
Clown Trigger	Balistoides conspicillum
Black and White Heniochus	Heniochus acuminatus
Stone Fish	
Porcupine	Diodon sp.
Banded Shrimp	Stenopus hispidus
Pilot Fish	Gnathanodon speciosus
Cardinal Fish	Sphaeramia sp.
Box Fish	Ostracion sp.

5. Summary description of fishery

- Number of collectors/village: MAC trained collectors – 16 in Poblacion, 1 in Northern Poblacion, 3 in Santiago, 10 in Himensulan.
- Number of middlemen: 3 barangay coordinators, 1 municipal coordinator
- Types of fishery: food fish collection, tropical fish collection, shell collection, seaweed farming, siganid/grouper culture, tilapia culture (in Lake Danao only- a 680 has. lake in San Francisco)
- Location of fishery/timing: within the municipal waters only
- Main species traded: African clown, pink skunk clown, bleeker's hawkfish, majestic angel, coral beauty
- Other collection areas where collectors go to: none
- Transportation time to export facility: 4-6 to Cebu facilities, 6-8 to Manila facilities

6. State of progress towards sustainable fishery:

The local government unit of San Francisco is making move to protect and rehabilitate their marine resources with the help of various non-government organizations and national agencies like the DENR and DA-BFAR.

Annex 14: Year 1 Sites: Philippines and Indonesia

- To date, there are 104 modules of box-type concrete artificial reefs and a more than 100 hectares of mangrove reforestation project made and conducted in the different coastal barangays.
- A sanctuary is being protected in one barangay.
- Fish wardens are active in apprehending illegal fishermen (users of dynamite, poachers from other municipalities using cyanide).
- In the aquarium trade, MAC trained collectors use nets only and some of them are active fish wardens.

7. State of trade

- Boxes/year: 320 export boxes per year
- Facility description: there are several on-site sea-pen holding facilities
- Exporters: Aquarium Habitat, AquaEx, Seascapes, HD Marine, CMQMAF
- Price information and trend: Price the non-certified collectors of Camotes get for their fish is lower than that being received by the certified collectors in Batasan and Tangaran, Clarin
- The need of external financing: big motorized banca, big holding pen

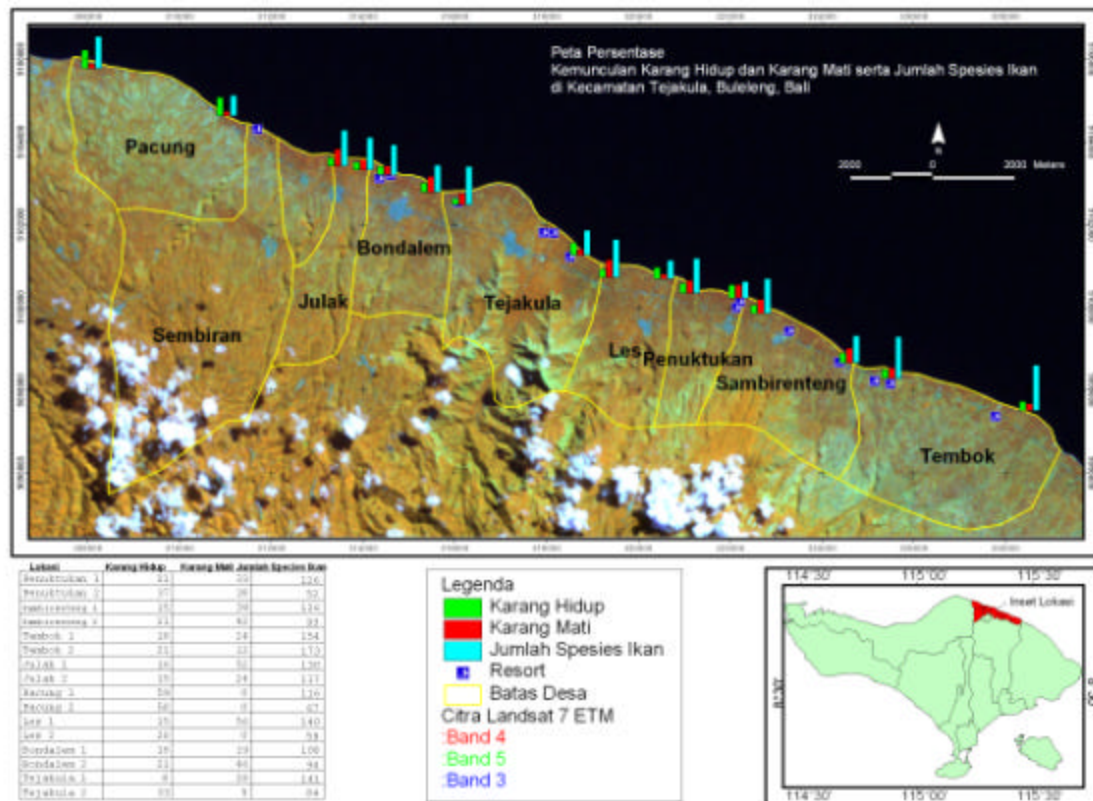
8. Administrative context

The collection area falls where MAC trained collectors operate is under the jurisdiction of the local government of San Francisco and the national government institutions who have direct administrative role regarding coastal resources and policing the sea (e.g. DENR, DA-BFAR, PNP Maritime Command)

Indonesia

1. District (Kecamatan) of Tejakula, Regency of Buleleng

1. Map:



2. General Description

The population of Tejakula is 53,656 (data from year 2000). There are 9 villages within the District of Tejakula.

3. Weather

Coastal and lowland areas receive rainfall between 1000-1750 mm/year. Rainfall in mountain range is around 2750/year. Dry season is from May to October, with the highest temperature reaches 29 C.

4. Summary description of reef/fish; area, type, depth, status

Sloping terrain with patches of reefs at 5-30 meters of depth.

Ornamental Fish Collected in Tejakula

Annex 14: Year 1 Sites: Philippines and Indonesia

ACANTHURIDAE	<i>Bodianus diana</i>	<i>Amblyglyphidodon leucogaster</i>
<i>Acanthurus dussumieri</i>	<i>Bodianus diana</i>	<i>Amblyglyphidodon ternatensis</i>
<i>Acanthurus lineatus</i>	<i>Bodianus mesothorax</i>	<i>Chromis analis</i>
<i>Acanthurus nigricans</i>	<i>Cheilinus trilobatus</i>	<i>Chromis atripectoralis</i>
<i>Acanthurus pyroferum</i>	<i>Cheilinus chlorurus</i>	<i>Chromis lepidolepis</i>
<i>Acanthurus thompsoni</i>	<i>Cheilinus diagrammus</i>	<i>Chromis viridis</i>
<i>Acanthurus tominiensi</i>	<i>Cirrhilabrus cyanopleura</i>	<i>Chromis margaritifer</i>
<i>Ctenochaetus striatus</i>	<i>Cirrhilabrus exquisitus</i>	<i>Chromis weberi</i>
<i>Naso hexacanthus</i>	<i>Cirrhilabrus ryukyuensis</i>	<i>Chromis ternatensis</i>
<i>Zembrasoma scopas</i>	<i>Coris gaimard</i>	<i>Chromis xanthura</i>
<i>Zembrasoma veliferum</i>	<i>Diproctacanthus xanthurus</i>	<i>Chrysiptera notialis</i>
AULOSTOMIDAE	<i>Gomphosus varius</i>	<i>Chrysiptera parasema</i>
<i>Aulostomus chinensis</i>	<i>Halichoeres argus</i>	<i>Chrysiptera rollandi</i>
BALISTIDAE	<i>Halichoeres chrysus</i>	<i>Chrysiptera talboti</i>
<i>Balistapus undulatus</i>	<i>Halichoeres hortulanus</i>	<i>Dascyllus reticulatus</i>
<i>Sufflamen bursa</i>	<i>Halichoeres marginatus</i>	<i>Dascyllus trimaculatus</i>
<i>Sufflamen chrysopterus</i>	<i>Halichoeres melanurus</i>	<i>Dascylus aruanus</i>
<i>Odonus niger</i>	<i>Halichoeres prosopeion</i>	<i>Dascylus melanurus</i>
<i>Melichthys vidua</i>	<i>Halichoeres scapularis</i>	<i>Dascylus trimaculatus</i>
<i>Pseudobalistes fuscus</i>	<i>Halichoeres vrolikii</i>	<i>Lepidozygus tapeinosoma</i>
BLENNIIDAE	<i>hemigymnus fasciatus</i>	<i>Neoglyphidodon melas</i>
<i>Aspidontus dussumieri</i>	<i>Labrichthys unilineatus</i>	<i>Neopomacentrus azyron</i>
<i>Meiacanthus atrodorsalis</i>	<i>Labroides bicolor</i>	<i>Neopomacentrus cyanomos</i>
<i>Meiacanthus grammistes</i>	<i>Labroides dimidiatus</i>	<i>Plectroglyphidodon dickii</i>
CARANGIDAE	<i>Labroides pectoralis</i>	<i>Plectroglyphidodon lacrymatus</i>
<i>Caranx ferdau</i>	<i>Novaculichthys taeniurus</i>	<i>Pomacentrus amboinensis</i>
<i>caranx melampygus</i>	<i>Pseudocoris yamashiroi</i>	<i>Pomacentrus bankanensis</i>
CAESIONIDAE	<i>Stethojulis bandanensis</i>	<i>Pomacentrus brachialis</i>
<i>Caesio teres</i>	<i>Stethojulis strigiventer</i>	<i>Pomacentrus chrysurus</i>
<i>Caesio xanthura</i>	<i>Thalassoma amblycephalum</i>	<i>Pomacentrus coelestis</i>
<i>Pterocaesio tile</i>	<i>Thalassoma hardwicke</i>	<i>Pomacentrus lepidogenys</i>
<i>Pterocaesio diagramma</i>	<i>Thalassoma janseni</i>	<i>Pomacentrus moluccensis</i>
<i>Pterocaesio pisang</i>	<i>Thalassoma lunare</i>	<i>Pomacentrus nigromanus</i>
<i>Pterocaesio tile</i>	<i>Thalassoma lutescens</i>	<i>Pomacentrus philippinus</i>
<i>Pterocaesio trilineata</i>	LETHRINIDAE	<i>Pomacentrus sp</i>
CHAETODONTIDAE	<i>Monotaxis grandoculus</i>	<i>Stegastes fascilo</i>
<i>Chaetodon adiergastos</i>	LUTJANIDAE	PSEUDOCHROMIDAE
<i>Chaetodon baronessa</i>	<i>Lutjanus decussatus</i>	<i>Pseudochromis splendens</i>
<i>Chaetodon bennetti</i>	<i>Lutjanus fulvus</i>	SCARIDAE
<i>Chaetodon citrinellus</i>	<i>Lutjanus kasmira</i>	<i>Scarus bleekeri</i>
<i>Chaetodon decussatus</i>	<i>Lutjanus rivulatus</i>	<i>Scarus dimidiatus</i>
<i>Chaetodon kleini</i>	MALACANTHIDAE	<i>Scarus niger</i>
<i>Chaetodon lineolatus</i>	<i>Malacanthus brevirostris</i>	<i>Scarus bicolor</i>

<i>Chaetodon melannotus</i>	MICRODESMIDAE	<i>Scarus bleekeri</i>
<i>Chaetodon meyeri</i>	<i>Nemateleotris magnifica</i>	<i>Scarus sordidus</i>
<i>Chaetodon ocellicaudus</i>	<i>Ptereleotris evides</i>	SERRANIDAE
<i>Chaetodon ornatissimus</i>	MULLIDAE	<i>Cephalopholis urodeta</i>
<i>Chaetodon punctatofasciatus</i>	<i>Mulloidichthys vanicolensis</i>	<i>Grammistes sexlineatus</i>
<i>Chaetodon rafflesi</i>	<i>Parupeneus barbarinus</i>	<i>Pseudanthias huchtii</i>
<i>Chaetodon semeion</i>	<i>Parupeneus bifasciatus</i>	<i>Pseudanthias squamipinnis</i>
<i>Chaetodon speculum</i>	<i>Parupeneus cyclostomus</i>	<i>Pseudanthias tuka</i>
<i>Chaetodon trifascialis</i>	<i>Parupeneus indicus</i>	<i>Pseudanthias dispar</i>
<i>Chaetodon trifasciatus</i>	<i>Parupeneus macronema</i>	<i>Pseudanthias lori</i>
<i>Chaetodon vagabundus</i>	<i>Parupeneus multifasciatus</i>	<i>Cephalopholis argus</i>
<i>Coradion melanopus</i>	NEMIPTERIDAE	<i>Cephalopholis cyanostigma</i>
<i>Heniochus accuminatus</i>	<i>Scolopsis ciliata</i>	<i>Cephalopholis miniatus</i>
<i>Heniochus chrysostomus</i>	<i>Parupeneus bifasciatus</i>	<i>Cephalopholis urodeta</i>
<i>Heniochus monoceros</i>	<i>Scolopsis vosmeri</i>	<i>Epinephelus cuoides</i>
<i>Heniochus singularis</i>	<i>Scolopsis trilineata</i>	<i>Epinephelus fasciatus</i>
<i>Heniochus varius</i>	PEMPHERIDAE	<i>Epinephelus fasciatus</i>
GOBIIDAE	<i>Pempheris oualensis</i>	SIGANIDAE
<i>Valenciennaea strigata</i>	PINGUIPEDIDAE	<i>Siganus javus</i>
<i>Valenciennaea sp.</i>	<i>Parapercis millepunctata</i>	<i>Siganus virgatus</i>
<i>Nemateleotris sp.</i>	<i>Parapercis tetracantha</i>	<i>Siganus corallinus</i>
<i>Ptereleotris evides</i>	<i>Parapercis clathrata</i>	<i>Siganus vulpinus</i>
HAEMULIDAE	POMACANTHIDAE	SYNODONTIDAE
<i>Plectorhinchus orientalis</i>	<i>Centropyge eibli</i>	<i>Synodus ulae</i>
<i>diodon hystrix</i>	<i>Centropyge bicolor</i>	TETRAODONTIDAE
<i>Arothron nigropunctatus</i>	<i>Centropyge vrolikii</i>	<i>Arothron hispidus</i>
HOLOCENTRIDAE	<i>Centropyge tibicen</i>	<i>Arothron manilensis</i>
<i>Myripristis murdjan</i>	<i>Pomacanthus imperator</i>	<i>Arothron nigropunctatus</i>
<i>Sargocentron diadema</i>	<i>Pomacanthus navarchus</i>	<i>Canthigaster compressa</i>
<i>Neoniphon sammara</i>	<i>Genicanthus lamarck</i>	<i>Canthigaster solandri</i>
LABRIDAE	POMACENTRIDAE	<i>Canthigaster valentini</i>
<i>Anamnes caeruleopunctatus</i>	<i>Abudefduf vaigiensis</i>	ZANCLIDAE
<i>Anamnes feminus</i>	<i>Amblyglyphidodon aureus</i>	<i>Zanclus cornutus</i>
<i>Anamnes meleagrides</i>	<i>Amblyglyphidodon curacao</i>	

5. Summary description of fishery

- Number of collectors/village: around 120 collectors in Les and 25 in Tembok
- Number of middlemen: 4 in Les village and 2 in Tembok
- Types of fishery: ornamental fisheries and pelagic fisheries
- Location of fishery/timing: Collectors fish locally within the 26 km coastline of the Tejakula District
- Main species traded: Anthiases, Dottybacks, Angel, Damsel, Wrasses, Gobies, etc
- Other collection areas where collectors go to: During a certain seasons collectors from Les village go to South and Southeast Sulawesi, East and West Nusa Tenggara and South-east Bali

- Transportation time to export facility: 2 hours to facility in Denpasar (where the international airport is)

6. State of progress towards sustainable fishery

The collectors in Tejakula are mostly from the Les village. Most of the collectors are capable of using nets and have sworn off cyanide.

The District Government of Tejakula, the collectors and other stakeholders are in a process of developing a collection area management plan. Resource assessment using MAQTRAC methods has been undertaken in the area.

7. State of trade

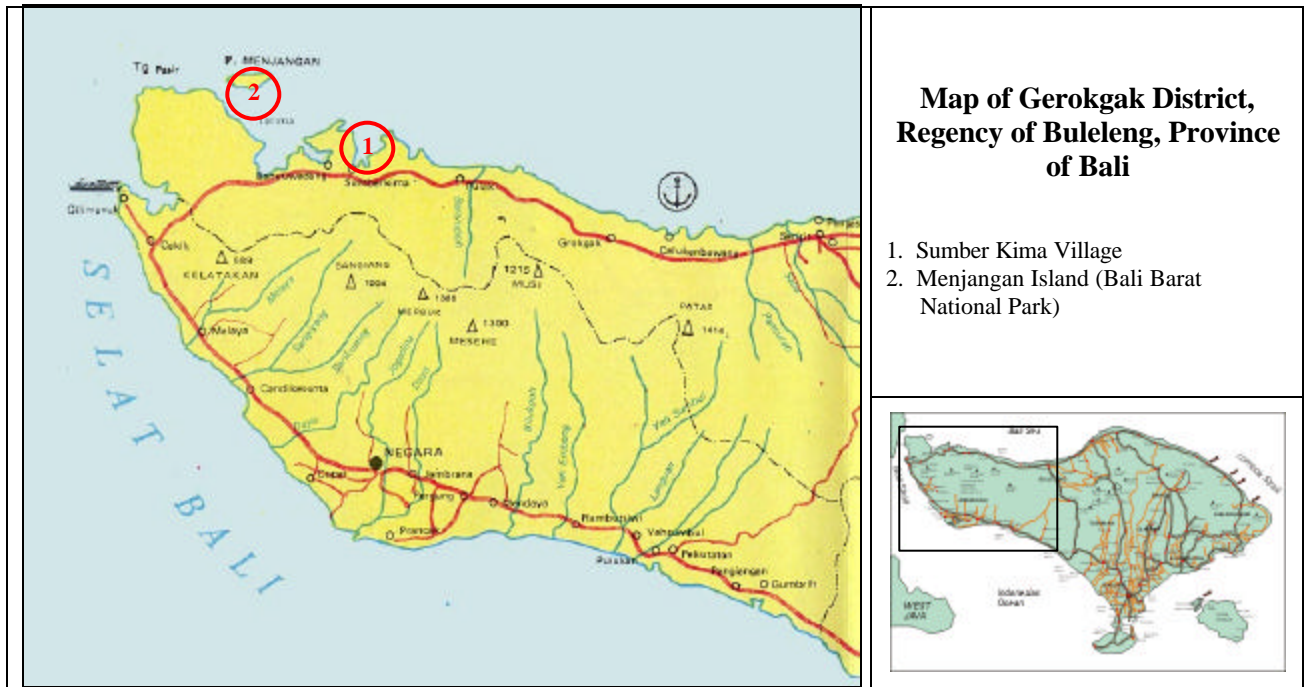
- Boxes/year: unknown. Suppliers/middlemen send at least twice a week to Denpasar. They use small van which is loaded with fish as many as they can carry
- Facility description: PT Bahtera LESTari is building an on-site export facility in Les village. Tembok collectors supply the facility of CV Dinar located in Tembok village.
- Exporters: PT Bahtera LESTari, CV Dinar, CV Panca Naga, PT Anugrah Tirta Samudra and PT Bali Blue
- Price information and trend: the price of the fish range between Rp. 400.00 to Rp. 85,000.00
- The need of external financing: the suppliers who express interest in developing means of financing infrastructure and working capital needs through grants or micro-finance.

8. Administrative context

District of Tejakula is located on the eastern side of the Regency of Buleleng, Province of Bali. According to the decentralization law of Act No. 22/1999, Article 10(3), the regency's jurisdiction covers 4 nautical miles from the coastal shoreline. According to the provisions of draft legislation on coastal zone management (*RUU Pengelolaan Pesisir*), the regencies are best positioned to develop integrated coastal resource management programs because they are close enough to the resources and its users at the local level, and yet it still large enough to coordinate among neighboring villages. The law also encourages the regency to involve village governing bodies and include all stakeholders, public and private in the development of integrated coastal management plan.

2. District (Kecamatan) of Gerokgak, Regency of Buleleng

1. Map:



2. Population size/growth, number of villages

There are 12 villages in Gerokgak district, with the population of 67,159 (data from 2000). The community in the District of Gerogak is constituted of 4 ethnic groups: Balinese, Madurese, Mandarese and Javanese. Sumber Kima is the main village where most aquarium collectors live. Official statistics count nearly 6000 people over nearly 1300 families in Sumber Kima with nearly 250 fishers registered.

3. Weather

Coastal and lowland areas receive rainfall between 1000-1750 mm/year. Rainfall in mountain range is around 2750/year. Dry season is from May to October, with the highest temperature reaches 29 C.

4. Summary description of reef/fish; area, type, depth, status

The reefs in Gerokgak sub district are fringing reefs and patch reefs, which showed a range of physical profiles, such as gentle slopes to drop-offs. Reefs surround Menjangan Island (Bali Barat National Park) is steep drop-offs. The depth of the reefs at patch of reefs is from 5 to 30 meters.

ACANTHURIDAE	<i>Bodianus diana</i>	<i>Amblyglyphidodon leucogaster</i>
<i>Acanthurus dussumieri</i>	<i>Bodianus diana</i>	<i>Amblyglyphidodon ternatensis</i>
<i>Acanthurus lineatus</i>	<i>Bodianus mesothorax</i>	<i>Chromis analis</i>

Annex 14: Year 1 Sites: Philippines and Indonesia

<i>Acanthurus nigricans</i>	<i>Cheilinus trilobatus</i>	<i>Chromis atripectoralis</i>
<i>Acanthurus pyroferum</i>	<i>Cheilinus chlorurus</i>	<i>Chromis lepidolepis</i>
<i>Acanthurus thompsoni</i>	<i>Cheilinus diagrammus</i>	<i>Chromis viridis</i>
<i>Acanthurus tominiensi</i>	<i>Cirrhilabrus cyanopleura</i>	<i>Chromis margaritifer</i>
<i>Ctenochaetus striatus</i>	<i>Cirrhilabrus exquisitus</i>	<i>Chromis weberi</i>
<i>Naso hexacanthus</i>	<i>Cirrhilabrus ryukyuensis</i>	<i>Chromis ternatensis</i>
<i>Zebrasoma scopas</i>	<i>Coris gaimard</i>	<i>Chromis xanthura</i>
<i>Zebrasoma veliferum</i>	<i>Diproctacanthus xanthurus</i>	<i>Chrysiptera notialis</i>
AULOSTOMIDAE	<i>Gomphosus varius</i>	<i>Chrysiptera parasema</i>
<i>Aulostomus chinensis</i>	<i>Halichoeres argus</i>	<i>Chrysiptera rollandi</i>
BALISTIDAE	<i>Halichoeres chrysus</i>	<i>Chrysiptera talboti</i>
<i>Balistapus undulatus</i>	<i>Halichoeres hortulanus</i>	<i>Dascyllus reticulatus</i>
<i>Sufflamen bursa</i>	<i>Halichoeres marginatus</i>	<i>Dascyllus trimaculatus</i>
<i>Sufflamen chrysopterus</i>	<i>Halichoeres melanurus</i>	<i>Dascylus aruanus</i>
<i>Odonus niger</i>	<i>Halichoeres prosopeion</i>	<i>Dascylus melanurus</i>
<i>Melichthys vidua</i>	<i>Halichoeres scapularis</i>	<i>Dascylus trimaculatus</i>
<i>Pseudobalistes fuscus</i>	<i>Halichoeres vrolikii</i>	<i>Lepidozygus tapeinosoma</i>
BLENNIIDAE	<i>hemygimnus fasciatus</i>	<i>Neoglyphidodon melas</i>
<i>Aspidontus dussumieri</i>	<i>Labrichthys unilineatus</i>	<i>Neopomacentrus azyron</i>
<i>Meiacanthus atrodorsalis</i>	<i>Labroides bicolor</i>	<i>Neopomacentrus cyanomos</i>
<i>Meiacanthus grammistes</i>	<i>Labroides dimidiatus</i>	<i>Plectroglyphidodon dickii</i>
CARANGIDAE	<i>Labroides pectoralis</i>	<i>Plectroglyphidodon lacrymatus</i>
<i>Caranx ferdau</i>	<i>Novaculichthys taeniurus</i>	<i>Pomacentrus amboinensis</i>
<i>caranx melampygus</i>	<i>Pseudocoris yamashiroi</i>	<i>Pomacentrus bankanensis</i>
CAESIONIDAE	<i>Stethojulis bandanensis</i>	<i>Pomacentrus brachialis</i>
<i>Caesio teres</i>	<i>Stethojulis strigiventer</i>	<i>Pomacentrus chrysurus</i>
<i>Caesio xanthura</i>	<i>Thalassoma amblycephalum</i>	<i>Pomacentrus coelestis</i>
<i>Pterocaesio tile</i>	<i>Thalassoma hardwicke</i>	<i>Pomacentrus lepidogenys</i>
<i>Pterocaesio diagramma</i>	<i>Thalassoma janseni</i>	<i>Pomacentrus moluccensis</i>
<i>Pterocaesio pisang</i>	<i>Thalassoma lunare</i>	<i>Pomacentrus nigromanus</i>
<i>Pterocaesio tile</i>	<i>Thalassoma lutescens</i>	<i>Pomacentrus philippinus</i>
<i>Pterocaesio trilineata</i>	LETHRINIDAE	<i>Pomacentrus sp</i>
CHAETODONTIDAE	<i>Monotaxis grandoculus</i>	<i>Stegastes fascilo</i>
<i>Chaetodon adiergastos</i>	LUTJANIDAE	PSEUDOCROMIDAE
<i>Chaetodon baronessa</i>	<i>Lutjanus decusatus</i>	<i>Pseudochromis splendens</i>
<i>Chaetodon bennetti</i>	<i>Lutjanus fulvus</i>	SCARIDAE
<i>Chaetodon citrinellus</i>	<i>Lutjanus kasmira</i>	<i>Scarus bleekeri</i>
<i>Chaetodon decussatus</i>	<i>Lutjanus rivulatus</i>	<i>Scarus dimidiatus</i>
<i>Chaetodon kleini</i>	MALACANTHIDAE	<i>Scarus niger</i>
<i>Chaetodon lineolatus</i>	<i>Malacanthus brevirostris</i>	<i>Scarus bicolor</i>
<i>Chaetodon melannotus</i>	MICRODESMIDAE	<i>Scarus bleeckeri</i>
<i>Chaetodon meyeri</i>	<i>Nemateleotris magnifica</i>	<i>Scarus sordidus</i>
<i>Chaetodon ocellicaudus</i>	<i>Ptereleotris evides</i>	SERRANIDAE
<i>Chaetodon ornatissimus</i>	MULLIDAE	<i>Cephalopholis urodeta</i>

<i>Chaetodon punctatofasciatus</i>	<i>Mulloidichthys vanicolensis</i>	<i>Grammistes sexlineatus</i>
<i>Chaetodon rafflesi</i>	<i>Parupeneus barbarinus</i>	<i>Pseudanthias huchtii</i>
<i>Chaetodon semeion</i>	<i>Parupeneus bifasciatus</i>	<i>Pseudanthias squamipinnis</i>
<i>Chaetodon speculum</i>	<i>Parupeneus cyclostomus</i>	<i>Pseudanthias tuka</i>
<i>Chaetodon trifascialis</i>	<i>Parupeneus indicus</i>	<i>Pseudanthias dispar</i>
<i>Chaetodon trifasciatus</i>	<i>Parupeneus macronema</i>	<i>Pseudanthias lori</i>
<i>Chaetodon vagabundus</i>	<i>Parupeneus multifasciatus</i>	<i>Cephalopholis argus</i>
<i>Coradion melanopus</i>	NEMIPTERIDAE	<i>Cephalopholis cyanostigma</i>
<i>Heniochus accuminatus</i>	<i>Scolopsis ciliata</i>	<i>Cephalopholis miniatus</i>
<i>Heniochus chrysostomus</i>	<i>Parupeneus bifasciatus</i>	<i>Cephalopholis urodeta</i>
<i>Heniochus monoceros</i>	<i>Scolopsis vosmeri</i>	<i>Epinephelus cuoides</i>
<i>Heniochus singularis</i>	<i>Scolopsis trilineata</i>	<i>Epinephelus fasciatus</i>
<i>Heniochus varius</i>	PEMPHERIDAE	<i>Epinephelus fasciatus</i>
GOBIIDAE	<i>Pempheris oualensis</i>	SIGANIDAE
<i>Valenciennaea strigata</i>	PINGUIPEDIDAE	<i>Siganus javus</i>
<i>Valenciennaea sp</i>	<i>Parapercis millepunctata</i>	<i>Siganus virgatus</i>
<i>Nemateleotris sp.</i>	<i>Parapercis tetracantha</i>	<i>Siganus corallinus</i>
<i>Ptereleotris evides</i>	<i>Parapercis clathrata</i>	<i>Siganus vulpinus</i>
HAEMULIDAE	POMACANTHIDAE	SYNODONTIDAE
<i>Plectorhinchus orientalis</i>	<i>Centropyge eibli</i>	<i>Synodus ulae</i>
<i>diodon hystrix</i>	<i>Centropyge bicolor</i>	TETRAODONTIDAE
<i>Arothron nigropunctatus</i>	<i>Centropyge vrolikii</i>	<i>Arothron hispidus</i>
HOLOCENTRIDAE	<i>Centropyge tibicen</i>	<i>Arothron manilensis</i>
<i>Myripristis murdjan</i>	<i>Pomacanthus imperator</i>	<i>Arothron nigropunctatus</i>
<i>Sargocentron diadema</i>	<i>Pomacanthus navarchus</i>	<i>Canthigaster compressa</i>
<i>Neoniphon sammara</i>	<i>Genicanthus lamarck</i>	<i>Canthigaster solandri</i>
LABRIDAE	POMACENTRIDAE	<i>Canthigaster valentini</i>
<i>Anamses caeruleopunctatus</i>	<i>Abudefduf vaigiensis</i>	ZANCLIDAE
<i>Anamses feminus</i>	<i>Amblyglyphidodon aureus</i>	<i>Zanclus cornutus</i>
<i>Anamses meleagrides</i>	<i>Amblyglyphidodon curacao</i>	

5. Summary description of fishery

- Number of collectors/village: number of collectors from 12 villages is around 350 fishermen, with the highest number is in Sumber Kima, around 250 fishermen,
- Number of middlemen is around 15 middlemen
- Types of fishery: ornamental fishery, pelagic, especially using FADs, reef food fish and pearl hatchery, seaweed cultures
- Location of fishery/timing: there are only around 100 fishermen fish locally within 83.88 km coastline of Gerokgak sub-district
- Main species traded: Anthiases, Dottybacks, Angel, Damsel, Wrasses, and Gobies.
- Other collection areas where collectors go to: East Java and Madura, South and Southeast Sulawesi, and Kalimantan
- Transportation time to export facility: 3-4 hours to Denpasar. Gerokgak sub-district also supply fish to Banyuwangi (East Java), which the journey takes 1 hour, including the ferry crossing.

6. State of progress towards sustainable fishery

WWF Indonesia has worked with the Sumber Kima collectors and their community to introduce best practices for capture, handling and transport based on MAC Standards. A group of 8 collectors has been the spearhead in promoting sustainable fishery in the area. WWF team and these collectors have produced a local collection area management plan covering a part of collection area in the Sumber Kima area. This effort needs to be expanded to include more collectors as well as cover more collection area within the sub-District of Gerogak.

7. State of trade

- Boxes/year: unknown
- Facility description: There is only one on-site facility in the area. Most of fish are usually kept in plastic bags in suppliers facilities until delivered to Denpasar
- Exporters: Most Bali-based exporters get their fish from Sumber Kima collectors
- Price information and trend: Rp. 500 to Rp. 85,000
- The need of external financing: Yes, to improve on-site holding facility

8. Administrative context

District of Gerogak is located on the western side of the Regency of Buleleng, Province of Bali. According to the decentralization law of Act No. 22/1999, Article 10(3), the regency's jurisdiction covers 4 nautical miles from the coastal shoreline. According to the provisions of draft legislation on coastal zone management (*RUU Pengelolaan Pesisir*), the regencies are best positioned to develop integrated coastal resource management programs because they are close enough to the resources and its users at the local level, and yet it still large enough to coordinate among neighboring villages. The law also encourages the regency to involve village governing bodies and include all stakeholders, public and private in the development of integrated coastal management plan.

Annex 15: Supporting Documents from the Project Partners

The following documents support the development and implementation of the MAMTI project and are available from the project Partners:

- Marine Aquarium Council – Core Standards and Best Practice Guidance July 2001
- Marine Aquarium Council – Core Standards Interpretation October 2002
- Marine Aquarium Council – Ecosystem and Fisheries Management (EFM) Implementation Manual
- Marine Aquarium Council – Collection, Fishing and Holding (CFH) Implementation Manual
- Marine Aquarium Council – Handling, Husbandry and Transport (HHT) Implementation Manual for Export Facility
- Marine Aquarium Council – Handling, Husbandry and Transport (HHT) Implementation Manual for Import Facility
- Marine Aquarium Council – Handling, Husbandry and Transport (HHT) Implementation Manual for Retail Facility
- Marine Aquarium Council Business Plan
- MAQTRAC: Marine Aquarium Trade Coral Reef Monitoring Protocol February 2003
- Reef Product Alliance (Report from CCIF to IFC)

Annex 16: Summary of MAC Business Plan

(Excerpts and synthesis from the MAC Business Plan)

1. Introduction

The business plan was developed through an in-depth analysis of the marine aquarium industry landscape and extensive interviews with industry players. Over the course of the project, over forty interviews were conducted with leading exporters, importers, retailers, dry goods manufacturers, and marketing experts from across the US, Philippines, Indonesia, Fiji, Australia, Sri Lanka, Germany, Netherlands, and UK. The Executive Committee of the MAC Board of Directors met to review the plan and the MAC Board of Directors approved the plan.

The business plan maps the process for transitioning MAC from a donor funded organization to achieving full funding of MAC's core certification services by the marine ornamentals industry within 5 years.

The business plan outlines three cost components:

1. The cost of "core" MAC functions, i.e. the permanent, essential capacity required by MAC itself for ongoing development, management, maintenance and improvement of the standards and certification system. These costs will be met by industry by year 5 of the plan's implementation. In the interim, donor support is required on a diminishing basis.

2. The cost of "start up" activities, i.e. the efforts to build capacity for achieving MAC Certification and developing a certified supply, especially in developing countries, and developing robust systems for implementing and monitoring MAC Certification. As MAC matures and the certification is increasingly adopted by industry, the need for these funds will reduce to a minimal level. Support for start-up activities will be via a foundation to which traditional donors as well as industry not directly involved in livestock or not yet able to contribute as fully as they would wish because of initial scarcity of MAC Certified stock, and individuals will be asked to contribute.

3. The cost of industry transformation to comply with MAC Standards, i.e. the investment by industry, especially wholesalers and retailers, in their facilities and their administrative capacity in order to become certified. This will be wholly funded by industrial participants.

During the five-year transition outlined in this plan, MAC will have to rely on donor funding for its growth, with a projected support requirement of \$4.2 million during this start up period. A number of factors contribute to MAC's relatively high start-up expenses: the remoteness and considerable geographic spread of most collection areas; the inability of many small collection and export businesses to support certification expenses unaided; the considerable logistical effort required; the complexity of the marine ornamentals distribution system.

2. Operating Strategy

MAC is committed to achieving the following outcomes and milestones by 2005:

Logistic concept verification. Over the next 18-24 months, MAC will prove that the concept of certification can work in the marine ornamental industry. To do so, it will, at minimum, reach the following milestones, some of which have already been achieved by early 2003.

Verification of an operational certification system. At least six collection areas and their corresponding chains of custody are certified, and certified products are moving from reef to retail.

Meaningful supply development. At least five percent of market volume will be certified. This translates to the certification of about 15,000 export boxes of marine fish per year, and 250,000+ pieces of coral and other invertebrates. The certified supply will include near-representative amounts of the twenty top-selling fish, coral and other invertebrate species.

Demonstration of a certified chain of custody. At least seventy percent of the created certified supply of fish and coral will track through to the retailer level and sell as certified product in, at minimum, four key countries: the US, UK, Netherlands and Germany.

Demonstration of demand. Consumers will buy the available retail volume.

Environmental concept verification. At least 2,000 boxes of marine fish per year will come from the Philippines, to prove that the concept can be executed in historically difficult supply environments. All source reefs will be fully monitored and subject to the reef management laid out in a specific collection area management plan.

Industry adoption. MAC will have certified the facilities of at least two top US importers and at least one of the top three importers (by volume) in its other target consumer markets: the UK, Netherlands and Germany.

Industry and stakeholder support. MAC needs to show willingness within the industry to support certification. Within the next 18 months, MAC will begin to transition towards becoming financially independent with a portion of financial support coming from the industry. This will most likely be through a two percent levy on the C & F value of certified products purchased by importers, as well as a \$100 flat fee for retailers. In addition, industry groups, individual companies, conservation groups, government/international agencies, and local communities will formally express support for MAC Certification and will be offered the opportunity to provide financial support.

3. Supply Development

MAC is focusing on expeditious verification of its certification system. This requires the rapid development of a meaningful and reliable supply of MAC Certified marine ornamentals.

Fish

Annex 16: Summary of MAC Business Plan

The projected origin of MAC Certified fish is as follows (in number of boxes):

Region	Year 1	Year 2	Year 3	Year 4	Year 5
Philippines	3,000	5,000	11,000	25,000	40,000
Pacific Islands/ Fiji/ Australia/ Hawaii	5,000	10,000	15,000	23,000	26,000
Indian Ocean/ Red Sea/ East Africa	0	3,000	5,000	8,000	12,000
Indonesia	0	1,000	4,000	10,000	20,000
Latin America/ Caribbean/ Florida	0	1,000	3,000	6,000	10,000
(Mari)culture	0	0	2,000	8,000	12,000
Total	8,000	20,000	40,000	80,000	120,000
Market share	2%	5%	10%	20%	30%

Coral/Other Invertebrates/Live Rock

In addition to achieving a sufficient supply of marine ornamental fish, MAC will have to focus on certifying a representative number of suppliers of coral and other invertebrates. In the short term, these marine organisms will come from four key source areas: Philippines (except for coral), Fiji, Indonesia, and (mari) culture producers.

Supply Development Strategies

Initially, MAC needs to invest substantial resources to ensure that a sufficient supply of certified product is made available on the market. MAC is undertaking the following strategies to facilitate supply development:

Focused certification of reef areas and export facilities. MAC is taking an proactive approach to developing a critical mass of certifiable reef areas and exporters through a number of activities: Support for certification costs. For large, integrated exporters working out of developed countries, certification of their reefs and facilities is not a major expense. However, small collectors and collector collectives in other areas, such as the Philippines and Pacific Island countries, need initial support for training, development of collection area management plans, reef monitoring, etc. MAC may be able to provide some of this support. MAC also needs to facilitate the coordination of certification, working to ensure that low-cost certification is available in more remote supply countries. This is critical to reducing the cost of certification to an affordable level for collectors and exporters in these areas, for both initial and ongoing certification fees, thus enabling businesses in the least developed countries and regions to participate in and reap the benefits MAC seeks to deliver.

Preparation for certification. The MAC system relies on third party, independent certifiers to provide reliable and impartial certification throughout the industry value chain. It can, however, use a team of experts in community stakeholder organization, reef and fishery management, reef monitoring and fish husbandry to facilitate the efforts of collectors and exporters to understand the standards and to prepare them for certification. This includes providing information on issues such as facility upgrades, preparation of collection area management plans, transportation systems, etc. MAC has had the resources to support dedicated representatives to help prepare exporters and collectors in the following regions: Fiji, other Pacific Islands, and the Philippines Indonesia.

Focusing supply. MAC is working to create significant volume for pioneering importers in the US and Europe by concentrating certified supply from source areas. For example, MAC is supporting the initial certification of new source areas. This will generally require extended in-country consultations with stakeholders, awareness raising and facilitation of the industry's understanding of the standards, and assistance in preparation for actual certification.

Development of certification standards for (mari)cultured organisms. MAC is accelerating development of certification standards for cultured marine ornamentals and will target certification of sources such as the European and US tank-raised fish industry and some village-based in-situ clam and coral cultures by 2005.

Strategic, high-volume certifications. To the greatest degree possible, MAC is promoting certification of those fully integrated importers and exporters who control their supply from collection areas and who have exclusive arrangements with collectors.

Supply/demand coordination. "Random" and nonintegrated certification is likely to lead to very slow growth and to certified organisms becoming "lost" in the supply chain by being sold through uncertified channels. Rapid penetration of the industry will only be possible if collectors, exporters, importers and retailers are carefully linked and coordinated. MAC uses both "bottom up" and "top down" strategies to coordinate the flow of certified products through the chain of custody.

4. Revenue Generation

The recommended industry fees outlined below were determined through a combination of market testing within the industry and financial modeling of various fee structures. The market testing was conducted through a series of structured interviews with a broad range of industry players including small, and large exporters, importers, and retailers throughout the US and international markets and a workshop with the Executive Committee of the MAC Board of Directors. Based on the feedback coming out of these efforts, a series of fee scenarios were modeled for MAC. The conclusions reached regarding an industry fee applied to importers and retailers was determined by the majority of those consulted to be at a reasonable level and feasible for MAC to implement.

MAC will begin implementing a set of industry fees, which will, as the number of certified companies rises, gradually replace donor grants as the primary source of funding. Discussion with the industry by the business planning consultants showed that those exporters, importers, and retailers who are most likely to be early adopters of certification are also the most likely to support MAC financially.

Retailer Fees. MAC anticipates charging retailers who carry MAC-certified products a support fee of \$100/yr. per store (which will gradually increase to \$200/yr.) This charge will be in addition to third party certification expenses as well as any infrastructural upgrades that might be required. The fees will be collected by certifiers at the time of the annual store inspection/monitoring, in conjunction with their collection of certification costs, and remitted to MAC.

Importer fees. MAC currently anticipates charging participating importers a MAC support fee of two percent of their C & F wholesale cost of MAC Certified Organisms. For example, an importer receiving \$50,000 of certified fish and coral per year, which is sold to retailers for

\$140,000, will pay only an annual MAC fee of \$1,000 (which is equivalent to less than 0.7 % of the retail sales value). In addition, the importer will have to pay for initial certification and yearly monitoring expenses – but these costs do not accrue to MAC. With a thirty percent adoption rate of MAC Certification, as expected in five years, total industry support will reach over \$900,000 a year.

Exporter/collector fees. In the long-term, it is important for exporters to participate in providing financial support for MAC, as they play a significant role in the industry and ultimately need to buy into the industry's role in providing financial support for MAC. However, MAC does not believe that exporter or collector fees are productive in the initial years of operation. Many collector and exporter operations are small (including many of the high quality operations that are likely to be MAC pioneers) and cannot afford MAC fees in addition to basic certification and auditing expenses. In addition, accounts receivable collections from exporters and collectors around the world (many of which have highly unstable currencies) are complex and expensive. Lastly, MAC's initial emphasis on rapid supply development is facilitated by low barriers to entry for collectors and exporters. In the short-term, MAC will encourage exporters to fund certification supply development efforts in their respective countries. Longer-term, MAC will develop a fee system that enables exporters to contribute a realistic share of financial support for MAC.

5. Future Funding Requirements

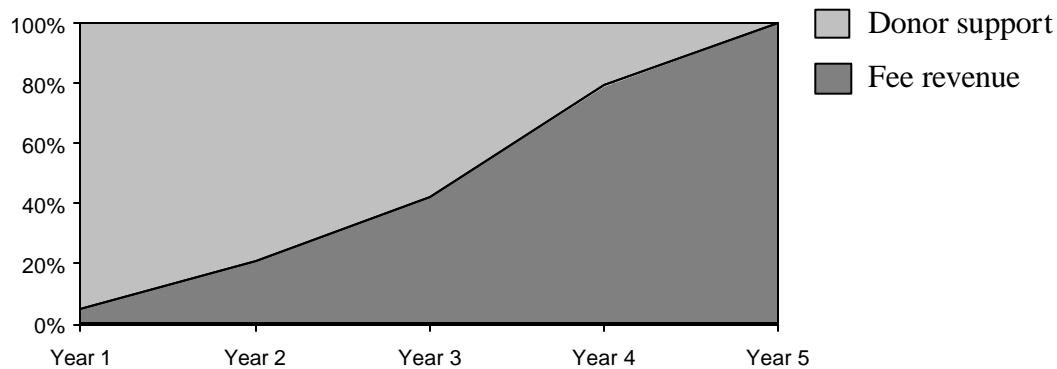
In the short term, it is critical for MAC to prove the concept of certification within the marine ornamental trade by achieving a meaningful and reliable supply of certified product. The success of MAC's long-term vision of financial sustainability is dependent on the aggressive promotion and implementation of certification in the short-term. This requires a significant up-front investment by MAC to facilitate the initial development of certified supply and strengthen demand for certified product. On a broader level, the investment in developing and implementing MAC Certification and achieving financial sustainability for MAC will result in a model that could be applied to other needs for standards, certification and labeling for the trade in wildlife, meaning investment now will save development costs in these other applications.

There are two basic streams of activities that will require separate funding mechanisms over the next five years:

Start-up activities. In its first years of operation, MAC will have to take a highly active role in the development of a critical mass of certified supply and demand – its survival depends on it. This role will go significantly beyond basic supervision: MAC will have to take a hands-on approach to organizing certified supply and demand “from reef to retail.” MAC will therefore incur start-up expenses which cannot be born by industry alone – market penetration is too small in the first years to make MAC self-sufficient. Over the years, these start-up expenses will decrease from an initial 40% of the total budget in year 1 to about 15% in year 5. Industry will be supporting its own start-up costs, e.g. new infrastructure, administration costs.

Core activities. This category includes all expenses directly related to MAC's core mission and core capacity: to build, maintain and administer a complex certification system, to promote the MAC brand, and to supervise essential supply and demand development and coordination activities. Also included in this category are the basic overhead expenses that allow MAC to operate. These activities will require about 60% of MAC's total funding in the next year, growing to 85% by year 5. These activities will be funded in perpetuity under the industry supported revenue generation proposed in this plan.

MAC's core activities will be 100% covered by the marine ornamentals industry by year 5 of the implementation of this business plan. The chart below shows the timing of the anticipated funding streams for MAC's core certification activities. However, MAC will have to rely on other sources, such as foundation, multi-lateral organizations, corporate sponsorships and government development assistance to cover start-up expenses and to provide sufficient working capital for MAC to reach self-sufficiency.



Annually, MAC will review and compare actual accomplishments to the targets outlined in the business plan and adjust budgetary and human resources outlays accordingly, within the stated budgetary framework. The business plan assumes that the cost of maintaining the functionality of MAC in its evolving roles will level out by the end of year four (future “steady state” operating budgets for MAC will be about \$1.1 million). This would allow for a decrease in grant funding as fee income is increased due to a continuing rise of market share for MAC Certified Organisms. This projection assumes that MAC's evolving role in the industry from a developmental and promotional organization to a more managerial, monitoring and maintenance role will be attainable under the projected cost structure. To ensure the viability of this projection, MAC will carry out an in-depth business assessment of what its changing role in the industry is and/or needs to be and the human and financial costs of fulfilling that role.

6. Operating Cost Structure

MAC is projecting that the following cost structure is required to support the operating strategy:

Total Annual Budget					
	2003	2004	2005	2006	2007
Core Expenses	655,125	749,636	754,411	817,024	910,753
Start-Up Expenses	455,250	730,567	717,371	463,647	179,529
Total Expenses	1,110,375	1,480,203	1,471,782	1,280,671	1,090,282

The table below provides the summary financial proformas for MAC through a five year development. The detailed financial information supporting this summary is available from MAC. Under its current financial projection, MAC will be at the cash break-even level for its core expenses in five years.

Financial Statement

	Year 1	Year 2	Year 3	Year 4	Year 5
Industry contribution					
Percent of core costs financed by industry	5%	21%	42%	79%	100%
Level of Self-Sufficiency					
Percent of total costs financed by industry	3%	11%	21%	50%	84%

REVENUE

Industry generated revenue	36,000	158,750	313,750	642,500	912,500
Percent of total revenue	15%	100%	100%	100%	100%
Existing grant & donation revenue	200,000	-	-	-	-
Percent of total revenue	85%	0%	0%	0%	0%
Total Revenue	236,000	158,750	313,750	642,500	912,500

CORE EXPENSES

Core MAC Costs	655,125	749,636	754,441	817,024	910,753
Percent of total costs	59%	51%	51%	64%	84%

Core MAC Operating Income

Total MAC Revenue	236,000	158,750	313,750	642,500	912,500
Core MAC Costs	(655,125)	(749,636)	(754,441)	(817,024)	(910,753)
Income (Deficit)	(419,125)	(590,886)	(440,691)	(174,524)	1,747

START-UP EXPENSES

Start-up Supply & Demand Development	455,250	730,567	717,371	463,647	179,529
Percent of total costs	41%	49%	49%	36%	16%

Total MAC Operating Income

Total MAC Revenue	236,000	158,750	313,750	642,500	912,500
Core MAC Costs	(655,125)	(749,636)	(754,441)	(817,024)	(910,753)
Start-up Expenses	(455,250)	(730,567)	(717,371)	(463,647)	(179,529)
Income (Deficit)	(874,375)	(1,321,453)	(1,158,062)	(638,172)	(177,782)

Total Additional Funding Required (5 Years)	4,169,843
--	------------------

Annex 17: Analysis of Certified Supply Generation

Annex 17: Analysis of Certified Supply Generation

The following table details the generation of MAC-certified supply through MAMTI collection areas over a period of five years. It is important to note that, by the end of year 5, it is expected that certified supply from MAMTI collection areas will represent approximately 17% of worldwide supply (and 21% of Philippines and Indonesia supply).

Certified Supply Generation					
Certified Supply Generation					
Philippines					
Projected MAMTI Certified Supply (Export Boxes)	4,320	7,440	14,640	25,680	41,040
Required Certified Supply - Philippines	3,000	5,000	11,000	25,000	40,000
Excess / (Shortfall) - Boxes	1,320	2,440	3,640	680	1,040
Indonesia					
Projected MAMTI Certified Supply (Export Boxes)	3,360	5,760	11,520	17,280	25,440
Required Certified Supply - Indonesia	-	1,000	4,000	10,000	20,000
Excess / (Shortfall) - Boxes	3,360	4,760	7,520	7,280	5,440
Total MAMTI Excess / (Shortfall) - Boxes	4,680	7,200	11,160	7,960	6,480
MAMTI -Generated % of Worldwide Supply	2%	3%	7%	11%	17%
MAMTI-Generated % of Philippines and Indonesia Supply	2%	4%	8%	13%	21%

Annex 18: Response to Government Focal Point Review of PDF-B

As part of endorsing the MAMTI PDF-B proposal, the GEF Focal Point in the Philippines and their agencies identified a number of conditions that they wished to be addressed in the project development. These issues, and the project partner response to them, are described below.

Issue 1

“If the site falls within a marine protected area or a critical habitat, a Resolution or approval from the existing Protected Area Management Board or from the appropriate bodies as required under existing laws, rules and regulations such as the National Integrated Protected Areas Systems (NIPAS) Act of 1992 (R.A. 7586) and the Wildlife Resources Conservation Act (R.A. 9147) should be sought before any activities are undertaken. Likewise, the activities should be in accordance with the approved management plan of the said protected area.”

- Response by MAMTI Partners

In the context of MAC certification, a marine protected area or critical habitat are not considered available for harvesting marine aquarium organisms. Every collection area that seeks MAC certification must have a Collection Area Management Plan (CAMP) with clearly defined no-take zones/marine sanctuaries. A protected area or critical habitat near or around the marine aquarium designated collection area is delineated as part of the CAMP's no-take zone that the collectors are bound and required to respect. Violation of this would result in de-certification.

Clearly then, a resolution of approval from the Protected Area Management Board or appropriate bodies as required under existing laws is not necessary since every protected area is excluded from the coverage of the MAC Certification Program. What we have resolved to do instead is to enhance our site selection criteria by making a Protected Area Management Board (PAMB) or PAWB verification that a candidate collection site does not fall within a marine protected area a requirement for inclusion in the Program. (see Annex 5 with Site Selection Criteria)

Issue 2

“The trade including exportation of marine ornamentals should be in accordance with the Fisheries Code of 1998 and should also comply with the requirements of the Convention on International Trade in Endangered Species of Wild Fauna and Flora since the Philippines as member country is bound to implement its provisions. The issuance of MAC Certification is an effective form of control as the CITES recognizes the adoption of stricter domestic measures to regulate the trade of species whether or not listed under its Appendices.”

- Response by MAMTI Partners

A basic condition of MAC Certification is its requirement for adherence to existing local, national and international laws and covenants. In fact, appropriate provisions of the Philippine Fisheries Code and relevant CITES resolutions and guidelines helped shape the development of MAC's core standards and best practice guidance, especially those related to Ecosystem Fishery Management (EFM) and Collection, Fishing and Handling.

The strong institutional support that the Bureau of Fisheries and Aquatic Resources (BFAR) gives to MAC Certification indicates its understanding of the role of the MAC standards, labeling and certification in bring about needed reforms in the marine aquarium trade, and complementing the

various initiatives of government to uphold and advance the spirit and intent of the Fisheries Code of 1998.

With regards to CITES, while there is no legal bar to the trade in aquarium fish as no fish species is listed in any of the Convention's Appendices, MAC Certification is providing a mechanism for effective control of the trade. The MAC program encourages the collectors to adopt a list of no-take species. With the increased scientific assessment and monitoring of stocks, collectors will be required to limit or reduce the collection of species that are determined to be over harvested. These aspects of the certification are very complimentary to the role of CITES and the CITES Secretary General has personally expressed his support for the work of the Marine Aquarium Council to the MAC Executive Director.

Issue 3

The proposed MAC procedures and standards should be officially adopted through an Administrative Order by the concerned Department so that these could be implemented effectively.

- Response by MAMTI Partners

MAC Certification is an independent, third party scheme that relies on a basket of incentives and complementary control mechanisms supported by industry and market forces that require compliance with the standards. There is also the potential for the relevant management authority in the host country, in this case BFAR, to add to this by adopting the MAC Standards and procedures. However, adopting an Administrative Order to this end is solely the domain of government and is outside the power or authority of the project partners.

The MAC experience over the past several years, however, has amply demonstrated that the support and endorsement being given by BFAR to ensure the success of the certification program is enough to make the major players in the marine aquarium business to heed the call for reform.

Issue 4

The Bureau of Fisheries and Aquatic Resources (BFAR) should be included in the Project's Advisory Committee.

- Response by MAMTI Partners

The Bureau of Fisheries and Aquatic Resources has agreed to become a member of the Project's Advisory Committee and will be formally invited when the MAMTI Project Advisory Committee is established.

Issue 5

The Department of Environment and Natural Resources (DENR) should be included in the project monitoring team and must be provided with project reports.

- Response by MAMTI Partners

The Monitoring and Evaluation (M & E) component of the MAMTI project is to be developed during the first several months of the project implementation. As part of the development of the

Annex 18: Response to Government Focal Point Review of PDF-B

M & E component, the project partners will ensure there is a project monitoring committee that includes representatives from the Department of Environment and Natural Resources and the Bureau of Fisheries and Aquatic Resources. The provision of quarterly progress reports to the DENR will be institutionalized within the M & E component of the project.

Annex 19: Response to IFC Issues Raised during PDF-B Phase

1. The MAMTI project depends on the possibility for local communities to exercise authority over marine areas and resources. Is this a valid assumption?

The situation in both the Philippines and Indonesia does allow for local communities to exercise authority over marine areas and resources. As described below, the legal and policy context is fully established (Philippines) and nearly complete (Indonesia). The experience of pilot level developments of MAC Certification have shown that the tenure situation allows for the development of local management in both countries.

In the Philippines, the government has devolved the jurisdiction for nearshore waters to the municipal governments. The 1991 LGC (RA 7160) and the Fisheries Code (RA 8550) devolve basic powers and authorities to municipalities, cities, and provinces. However, the capacity to carry out their mandate has only recently begun to mature as LGUs gain an increased awareness of the socioeconomic importance of coastal resources. The responsibilities of these local government units in aquatic resource management can become the responsibility of the BFARMC's (Barangay Fisheries Aquatic Resource Management Councils) led by existing Barangay Captains. For all collection areas seeking certification, there will be a need to ensure that municipalities have used this legislation to establish their legal claim to nearshore waters prior to the final certification being approved. In some cases the newly formed BFARMC's may take over the responsibility of managing a collection areas established through the CAMP Committees.

In Indonesia, a similar process is taking shape and the national devolution legislation has been passed and policy established. The State Policy Guidelines for 1999-2004 requires enabling legislation to provide for the delegation of authority for managing natural resources to the local level with special attention to the empowerment of local communities, traditional institutions and non-government organizations (NGOs) for natural resources management. The Regional Autonomy Act No. 22 of 1999 (Act No. 22/99) provides the legal framework for natural resources planning by decentralizing most government services including the devolution of responsibility for marine and coastal resources within Indonesia's territorial waters to local governments.

The law more specifically relevant to coastal and nearshore areas and resources is in process. The Indonesian Parliament is currently considering passage of National Coastal Management Act that is expected to support decentralization of authority over coastal zone use to regional governments by allowing for the development of local coastal laws and regulations. However, local authorities have anticipated its approval and have already begun using local regulations to install local marine tenure. This situation has proved sufficiently established to enable collection areas to be locally designated and management systems enforced.

At the local level, the effectiveness of marine tenure varies from one collection area to another. During the site selection process, the MAMTI project team will look into the history of tenurial arrangements and community cohesiveness. In some places, there is also a strong tradition of local marine tenure (i.e. *adat* villages in Bali, etc.) with the corresponding social and cultural infrastructure.

The movement away from an "open access" fishery in the Philippines and Indonesia create legal and policy conditions that enhance the application of the local management planning that is part of the MAC Certification. There is the added issue of "roaming" collectors who collect on reefs

outside their own communities. The MAMTI project will develop a more detailed understanding of this scenario in the early phase of the implementation and develop strategies to address this form of marine ornamental harvesting. For example, the project will work with local government to develop monitoring and enforcement measures to address the management of roaming collectors seeking to enter a certified collection area. Where there are no locally-based collectors, some communities have indicated an interest in certification for the visiting outside collectors to assist the community in establishing management and access control and ensuring the harvesting is sustainable.

2. The MAMTI Project plans to conduct assessment and monitoring of collection areas using the MAQTRAC protocol. Will collectors accept MAQTRAC? Is it a viable model?

The MAQTRAC protocol is one of many types of protocols that could be designed to monitor fish and invertebrate populations in collection areas and collect the information needed to improve the management to better ensure the sustainable use of the aquarium fishery resources and the supporting ecosystem. However, it is the only one that has been specifically developed for assessing and monitoring reefs and targeted marine ornamentals stocks on reefs that are harvested for the marine aquarium trade. For a collection area to become certified the MAC Standards require that a baseline survey and subsequent monitoring must be carried out using approved methods. At this point, the MAQTRAC protocol is the only approved methodology.

The results of MAQTRAC will be quite useful to the fishermen to track improvements in their stocks following active management. This has already been the case in the areas that have been surveyed under the pilot level implementation of MAC Certification. To help them gain confidence in the system, the MAMTI project partners will encourage collectors to observe and participate in the MAQTRAC surveys. The results of the surveys will be reported back to the community via presentations to the CAMP Committee.

3. Will fishermen restrict their fishing practices if monitoring shows that this is needed?

The CAMPs are adaptive management tools that will be adjusted as more information becomes available. The most important use of the survey results will be to develop recommendations for improving management through the CAMP. The MAC Standards are being revised to ensure that the CAMP Committee will be required to consider and address recommendation for adapting the management plan. The project partners will develop these recommendations by working in collaboration with the collectors to ensure that the need for, and benefits of, the management measures are understood. Reducing catch is only one of several fisheries management options that may be appropriate for adjusting fishing practices. The scientists will engage in a dialogue with the collectors and stakeholders to ensure that there is a portfolio of realistic and practical management options that can be used in addition to catch limits (i.e. more no-take zones, harvest rotation patterns, etc.) to achieve the management goals.

In most collection areas, the abundance of the marine aquarium resources is not known which makes it difficult to make an informed determination of sustainable harvest levels. As described about, the MAMTI project will assist collectors and other community stakeholders in developing a decision-making by: conducting periodic MAQTRAC surveys, engaging and involving collectors and other stakeholders in the surveys, and communicating the results to the collectors and other stakeholders.

This science-based, collaborative bottom-up decision making process will result in a meaningful understanding of the state of the resource and a shared sense of responsibility. The process will

create strong understanding and buy-in from collectors and thus realistic expectations of compliance with the management measures selected by the CAMP Committee for inclusion in the revisions to the management plan as the monitoring information becomes available. In fact, in areas that are already certified, some collectors have already proposed and included catch quotas in the early versions of the management plans, even before survey data was available, indicating a strong interest in ensuring the harvest is sustainable and support for the concept of limited catch.

However, if the CAMP Committee is unwilling to address the issues raised by the monitoring data through revisions to the CAMP, the collection area would become ineligible to continue to be certified. Similarly, if the collectors are unwilling to abide by the changes to the management plan approved by the CAMP Committee, they would become de-certified.

On a broader level, as the collectors and communities realize the economic, social and business benefits of participating in the certification, this will create incentives for maintaining the certified status of the fishery as new management options are brought into the situation based on the additional data from monitoring.

4. For the certification to be credible, the MAMTI project will need to ensure that non-sustainably harvested fish are not certified.

Implementation of the MAC Certification is based on a variety of mechanisms for preventing fish that are not harvested according to the standards from entering the supply chain as certified. This includes significant efforts on developing tracking system is to create individual accountability by linking each collector to the fish that they collect.

Logbook:

With certification, fishers are required to use logbooks to document their catch and have these reviewed by the collector's coordinator. Each collector's catch is identified to the individual. The quality and acceptability is evaluated both by the collectors' coordinator and by the exporter. The individual is held directly accountable for poor quality or inappropriately harvested fish, usually in the presence of his co-op peers when the day's catch is screened.

Peer Pressure:

The collectors are certified as a group (usually they form an association or cooperative to get certified). This links the performance and compliance of each member of the group to the certified status of the group as a whole. If one member is found to be in non-compliance with the MAC Standards, the continued certification of the whole group (and their access to the improved market and its benefits) is at risk. This will in turn create a peer pressure to maintain the credibility of the group and its participation in the certification.

Community Involvement:

The development of the Collection Area Management Plan (CAMP) for compliance to the Ecosystem and Fishery Management (EFM) Standard is a multi-stakeholder effort that links the community to the fishery and the collectors. Creating a sense of belonging and pride of the community in the success and commitment of the certified fishers through a major community awards ceremony for them enhances this link. The community becomes connected to the success or failure its collectors to remain certified, creating significant societal pressure in these small villages for collectors not to cheat on the system.

Local Government Surveillance and Enforcement:

There is already often a village level system for surveillance and enforcement, e.g., local government fishing permits, fisheries patrols, etc. These are being linked with the certification such that only MAC Certified fishers to fish in the collection area. The MAMTI project includes support for increasing the level of local surveillance and enforcement.

Economic Incentives:

The financial return and income stability of fishers is improved by supplying the consistent quality that results from certified practices, create incentives to continue achieving compliance. MAC Certified collectors earn more regular income without employing unsustainable practices. The increased market demand for certified products is creating added incentives for collectors to continue to comply with the standards.

5. Are the MAMTI Project plans for reef restoration and enhancement likely to be viable?

Reef rehabilitation and enhancement measures will greatly improve the status of fish stocks when combined with the establishment of “no-take” zones where fishing is banned. The no-take zones will, in some cases, be sufficient over the five year period to raise fish stocks to sustainable levels. The target size of the no-take zones will be a significant portion of the reef area that is not fished, e.g. up to 25% of the collection area.

Stock enhancement measures, such as larval trapping and grow out to add fish to no-take zones, will speed this recovery process. However, it is not possible to predict how much improvement will be measured nor how fast the process can be accelerated. Each reef has individual physical and biological characteristics such as circulation, water depth, profile, larval abundance and habitat that make it unique. This will result in some reefs recovering faster than others. It is important to note that the MAMTI project does not intend to use reef coral transplanting as part of reef restoration. While this form of rehabilitation using transplanted reef corals has been practiced for many years. However, coral transplantation is expensive and time consuming and is thus mostly appropriate for mitigation or improvement in limited areas of high value. It will not achieve cost effective improvement of reefs on the spatial and temporal scale needed in the Philippines and Indonesia and envisaged in the MAMTI project.

6. Are the MAMTI Project plans to create a microfinance capacity and system viable?

Fortunately, microfinance is not a new concept in either Indonesia or the Philippines. Both countries have sponsored agricultural microlending programs for decades, and Grameen Bank-style microlending has also recently gained traction in both countries. While the immediate infrastructure and working capital needs of the collector cooperatives will be met through grant funding, long-term expansion capital for the cooperatives, as well as capital for other alternative livelihood projects, will be met through local microfinance institutions. While indications are preliminary and non-binding, the MAMTI Partners have engaged such institutions (QUEDANCOR in the Philippines and BRI in Indonesia) on the prospect of working with MAMTI. The project partners plan to develop these initial expressions of interest into agreed terms within a memorandum of understanding, QUEDANCOR and BRI are not the only microfinance options for MAMTI to pursue, and if the relationships developed to this point do not pan out, the Partners feel confident that others could be developed in due course. For example, the COREMAP2 project envisions developing a strong microfinance component, which will be closely coordinated with the MAMTI project. In general, local micro-lending providers have indicated that capital availability is not a constraint, and that they are searching for precisely the type of cooperative-based, sustainable enterprises which form the core of the MAMTI project.

In any case, it is important to note that while the Partners believe providing capital access to MAMTI cooperatives through microfinance facilities is an important component of the long-term sustainability prospects of the project, it is not a hurdle factor for project commencement. The microfinance component of the project is seen primarily as a sustainability tool to provide fluid capital access to cooperative-level businesses long after the five year time horizon of the MAMTI project..

7. The MAMTI Project requires and assumes significant capacity for delivering training and other community level interventions. Is this viable?

Indeed one of the most critical factors of success of the MAMTI project will be the aptitude with which the project executes the franchise strategy that is being developed to train and certify the members of 75+ collection area cooperatives over the life of the project. In recognition of this challenge, the project partners are committed to the development of the MAMTI Central Organization such that it represents a world class, private, franchise-building enterprise. The application of MAMTI's efforts will obviously diverge from such private enterprises, but the partners believe that the MAMTI Central Organization must be led by an individual (the MAMTI Project Office Director) with breadth and depth of experience in franchise building in Southeast Asia, who can use the essence of the MAMTI mission to create a franchise model that is quickly and efficiently replicable from site to site. In addition to the important role of the Project Office Director, the partners have taken great care in the development of the organizational structure such that ample organizational capacity exists in both Indonesia and the Philippines. A Country Director is already in place in each country, and underneath those professionals, multi-site support personnel will be hired to perform both training and reef assessment activities. It is important to note that the project budget is based on conservative assumptions regarding how many trainers must be hired in order to accomplish the rollout goals set forth in these documents. Trainers and assessment personnel will never be asked to do more than they are capable of doing, even after taking into account very generous assumptions for time away from the job (i.e., vacation, illness, weather complications).

Furthermore, the Partners are developing a monitoring and evaluation protocol that will address overall project performance, and inform management accordingly. A key component of this protocol will be the systematic evaluation of the franchise model rollout in light of project milestones. MAMTI employees responsible for the rollout will have a clear mandate in terms of the rollout plan and access to clear indicators of the success or shortcomings of their efforts. This reporting protocol will be managed by a professional responsible solely for this function, who will provide regular reports to management, the Partners and the MAMTI Steering Committee. Regular reviews will be established to analyze and recommend relevant actions. For a more detailed description of the management plan, see section 1.12 of the Project Brief.

Annex 20: Frequently Asked Questions (FAQs) On Transforming the Marine Aquarium Trade

1. Marine Aquarium Trade

1.1 What are marine aquarium organisms?

They are saltwater fish, corals and invertebrates (e.g., soft corals, shrimp, small clams) that can be kept in an aquarium. Fish make up about 85% of the trade by value.

1.2 Where do marine aquarium organisms come from?

Marine aquarium organisms are harvested from the coral reefs of Southeast Asia, the Pacific Islands, South Asian and Indian Ocean islands, Australia, Hawaii, Mexico, Florida, the Caribbean, Brazil, East Africa and the Red Sea. Indonesia and the Philippines supply more than half of the global marine ornamental fish trade. Indonesia and Fiji are the largest suppliers of live coral.

1.3 What are the main importing countries?

The United States imports about half of the marine aquarium organisms. Other major importers are Germany, France, Netherlands, the United Kingdom and Japan.

1.4 What are the volume and value of marine aquarium industry?

About 10 million individual marine specimens were sold in pet stores in the United States at an average retail price of \$10 each, earning pet retailers \$103.2 million in revenue from marine ornamental livestock in 1995. About 3,000 tons of coral enter international trade each year for use in aquariums.

2, MAC Certification

2.1 Why is there an interest in certification for the marine aquarium trade?

Most purchasers of marine aquarium organisms prefer that the animals and the reefs that provide them are healthy and that collection practices do not contribute to their degradation. There is thus significant potential to utilize consumer demand for certified marine aquarium products and practices to ensure optimal health of the organisms and an environmentally sound and sustainable industry.

2.2 What type of certification is MAC Certification?

MAC Certification is a third party certification based upon internationally accepted standards created by a transparent, inclusive, international, multi-stakeholder process. Compliance with the standards is voluntary and is assessed by an accredited, independent third party that has no vested interest in the standards, certification, product or any particular stakeholder group. The International Organization for Standardization (ISO) defines third party certification as the highest order for proof of compliance.

2.3 What is the MAC Certification process?

Certification is a commercial activity and thus requires a contract to be entered into between the independent third-party certifier and the certification client to assess compliance with any of the MAC Standards. Once a certification contract between a certification company and the client has been drawn up, certification should be completed within one to four months. Depending on the complexity of the client/organization seeking certification, the certification process can be summarized as follows:

- **Initial Discussions:** The certifier and the client determine the client's readiness for certification.
- **Self-Assessment Questionnaire:** The client completes a self-assessment questionnaire provided by the certifier. The client highlights any areas of non-compliance with the appropriate MAC Core Standard.
- **Self-Assessment Questionnaire Review:** The certifier reviews the results of the self-assessment questionnaire with the client. The certifier can advise whether the corrective action proposed by the client will overcome any weaknesses highlighted. When both the certifier and the client are confident that all issues raised by the self-assessment questionnaire have been addressed, the on-site assessment is planned and undertaken.
- **Assessment Visit:** The certifier undertakes an on-site assessment following the certifier's own MAC-accredited procedures and the MAC Certification methodology.
- **Assessment Report:** The certifier produces a report describing the outcome of the assessment visit. After reading the report, the client proposes to the certifier how it intends to address any and all non-compliance with the standard. The certifier advises whether the corrective action proposed by the client will overcome the non-compliance. When both the certifier and the client are confident that all issues raised by the assessment are addressed, certification is issued.
- **Certification:** A certificate is issued demonstrating that the requirements of the appropriate MAC Core Standard have been met. The certified client can apply to use the MAC Certification label to inform hobbyists about the positive aspects of the marine aquarium organism that they are buying.
- **Surveillance Visits:** The certified client is subject to routine monitoring by the certifier to ensure ongoing compliance with the appropriate MAC Core Standard.

3. MAC Certification Benefits for Collectors

3.1 What are the benefits of MAC Certification for Collectors?

- **Collect to Order:** MAC Certified collectors need only harvest in response to orders from their buyers, so fishing effort and resources are not expended on unwanted specimens that provide collectors with low or no payment.
- **Reduced Mortality Rate:** Unnecessary mortality is reduced by better collection and post-harvest techniques, contributing to sustainability and a reasonable work program for collectors.
- **Reduced Health and Safety Risk:** MAC Standards require measures to ensure health and safety of collectors through appropriate dive safety training, well-maintained equipment, and compliance with appropriate child labor regulations.
- **Transparent Documentation:** MAC Certification requires transparency and traceability in the documentation of collection amounts, species, location and effort. This reduces potential manipulation and conflict among collectors and between collectors and the buyers.
- **Assured Demand:** MAC Certified Collectors enjoy assured demand for organisms from MAC Certified industry operators.

3.2 Do collectors earn more by employing non-destructive collection techniques?

In general, collectors using non-destructive methods may harvest less fish than when they use destructive methods. However, this loss is compensated by the reduced mortality rate. Due to this fact collectors will earn about the same amount in the beginning of the training program and continue to earn more as their skills improve. As MAC Certification benefits become widely publicized, consumer preference for certified organisms will increase and acceptance of lower quality, uncertified organisms will decrease. Certified collectors should be able to make more

income on less fish and less effort and see improved market access and bargaining power with those whom they supply.

3.3 Is there any price premium for MAC Certified organisms?

MAC Certified collectors may command price premium for the MAC Certified organisms for the following reasons. MAC Certification system promotes transparent transaction based on documented records between sellers and buyers (i.e. order forms, delivery receipts, mortality and reject rate, etc.) and encourages all parties to communicate clearly and seek agreement in pricing. This new tradition of ensuring exchange of information has resulted in stronger negotiating position on the part of collectors who now sell higher quality organisms as verified by their certification. At the same time, there has also been an increased understanding on the part of the exporters of the costs of involved to ensure those high quality organisms.

MAC Certification has thus created a level and transparent playing field. To ensure there is an ongoing process to make best use of this new set of operating conditions between collectors and exporters, MAC instituted and facilitated the MAC Certified Collectors and Exporters Group (CCEG). Collector's coordinators from certified collection areas/collectors groups met with representatives of certified exporters.

4. MAC Certification Benefits for Businesses

4.1 What are the business benefits of MAC Certification?

- **Quality Assurance:** MAC Certified organisms are selected, caught, handled, held and transported according to internationally accepted standards that include the following requirements among others:
 - Prohibition of chemicals for organism collection
 - Packing systems to maintain organisms in optimum health
 - Water quality monitoring
 - Organism acclimatization
 - Control of facility operations
 - Staff qualifications and training
- **Healthier Fish and Lower Mortality:** MAC Certified organisms are caught chemical-free and meet minimum mortality rates, reducing inventory loss and the costs due to quarantine of sick and stressed fish.
- **Market-Driven Supply:** MAC certified marine organisms are collected only after a specific order has been placed, removing costs associated with capturing and disposing of unordered, unwanted, low-value species.
- **Assured Supplies:** MAC Certification requires collection area management plans and reef monitoring to ensure the continued health of the stocks and ecosystems that sustain them.
- **Improved Tracking and Inventory Control:** MAC Certification requires standardized written documentation of the purchases, sales and mortality of organisms, allowing tracking throughout the chain of custody and improved inventory management.
- **State-of-the -Art Information:** MAC-associated importers and exporters submit trade data in confidence to the Global Marine Aquarium Database, where they can access information on trade status and trends and analyses of their own data.
- **International Branding and Marketing:** The MAC label provides certified industry operators with global branding for quality. Certified operators can participate in MAC's international marketing campaign, utilizing multimedia efforts that extend beyond the reach of most individual businesses.

- **Improved Business Relationships:** MAC Certification allows industry operators to readily identify other businesses whose operations meet quality standards, reducing the need to rely on word-of-mouth and trial-and-error.
- **Positive Government Relationships:** MAC Certification reduces the need and likelihood of government restriction or regulation of the marine aquarium industry and enables governments to identify responsible industry operators.

4.2 Will certification result in higher retail prices for marine ornamentals?

In addition to the direct cost of being assessed and certified, some companies may need to spend money to upgrade their operations in order to be certified. On the other hand, certification will result in several cases of savings for industry operations through:

- Improved health of organisms;
- Reduced mortality of organisms; and
- Reduced number of “unordered” animals that are included in the shipments.

Initial indications are that the costs of compliance with MAC Standards will more or less be offset by the cost savings that result. It is also important to note that a healthy ornamental that lives longer is a better value for the hobbyist than a cheap fish that dies within a matter of days or weeks.

5. Ensuring Standards Compliance at the Collectors Level

5.1 Is it realistic to expect that collectors comply with the documentation requirements of MAC Standards?

Collectors are required to fill in log-book detailing their catch records. These records will in turn be used to account for the payment for the organisms. MAMTI project team will work with collectors to make this process as user-friendly as possible by for example creating a template log-book that consists of local names for the organisms or by including pictures of the organisms as reference.

5.2 How is compliance to MAC Standards maintained after certification at the collectors level?

MAC Certification includes significant effort on documenting and tracing of the organisms caught by MAC Certified collectors operating in MAC Certified collection areas---"traceability" is to create accountability and link each collector to the fish that they collect. The following is a "basket" of measures that focus on maintaining compliance with collectors:

- **Individual Responsibility of Collectors:** With certification, fishers are required to use logbooks to document their catch and have these reviewed by the collector's coordinator. Each collector's catch is identified to the individual. The quality and acceptability is evaluated both by the collectors' coordinator and by the exporter. Poor quality fish are linked to the individual who collects and/or handles them.
- **Peer Pressure:** The collectors are certified as a group (usually they form an association to get the group certified), linking the group to the continued performance and compliance of each member. If one member violates the MAC Standards, the continued certification of the whole group (and their access to the improved market and its benefits) is at risk.
- **Community Involvement:** The development of the Collection Area Management Plan (CAMP) for compliance to the Ecosystem and Fishery Management (EFM) Standard is a multi-stakeholder effort that links the community to the fishery and the collectors. Creating a sense of belonging and pride of the community in the success and commitment of the certified fishers through a major community awards ceremony for them enhances this link.

- **Local Government Surveillance and Enforcement:** There is already often a village level system for surveillance and enforcement, e.g., local government fishing permits, fisheries patrols, etc. These are being linked with the certification, e.g., in some instances local municipalities allow only MAC Certified fishers to fish in the area.
- **Economic Incentives:** The financial return and income stability of fishers is improved by supplying the consistent quality that results from certified practices, creating an incentive to continue achieving compliance. MAC Certified collectors will be equipped with nets, jars, etc. on a regular basis and earn more regular income. MAC is also developing market demand for certified products that creates added incentive for collectors to continue to comply.

6. Cyanide Use and Cyanide Detection

6.1 How is cyanide used in the marine aquarium trade and what does it do?

Destructive aquarium collecting practices include the use of sodium cyanide to stun and catch fish, and the breaking of corals. The sodium cyanide tablets are dissolved into seawater in squirt bottles. The mixture is squirted into the crevices of the reef where fish are hiding to stun the fish and make them easy to net. Cyanide disrupts enzymatic function within respiratory metabolism and exposing fish to cyanide results in liver, intestine, and reproductive organ damage. Assuming a fish exposed to the chemical survives, these effects impair the fish's ability to grow, reproduce and fight off disease.

The cyanide use causes long-term habitat damage by killing or damaging corals and other non-mobile animals and reduces populations of associated non-target fish and invertebrates that are killed or injured. Coral may also be torn out to get at the target fish. The use of cyanide for fishing is illegal in most countries but it is difficult to enforce this. The situation is also complicated by the fact that cyanide and chemically related compounds are formed, excreted and degraded in nature by numerous bacteria, algae, fungi, and plants. Low levels of cyanide in the marine environment can also result from pollution, such as from mine tailings rich in iron pyrites, and from the use of cyanide for the capture of live reef fish for the export food market.

6.2 Is there cyanide detection testing in use now in relation to MAC Certification?

There has been a cyanide detection test (CDT) developed in the Philippines during the 1990's through the collaboration of IMA and BFAR. These ion selective electrode methods were used in CDT labs that BFAR now operates. Although these CDT methods and laboratories have been in use for several years, unfortunately the methods used had not been internationally peer reviewed and the test laboratories not internationally accredited. In the past several years new test methods and equipment that have been developed or adapted for use in salt water tissue sampling for chemicals such as cyanide (e.g. High Performance Liquid Gas Chromatography, Colorimetric, Histopathological, Enzyme).

In the meantime, the MAC Standards have come into place and require that a committee of the MAC Board approve "credible, accurate, and reliable test methods for detecting chemicals that are suspected of being used in the collection and fishing of marine aquarium organisms. " These methods are "only valid if verified by an International Laboratory Accreditation Cooperation (ILAC) accredited laboratory." MAC and BFAR are now collaborating to begin evaluating the ion selective electrode methods and the other methods to determine what would be the most appropriate and effective CDT method for the aquarium trade in relation to MAC Certification.

6.3 Can MAC Certification operate without a cyanide detection test (CDT) in place?

In the initial implementation of MAC Certification with collectors and their communities it became evident that the technical solution to cyanide use (i.e. CDT) was not necessarily the best and most needed response to the issue. The CDT was developed as an enforcement response to the use of cyanide and has its purpose and place, serving as an important threat and deterrent to cyanide use. The advent of MAC Certification has brought in other approaches that could be used to create broad scale, longer lasting changes in behavior among fishers.

The long term role and applicability of CDT as the principle response to cyanide use has a number of issues: the cost and difficulty of sustainable financing for maintaining a network of CDT labs; the complicated science of cyanide detection; the variations of cyanide presence in fish due to variability in the time it takes to get fish to the lab; the possibility of "false positives" (i.e. fish that were caught without cyanide but have the chemical when tested) due to background cyanide on reefs from pollution or other fishing activities; the difficulty of trying to use the CDT to monitor a significant portion of catch or shipments; the serious constraints to developing and implementing a credible CDT lab network in large archipelagic countries.

In the meantime, we have focused on documenting mortality, ensuring traceability to ensure as much as possible that cyanide is not being used, as part of a larger context of responsible fishing practices, i.e. one of a range of practices for which individual fishers need to take responsibility for their personal behavior and be able to be held accountable for. This requires a means of verification to ensure that non-certifiable practices, e.g. cyanide use, are not being employed. As we gained experience with fishers and their communities, it became more evident that with certification the behavior of fishers is more likely to be effected by a developing and implementing a combination of the following strategies (as described in more detail above in relation to collector's compliance with certification): 1) Individual responsibility of collectors, 2) Peer pressure, 3) Community involvement, and 4) Economic incentives.

For this "basket" of compliance assurance mechanisms to work best, there must be the possibility to link each fisher to the fish that they collect. Cyanide use, as well as inappropriate fishing and handling and holding practices, affect the health of the fish. However, the effects of these may not be evidenced until many days or weeks after the fisher has caught and handled the fish. This is why the traceability and mortality documentation are so important. Nonetheless, MAC Certification in locations where cyanide use is known to occur or have occurred should include a program of monitoring, sampling and testing for cyanide by credible, accurate, and reliable methods used by internationally accredited laboratories and this is being pursued.

8. Management Plans, Sustainable Harvests and Unsuitable Species

8.1 How does MAC Certification address the sustainability of harvest levels?

It is critical to have a sound technical and scientific understanding of the status of target aquarium fish resources at the collection area level so that an informed decision can be made that a given reef area and/or group of target species can support some level of use as the basis for moving forward with management planning and certification. In most collection areas, the abundance of the marine aquarium resources is not known and no methods were available for determining this. To address this, Reef Check, as a part of the Global Coral Reef Monitoring Network (GCRMN), developed the Marine Aquarium Trade Coral Reef Monitoring Protocol (MAQTRAC) to assess the status and condition of reefs and fish stocks in collection areas. The method can also evaluate the effectiveness of management by monitoring coral reefs and populations of exploited organisms and 'control areas' to determine if there are effects on reef health or target species' populations from aquarium collection, and if these effects are ecologically significant compared to natural spatial and temporal variation.

The status of the reef and aquarium fish stocks, and the factors affecting them, will be different at each collection area. To ensure that there is this sound scientific understanding of the status of target aquarium fish resources and the reef for each site, MAQTRAC reef and fish assessment of coral reef health and fish populations will be undertaken as a baseline to use to monitor these over time and measure the effectiveness of management. The methods will include a regular survey of reefs that have been subject to harvesting by MAC Certified operations, analysis of the effects on reef health of collection of fish and invertebrates from coral reefs by MAC Certified collectors, and comparison of the health of the reefs where collection occurs with reefs where no known harvesting is occurring.

The initial MAQTRAC assessment will result in management recommendations for the collection area management plan (CAMP). The results of the MAQTRAC assessment will be communicated to the collectors, community and stakeholders and these field assessments on the abundance of target species and the fishing effort will be the basis for determining the volume and species that are caught and used to recommend harvest limits on certain species as part of the CAMP. The MAQTRAC information will also be used to develop the very important mitigation and management measures, notably the location and size of no-take zones and harvest rotation patterns. Additional data on the status and trends in reef resources will become available through the periodic monitoring of reef health and fish stocks and provide the basis for revising total allowable catches for the different species and how and other management and mitigation efforts specific to each collection area and CAMP.

The possibility of over harvesting of some species will be addressed through the assessments and the management plans. These field assessments on the abundance of target species and the fishing effort will be the basis for determining the volume and species that are caught and used to recommend harvest limits on certain species as part of the CAMP. The recommendations from the MAQTRAC assessment will be communicated to the collectors, community and stakeholders as part of the monitoring.

In the absence of sufficient long-term data and the final version of the MAQTRAC methods, the CAMP was designed to operate with respect to changes in Catch-per-unit-effort (CPUE), a commonly used tool to monitor and manage food fisheries. All MAC Certified collectors are required to keep logbook to document their catch to monitor CPUE within the framework of this management plan. Having rural village based fishermen keep a logbook is significant step forward in managing these multi-species fisheries, and a step that has not been wide attempted. We have phased in the logbook requirement for collectors for the full scope of information that is ultimately needed so that there was not too much to introduce at one time. For example, initially this did not strictly require the amount of time spent fishing to be included. Adjustments in the logbook have now been made to include the amount of time spent on collection activity for each collector.

Based on the input from the MAQTRAC assessments and CPUE record, the resource assessment teams will make recommendations for revision to the Collection Area Management Plan (CAMP) to ensure sustainable use, e.g. if there is a decline in resources, then measures such as reduction in catch limit (quota), addition of no-take areas, designation of fish replenishment zone, etc will be recommended. For example, the Batasan, Philippines CAMP includes provisions whereby a 30% reduction in CPUE for any organism for more than 3 months will be immediately be brought to the attention of the CAMP committee and all collection stopped of the organism(s) in question. The MAC Standards will require the CAMP Committee to incorporate the recommendations, or equivalent measures. The CAMP committee will have the CAMP review discussion involving all

stakeholders to ensure that the process is transparent and participatory. In Batasan, the next CAMP review meeting is scheduled to take place by December 2003.

8.2 What about species inappropriate/unsuitable for the marine aquarium trade?

MAC Certification works with the stakeholders to identify and limit the collection of species that should not be included in trade through Annex 4 of the MAC Core Standards that allows for those species not suited to the aquarium trade to be identified and not allowed to be collected or traded.

The MAC Core Standards include Annex 4 on Unsuitable Species, as follows:

The initial designation of a marine aquarium organism as an “unsuitable species” will likely include organisms for which the requirements for keeping in captivity are well known and clearly impractical to fulfill. This will undoubtedly include:

- *organisms that get too large for most home aquariums (e.g., sharks and rays),*
- *organisms that are obligate feeders of food that is difficult or expensive to obtain (e.g., obligate coral polyp or sponge feeders), and*
- *organisms that are dangerous or highly venomous (e.g., blue ring octopus).*

The sub-committee will develop criteria for reasonable and responsible exceptions to allow for the small number of these organisms that should be able to go to

- *public aquariums and scientific institutions (e.g., documentation that the end buyer is a public aquarium accredited to the appropriate body, such as the American Zoo and Aquarium Association) and*
- *home aquarium keepers who are conducting research into the conditions required to successfully keep these organisms in captivity.*

The sub-committee will periodically review and revise the list. The sub-committee will delete organisms from the list if and when they are determined to be viable in a certified trade and will add to the list when other animals are determined to not be viable.

The sub-committee will review and revise the criteria for identifying unsuitable species as more information becomes available. This will likely include information on

- *the ability of a species to survive collection, handling, and transport,*
- *the ability of a species to survive captivity for a considerable portion of its potential life span, and*
- *life history traits that make a species particularly vulnerable to over-exploitation (e.g., intrinsic low growth or recruitment rates).*

MAC will move forward with the procedures for developing a list of inappropriate species in trade in 2004. The sub-committee on unsuitable species will be established by the MAC Board as soon as possible and will include a range of stakeholders with relevant experience and information from science, conservation, industry and the aquarium hobby. The initial list will include species that do not survive well in captivity, that grow too big, and that are poisonous. The MAC Board sub-committee will develop a process for listing species that are rare and/or particularly vulnerable to over-exploitation. The Unsuitable Species process also provides a mechanism for evaluating and listing species that are “rare” at any geographic scope, i.e. local collection area, sub-national, national, international.

At the collection area level, the evaluation and management of rare species can be effectively implemented through existing procedures. The EFM Standard and the development and

implementation of the CAMP already require standardized MAQTRAC resource assessment and monitoring of species abundance. If species are found to be in very low abundance and/or there is a significant trend of decreasing abundance (i.e. “rare” in that collection area), the monitoring will recommend that the CAMP revisions require reducing or stopping collecting those species until they are documented as increasing in abundance to viable population levels. This provides a very clear method to ensure species that are locally rare or depleted will not be subject to continued harvest.

The Unsuitable Species sub-committee will develop a process for evaluating and considering for listing species that are proposed to be rare at other geographic levels, i.e. sub-national, national, international. This will include a process for receiving submissions, scientific and stakeholder review and input and decision-making on species that may need to be listed and at what scale. In the case of species that are locally abundant, but rare on a broader geographic scope, the sub-committee will develop a process for requiring the management plan for harvesting in the area of local abundance to take account of the broader rarity of the species.

9. Link between MAMTI Project and Government Regulations and Other Conservation Projects

9.1 How does the MAMTI project relate to government efforts to regulate and/or manage marine aquarium industry?

MAC Certification complements and extends the role and capacity of governments to regulate or manage the marine aquarium trade and will make stakeholders throughout the distribution chain, from reef to retail, aware of the importance of sustainability. In some countries, MAC Certification will be the only standards of practice available. Hence, MAC Certification is a positive extension of government regulations and policies regarding the marine ornamental trade. Among the items that will be required are the following:

- Compliance with all relevant international, national and local laws;
- Management plans and conservation areas for harvested reefs;
- Monitoring of reefs and stocks for compliance with environmental and fishery standards;
- Industry documentation of compliance to these standards; and
- Data provided to an international trade information system.

In other words, MAC Certification will require the industry to support monitoring, documentation and conservation and management of reefs as the way it does business. Coastal communities will be provided with incentives to manage and conserve reefs, filling a void in many developing countries which lack the funds to create, implement and enforce enough laws and management plans to protect all reefs all the time.

9.2 How does the MAC Certification relate to other marine conservation efforts?

The MAMTI project aims to transform the marine aquarium industry by:

- Eliminating destructive fishing methods,
- Monitoring and enforcement,
- Clarifying ownership and tenure systems ,
- Creating conservation awareness campaigns,
- Conducting stock assessments,
- Developing coastal zone management plans,
- Establishing community-based marine protected areas.

The project activities will be complimentary to any existing marine conservation efforts in areas where marine aquarium collection occurs. For example, in places where no-take zones are already established, the MAMTI project will create additional capacity by involving MAC Certified collectors in monitoring and enforcement activities.

10. Consumer Awareness Raising

10.1 How will consumers be educated about MAC Certified marine ornamentals?

The consumer awareness program has already begun but will be enhanced when the MAC Certification scheme is launched. The consumer awareness program is multi-pronged and involves the following aspects, among others:

The ever-growing MAC network of marine aquarium stakeholders now includes over 3,500 individuals and organizations in over 60 countries. Members of the network electronically receive the quarterly MAC News, which provides updates on the MAC Certification scheme. Many network members are also involved in developing and reviewing the MAC Core Standards and accompanying Best Practice Guidance documents.

MAC is working with media partners to implement a communications strategy to heighten awareness of the reef-to-retail process, explain the need to certify the process, announce launch of the MAC Certification system, encourage hobbyist and retailers to seek certified fish and sustain interest in efforts to ensure sustainability of the marine aquarium trade. MAC is compiling a speaker's bureau, educating reporters about MAC Certification and responding to under-informed media coverage of the marine aquarium trade.

The Ocean Project, a campaign of SeaWeb and the American Zoo and Aquarium Association, are working with MAC to help aquariums and retailers inform the public and hobbyists about the marine aquarium trade and the role of MAC Certification in transforming this trade into a positive force for sustainable use and conservation.

Annex 21: IUCN Scientific Review

**Review of the Proposed MACTRAQ Protocol
in Relation to the Marine Aquarium Market Transformation Initiative (MAMTI)**

Terry J. Donaldson, Ph.D
IMA/IBRP, University of Guam Marine Laboratory
UOG Station
Mangilao, Guam 96913 USA
(donaldsn@uog9.uog.edu)

and
Four Members of the IUCN/SSC Coral Reef Fishes Specialist Group

Executive Summary

This review provides constructive criticism of the proposed MACTRAQ- Marine Aquarium Trade Coral Reef Monitoring Protocol prepared by G. Hodgson, L. Mohajerani, J. Liebeler, D. Ochavillo and C.S. Shuman of Reef Check on behalf of the Marine Aquarium Council (MAC) and the Conservation and Community Investment Forum (CCIF). The protocol document was dated February, 2003. This review was requested by the International Finance Corporation (IFC).

The authors of the MACTRAQ protocol are to be commended for attempting a daunting but necessary task. The review of this protocol was prepared by five professional scientists with specializations in coral reefs, coral reef fishes, ecological assessments, reproductive ecology, life history strategies, fisheries models and their applications, biogeographical and biodiversity analyses, and statistical and ecological analyses. Their comments and questions are presented with the intent of assisting the authors in improving the MACTRAQ protocol. Four of the five reviewers will remain anonymous in order to protect the confidentiality of the peer review process. All questions and comments regarding the content of this review should be directed to the author named on the title page.

The ornamental aquarium trade is an important and expanding industry that has the potential to threaten the population viability of target organisms collected across the range of their respective geographical distributions. The effects of harvesting for the ornamental trade may go beyond single species declines if the methods used are broadly destructive, the species removed have keystone functions, or sufficient numbers of species are removed to significantly alter patterns of diversity and community structure. The trade is largely unregulated in the countries where most of the harvests take place, but is likely to further expand in these countries because it often provides an importance link to the cash economy. Consequently, there is a clear need to assess both the ecological impacts of harvesting for the marine aquarium trade and to develop mechanisms to assist with sustainable harvesting of target species in locations where there is little management oversight. These are the two overriding goals of the MAQTRAC protocol.

MAQTRAC was designed for use in areas where formal management of the marine aquarium industry is limited and where management is controlled by non-specialists. The protocol was designed also to be used in areas where harvesting is conducted by MAC certified operators. The protocol did not provide information on the relative proportion of collectors that are currently certified through MAC, or future projections of the number of operators expected to be certified by this scheme. Therefore, it is difficult to assess what proportion of the industry would be

subject to the MAQTRAC protocol (this information was discussed in the MAMTI brief, however; see Annex 2). However, if the protocol proves successful and there are advantages to individuals or companies in becoming MAC certified (eg, greater access to lucrative markets), it is likely that the MAQTRAC protocol could become a widely used management tool. For this protocol to be successful in its application, however, it must have the capacity to achieve its goals.

MAQTRAC has two interrelated but stand-alone components: a monitoring program designed to test for ecological impacts resulting from harvesting marine organisms for the aquarium trade, and a method to estimate the maximum sustainable harvest for any given species at a particular location. In each case, the protocol establishes a roadmap of techniques that could be implemented by independent groups working in different locations. The benefit of having standardised techniques that are used at different locations is that the result might be comparable among locations, although the ultimate utility would be for localized management. The downside is that ecological, social, and logistical conditions will vary to such a degree from place-to-place that no single sampling method will ever be a panacea. This has been recognized by the protocol's authors who noted that details of the methodology will vary depending on local circumstances. Nevertheless, in most cases the protocol will be implemented by individuals and organizations that do not possess in-depth training in ecological impact assessment or stock assessment. As a result it is imperative that the protocol describes unambiguously all the key considerations required when establishing ecological monitoring programs and fully articulates the limitations of simple sustainable yield models of stock assessment. Failure to do so could lead to (1) impact assessments that erroneously conclude that no impacts have occurred, when in fact they have but the method used had little power to detect them and (2) the overexploitation of local stocks.

The review identified significant problems in the following areas of the protocol: control vs impact sites; methods of statistical analysis; transect definitions and methodology; test species selection and the suitability of target species; age-based vs length-based demographic modeling; determination of size-frequency distributions; and, the application of standard stock assessment models. Additional comments and questions on specific portions of the text, and on the relevance to the MAMTI process, are given in the relevant annexes attached.

The methodology given in the proposed protocol does not arrive at a point where "harvesting level" and "sustainability" can be defined. The four approaches outlined by the authors could only allow users to distinguish differences between "impacted" and "un-impacted sites". Only one approach, yield per recruit methodology, considered explicitly both "harvest level" and "sustainability" but this method was not well elucidated. The three remaining methods, catch per unit area analysis, analysis of variance, and multivariate analyses, as stated, have insufficient resolution to assess harvest levels and sustainability.

MACTRAQ's strength is that the methods outlined in this protocol will provide a broad indication as to whether harvesting has an impact upon local populations of ornamental species. Careful site selection, and judicious statistical design and analysis are required in order to detect the harvesting impact against background spatial and temporal variability, however.

With respect to particular risks or weaknesses associated with the use of the MAQTRAC protocol, yield per recruit analysis provides an indication of sustainable harvest level but no framework was provided for converting numerical model output into realistic management advice. The authors indicated that this framework is generally applicable, however no peer-reviewed evidence published in a scientific journal was provided to support their case.

The MACTRAQ protocol has been linked to the MAMTI proposal as a principal tool for assessing and monitoring resources targeted by the ornamental trade, and the results obtained from the use of this tool can be reported back into the MAMTI framework. No direct link, however, has been established between protocol methodology and the accurate assessment of target populations that will allow for the effective measurement of impacts, the setting harvest levels, and the definition of sustainability.

Several recommendations to improve the MACTRAQ protocol are offered. Notable among these include: 1) the necessity to make a major review of impact assessment on coral reefs; 2) identify scientifically defensible methods that have been used successfully to define sustainability and reef health, 3) identify adequately impact and control sites, 4) determine qualitatively harvest impacts at a population scale, and 5) determine quantitatively harvest impacts at a population scale. 6) explore how impact assessment methods can be converted into a monitoring program, 7) provide evidence that CPUE information over an appropriate temporal and spatial scale can be collected fisher surveys, 8) provide relevant monitoring and management information at the appropriate resolution, such as at the population level for each taxon, 9) explore credible systems to ensure that monitoring results can be translated into quantitative management advice, and 10) conduct testing of the methodologies on a number of appropriate species with varying life histories and ecologies in a number of ecological and socio-cultural settings.

Comments and questions relevant to specific portions of the text are given in Annex 1. Comments on selected questions relevant to biological aspects of the Marine Aquarium Market Transformation Initiative (MAMTI- dated December, 2003), in which the MACTRAQ protocol will be applied, are given in Annex 2. Note that subjects in the MAMTI brief related to fisheries and resource economics, marketing, fisheries sociology, socioeconomics, finance strategies, project budgets, and management strategies (except where relevant to biological considerations) are not dealt with in this review. These subjects are best left to specialists with the appropriate training and experience necessary to address them.

Annex 22: Response to IUCN Scientific Review

**Response to Comments on MAQTRAC Review
December 30, 2003**

**Dr. Gregor Hodgson, Dr. Domingo Ochavillo and Dr. Craig Shuman
Reef Check UCLA
1362 Hershey Hall
Institute of the Environment
University of California at Los Angeles
Los Angeles, CA 90095**

Introduction

Four anonymous members of the World Conservation Union's/Species Survival Commission Specialist Group on Coral Reef Fishes and Terry Donaldson have kindly provided comments on the Marine Aquarium Trade Coral Reef Monitoring protocol (MAQTRAC) drafted by Reef Check based on advice from two international workshops. It should be noted that Reef Check is an IUCN member and that IUCN specialist groups are comprised of volunteers. In fact, more than 10,000 scientists from more than 180 countries volunteer their services for IUCN's six global commissions. Reef Check would like to express its appreciation for the many useful comments received from the experts.

Many of the comments go well beyond MAQTRAC monitoring per se, and focus on the application of MAQTRAC results to the management of the fishery. The IUCN/SSC members have not been involved in the application and testing of MAQTRAC over the past two years and so should not be expected to have knowledge of implementation plans outside of the MAQTRAC Instruction Manual. Given these constraints, the experts are commended for their rapid review and grasp of the manual and this complex fishery.

It should be noted that any scientific protocol is simply a tool, like a hammer. The MAQTRAC manual was intended to describe the tool, with some basic information on how the tool could be applied, without going into detail on the latter. This is because MAQTRAC will need to be applied on a case-by-base basis to individual reefs, just as a hammer would be handled differently for different types of nails. Thus the actual sampling design, analysis and the integration of the results into the Collection Area Management Plans was purposely not fully addressed in the MAQTRAC manual. Reef Check will convene an experts' Workshop on Stock Assessment and Management for the Aquarium Trade in 2004 to review available data and the proposed methods for interpretation and application to management. We hope that members of the IUCN team will participate.

This document needs to read in the context of the crisis conditions now existing on most reefs in the Philippines. Very little scientific work has been carried out on fisheries stock assessment (as opposed to ecology) of reef organisms and even less has been applied and tested for management. The great advantage of the aquarium trade fishery is that it is not a "blind" fishery – individual fish and invertebrates are targeted and collected and the MAC system will track them. The disadvantages of these fisheries in Indonesia and the Philippines today are that both are often severely overfished in shallow waters, primarily for food, therefore large surveys are needed to obtain sufficient sample sizes to describe populations. We are well aware that food fishing is a major potential confounding factor in assessments and analyses of these populations. The sooner

we can gain control and rehabilitate reefs in these countries by establishing “no-take” zones through MAC certification, the sooner we can eliminate this confounding factor.

We note that the three authors of this “Response to Comments” document are all coral reef specialists with over 50 years of combined intensive coral reef and reef fisheries monitoring and management experience primarily in the tropical Western Pacific Ocean.

Specific Responses to IUCN Review Executive Summary

1. **Comment:** MAQTRAC was designed for use in areas where formal management of the marine aquarium industry is limited and where management is controlled by non-specialists.

Response: MAQTRAC is simply a monitoring protocol. It was designed to be used by scientific teams to monitor impacts on individual reef fish populations and on coral reef health. The management of a given collection area will be carried out by a Collection Area Management Committee, through a written Collection Area Management Plan. The membership in these CAMP committees will vary depending on location, but would typically include professional government resource managers e.g. fisheries or environmental department staff, local village officials, company representatives, fishermen, Reef Check scientists and MAC staff.

2. **Comment:** MAQTRAC has two interrelated but stand-alone components: a monitoring program designed to test for ecological impacts resulting from harvesting marine organisms for the aquarium trade, and a method to estimate the maximum sustainable harvest for any given species at a particular location.

Response: As noted above, Reef Check provided some guidelines on how MAQTRAC results **MIGHT** be analysed to interpret maximum sustainable harvest, however, the planned Experts Workshop on Stock Assessment and Management for the Aquarium Trade will be needed to obtain the best available advice on how to proceed with these and other possible methods to integrate the monitoring results into management plans.

3. **Comments:** Nevertheless, in most cases the protocol will be implemented by individuals and organizations that do not possess in-depth training in ecological impact assessment or stock assessment.

Response: This is a misunderstanding – MAQTRAC is designed for use only by well-qualified coral reef scientists with species-specific taxonomic skills. The data analysis and interpretation will be carried out under the supervision of the Chief Fisheries Scientist and application of the data will be made by the CAMP committee (See comment 1 above). Four scientific teams have already been trained in the Philippines and Indonesia additional teams will be trained for this purpose. In addition, local fishermen will be encouraged to participate in some monitoring exercises designed specifically for their abilities and knowledge.

4. **Comment:** The methodology given in the proposed protocol does not arrive at a point where “harvesting level” and “sustainability” can be defined.

Response: Agreed. Harvest level is tracked explicitly by the MAC fisheries coordinator and it will be important for that individual to clarify where catches were made for these data to be useful in this context. The definition of “sustainability” from a MAMTI perspective will be based on the suite of methods recommended by the planned experts Workshop on Stock Assessment and Management for the Aquarium Trade on this subject.

5. **Comment:** The four approaches outlined by the authors could only allow users to distinguish differences between “impacted” and “un-impacted sites”. Only one approach, yield per recruit methodology, considered explicitly both “harvest level” and “sustainability” but this method was not well elucidated. The three remaining methods, catch per unit area analysis,

analysis of variance, and multivariate analyses, as stated, have insufficient resolution to assess harvest levels and sustainability.

Response: We agree that there are many complications in interpreting these data hence there is a need to apply a suite of analytical techniques to find which will be most useful for management. Given that the un-impacted sites will be under our control, ultimately, the BACI design should be useful in detecting differences between sites where aquarium harvest is allowed and those which are completely protected from fishing, as well as detecting whether some sites are overharvested compared with others. These and other questions will be the focus of the planned Workshop noted above.

6. **Comment:** With respect to particular risks or weaknesses associated with the use of the MAQTRAC protocol, yield per recruit analysis provides an indication of sustainable harvest level but no framework was provided for converting numerical model output into realistic management advice. The authors indicated that this framework is generally applicable, however no peer-reviewed evidence published in a scientific journal was provided to support their case.

Response: Reef Check and MAC are forging new ground creating a framework for fisheries management of marine ornamental fish and invertebrates. We are not aware of any peer-reviewed scientific papers on this particular aspect of ornamental fisheries management, as this is a new area desperately in need of attention.

7. **Comment:** The MACTRAQ protocol has been linked to the MAMTI proposal as a principal tool for assessing and monitoring resources targeted by the ornamental trade, and the results obtained from the use of this tool can be reported back into the MAMTI framework. No direct link, however, has been established between protocol methodology and the accurate assessment of target populations that will allow for the effective measurement of impacts, the setting harvest levels, and the definition of sustainability.

Response: MAQTRAC has been under testing for two years and provides a good estimate of target populations. Our ideas on the interpretation of these data and integration into management plans is a subject for consideration at the experts Workshop.

8. **Comments:** Several recommendations to improve the MACTRAQ protocol are offered. Notable among these include: 1) the necessity to make a major review of impact assessment on coral reefs; 2) identify scientifically defensible methods that have been used successfully to define sustainability and reef health, 3) identify adequately impact and control sites, 4) determine qualitatively harvest impacts at a population scale, and 5) determine quantitatively harvest impacts at a population scale. 6) explore how impact assessment methods can be converted into a monitoring program, 7) provide evidence that CPUE information over an appropriate temporal and spatial scale can be collected fisher surveys, 8) provide relevant monitoring and management information at the appropriate resolution, such as at the population level for each taxon, 9) explore credible systems to ensure that monitoring results can be translated into quantitative management advice, and 10) conduct testing of the methodologies on a number of appropriate species with varying life histories and ecologies in a number of ecological and socio-cultural settings.

Responses: 8.1) The authors have themselves carried out and written extensive reviews of environmental impact assessments on reefs, led international workshops and have taught this subject in university for many years. Many aspects of EIA-type monitoring have been incorporated in MAQTRAC. 8.2) See comments 1 and 7 above. 8.3) The selection of control and impact sites is always problematic in ecology. The advantage that we have in MAMTI is that we will have total control over the Collection Areas and so should be able to recreate “before” sites over several years of complete banning of all fishing in no-take areas.

Typically, Control sites will be existing MPAs and areas where low levels of collection have occurred. 8.4 and 5) Harvest impacts will be detected by catch records, direct observation of fishing, and by MAQTRAC. 8.6) At each site, a sampling design will be created that uses MAQTRAC as the basis for a monitoring program. It is not possible to specify the sampling design at this stage due to the large size differences between collection areas. 8.7) CPUE data are collected by the collectors' coordinator in logbooks at each Collection Area and include the fishing location. 8.8) Species-specific data are collected for both fish and invertebrates by MAQTRAC at the population level. 8.9) See Workshop Response 1 above. 8.10) Testing is currently underway in the Philippines, Indonesia and Fiji.

9. **Comments:** The review identified significant problems in the following areas of the protocol: 9.1) control vs impact sites; 9.2) methods of statistical analysis; 9.3) transect definitions and methodology; 9.4) test species selection and the suitability of target species; 9.5) age-based vs length-based demographic modeling; 9.6) determination of size-frequency distributions; and, 9.7) the application of standard stock assessment models.

Responses: 9.1) We disagree that this is any more of a problem than in any other ecological assessment project and may be easier for the reasons given above (See comment 8.3 above). 9.2) We strongly disagree that our proposed methods of statistical analysis are problematic. We have been using both BACI design and various PRIMER routines since they were first published in major environmental impact assessments for both private clients, governments and academic work are well versed in their application. It is very important in this type of assessment to use a suite of techniques, each with its own advantages. These are all standard methodologies routinely used for discerning differences among ecological communities. We agree that different scientists may have different favorite methods, but note that the reviewers have not proposed alternatives. We agree that initially, at most sites, the "BA" will not be available. However, if our stock rehabilitation efforts are successful either through passive means (no-take zones) or through active stock enhancement, then some parts of these areas may become available for harvesting after two years thus allowing the BA comparisons to be made. 9.3 We note the reviewers comments regarding terminology of segments, and transects etc., and we will clarify this. 9.4) We will be using a representative selection of species that are collected in each area – we disagree that this is significant problem, and believe that this is the correct approach. In general, in each area, a few key species are collected at relatively high rates while others are collected infrequently. We plan to carry out analyses for all species of both fish and invertebrates for which there are sufficient data. 9.5) We agree that length-based analyses will be difficult for some reef species and agree that the use of otoliths as a basis for age-frequency estimation will be useful. In fact, although this method was not mentioned in the MAQTRAC Manual (since this was not its purpose), we have set up a system for collecting otoliths and will be testing the use of this method. It should be noted, however, that the otoliths of many reef species are extremely small, and the use of otolith analysis is relatively expensive and so will be used for selected species. 9.6) Determining size-frequency distributions is a standard method and part of MAQTRAC, however, we agree that using these distributions to estimate age can be problematic in some reef species. (See 9.5 above). 9.7) We agree that there are some problems associated with applying standard stock assessment models to this fishery, as there are with any fishery, however, we are not aware of alternative tools and the reviewers have not suggested any. We agree with the need to obtain additional advice on the application of these results to management, hence the planned Workshop on Stock Assessment and Management for the Aquarium Trade.

Annex 23: STAP Technical Review and Response to STAP Review

STAP Review of the Marine Aquarium Market Transformation Initiative (MAMTI)

Proposal to the Global Environment Facility (GEF)

December 2003

PREFACE

This review of the proposal to GEF for the Marine Aquarium Market Transformation Initiative (MAMTI) in the Philippines and Indonesia follows the outline suggested by the Guidelines for STAP Reviews. It is based on the personal and professional experience of the reviewer and several associates in the Philippines. All comments and suggestions are open for discussion since there are various avenues to address the issues associated with the marine aquarium trade and markets in the Philippines and Indonesia. There is no one correct or proven way but only those that have been shown to be relatively more effective based on the experience of the last 20 years in Philippines and to a lesser extent in Indonesia.

1. INTRODUCTION

This project is very timely and needed in the region that supplies a large portion of the organisms for marine aquarium trade worldwide. The demand for marine aquarium organisms is increasing such that an opportunity exists to direct this demand into improved conservation and management of the resource at its source. At the same time, the evolution of the marine aquarium trade over the last 30 years has been rapid and it has had major negative impacts on the coral reef habitats where most of the traded species reside. Also, selected species have been over-harvested without much thought or practical measures applied to developing a sustainable harvest regime for marine aquarium species.

It is well known that the use of sodium cyanide has been and still is rampant in the Philippines with over 20 tons applied to the reefs in the Calamianes Islands (northern Palawan) during 2002 alone. The spread of use of sodium cyanide to Indonesia is also well documented now with the Philippine influence being a factor in this diffusion. It is also accepted that individual nature of the fishery with many small-scale fishers vying for fish using questionable methods, is not easy to control, especially when the fishers are on the bottom breathing compressed air. Their desire is to catch fish and invertebrates and whether they use poison, crush or overturn coral and rocks, or apply other techniques to extract the fish, is not of great concern to them given that they are traditionally mobile and move from reef to reef to fish.

The consequences of damage incurred from the capture of aquarium fish through destructive means has not gone unnoticed in the Philippines where the law clearly prohibits these practices and where many communities and local governments have stopped the use of poison and even banned the use of compressors to completely eliminate the problem from their area. Fishers know when they break the law and indeed the exporters are increasingly wary of buying improperly captured fish.

A factor contributing to the increasing awareness about coastal resources management (CRM) or integrated coastal management (ICM) is that many local municipal and city governments are engaged in the planning for and management of their coastal areas and resources. In the Philippines, more than 100 coastal municipalities and cities (covering 3500 km of coastline) have

CRM plans that are being implemented with their own budgets and personnel and with such best practices in place as: improved coastal law enforcement, marine protected areas (MPAs), zoning schemes for marine uses, licensing of selected activities. In all cases coral reefs are a high priority for protection and management and are usually the beneficiary of the law enforcement and MPAs. Nevertheless, this scale of management at the local government level is still relatively new and requires much technical assistance to make it viable.¹

The aquarium fishery is one of several fisheries that are all mixed within similar geographical areas since fishers primarily fish for food and secondarily for aquarium fish among others. Thus, the need for integrated planning and management has come to be seen as the most viable means to manage all the various uses under one umbrella of the local government. And in the Philippine case, the local government has full jurisdiction over its coastal and marine resources to 15 km offshore. Although the national government sets the broad policy context, all enforcement is devolved so the sustaining unit of management is the municipality and city. Thus, although local stakeholder communities are important in the management process, being the primary stakeholders of a given fishery, communities operate under the laws of the local government, and the only organized and sustained enforcement, registration and licensing for small-scale fisheries, is through the local government unit (LGU). Localized law enforcement through the volunteer, “bantay dagat” groups in the Philippines although effective in some areas, is highly variable. A better system is emerging whereby the LGUs form a coastal law enforcement unit that coordinates with neighboring LGUs and has some support from the national Philippine National Police (PNP) and Philippine Coast Guard.

This point regarding the LGU role needs to be fully reflected in the MAMTI proposal since it has been amply shown that most “community-based” projects of the 1980’s in the Philippines have floundered unless they have been fully supported and endorsed by their respective local governments. And, those projects such as Gilutongan Island, mentioned in the proposal, that was dormant during most of the 1990s was brought back to life by the support and prodding of the municipal government with some technical assistance. It is now a viable and self-sustaining MPA that has more than local-fisher community involvement.

The proposed project will promote more and improved MPAs to help sustain the larval sources for target aquarium species. This is needed but since most MPAs in the two countries are established for multiple reasons, including improved food fish catch as well as developing tourism opportunities in some areas, the planning for MPAs will need to be flexible and consider all the conservation concerns of a given area and community or LGU. In this regard the newly established MPA rating and evaluation system in the Philippines will be valuable to ensure consistency in MPA design and in establishing common criteria for good MPA management and results.² Indonesian agencies and NGOs have also expressed interest to adopt a similar system.

A new project recently commenced with USAID support in the Philippines, “Fisheries Improved for Sustainable Harvests” (FISH) that is not mentioned in the proposal. Since the new FISH

¹ Philippines is farther along in decentralizing CRM functions to local governments than Indonesia and the Philippine experience is richer and relatively more successful. Indonesia appears to be following this trend though and is also decentralizing to local governments but the roles are not as well articulated as in Philippines.

² The Coastal Conservation and Education Foundation, Inc. (CCEF) based in Cebu City along with more than 20 partners nationwide (government and non-government) have endorsed the MPA rating system so that a common MPA guide exists for the country. This is available at www.coast.ph or by email at ccef@mozcom.com

project has an objective of sustainable fisheries in four project areas, two of which include aquarium fish gathering as a major activity, there is good potential for collaboration between the two projects. The FISH project will be working in northern Bohol Island in the Danajon Bank area and in the Calamianes Islands in northern Palawan. Both areas have large and active aquarium fish collection communities that need assistance and guidance. This project begins field operations in 2004 and will run for 5 to 7 years. The first year work plan for FISH will be completed in January 2004.

A few key points that need to be better incorporated into the proposal based on the above discussion are:

- a. The role of LGUs is not adequately recognized to assist to sustain and institutionalize the project at the local level, monitor the Collection Area Management Plans (CAMPs) that need to be integrated in the municipal or city development plans.
- b. The CRM or ICM planning process needs to be incorporated into the initial stage of the local area management to ensure proper baseline assessment to planning and implementation so that the local government builds on addressing all their CRM needs and not just aquarium fish collection, which will normally be only one of various activities impacting the coral reefs and near-shore fisheries of an area.
- c. The MPA rating system being initiated in the Philippines can assist to guide the MPA planning and development process of the project. Also, since many MPAs are legalized in the Philippines and Indonesia that are not yet functional or have deteriorated in their effectiveness, the project should be open to rehabilitating established MPAs that are no longer functional since this is often more efficient and acceptable to LGUs and communities than starting entirely new MPAs.
- d. The need for improved national policy is not fully addressed in the project. The management of the aquarium fishery needs to be part of the evolving policy of integrated coastal management (and fisheries) so that it is part of whole management process. Both countries are in the process of developing ICM policies that are beginning to integrate all fisheries management.
- e. The role of the Bureau of Fisheries and Aquatic Resources (BFAR) is not adequately reflected in the proposal for the Philippines and equivalently, the Department of Fisheries in Indonesia. In Philippines, BFAR has a role in monitoring through CRM sections and its cyanide laboratories etc., which although with problems, cannot be totally ignored. Also, regional staff of the BFAR can assist with MPA design and monitoring and can provide some technical assistance for CAMP implementation.
- f. The potential to collaborate with existing projects and potential partners is not fully elaborated in the proposal. The new FISH project has potential as a partner as well as several NGOs that are capable of performing specific tasks to assist with the project field activities or take on whole areas of operation.
- g. Loans to small fisher organizations have not worked on the whole because since such groups are very small and individual in nature and they usually just lose the money once a loan is made. Loans are more often associated with the collapse of small community organizations overall because of internal conflicts created. These should be used with extreme care and various case studies analyzed before it becomes a major feature of MAMTI. The reviewer has found that if a local fisher or community organization can fund itself, the chances of success in managing the funds are higher.
- h. At the LGU level, there is a move to ban the use of compressors in some areas. This point should not be lost since the reality of management is that this is a strategy of control that has been proven to be more effective to date to stop the use of cyanide than most

- other attempts to control the menace. This, once again, shows the need for good local law enforcement and support through the local government system.
- i. Marine tenure has a strong appeal and potential as is been seen through the substantial interest in the use of marine protected areas with different use zones. Local governments have full authority in planning zone uses, to issue permits and to monitor these uses etc. such that this approach can build on the experience of previous projects assisting to establish and monitor effective MPAs. Appropriate and participatory CRM plans can help set the trend within project LGUs for effective implementation of MPAs and associated CAM plans.

Finally, the concept of “certification” for marine organisms and other outcomes is popular and has tremendous potential. The worry is that there is already a large demand for the certified organisms but the supply will be low to begin with. This will create pressure to increase the supply and to sacrifice control, monitoring and quality. Getting the field level supply on line will not be easy or fast so the project will need to be careful to not market the certified supply to soon. Also, since the certified price should be higher than that for non-certified organisms, the incentive for fishers to join will increase and the issue of quality control will occur. For me, the question of how to sustain this process through the local system is critical to long-term success. This is discussed more below.

2. KEY ISSUES

A. Scientific and technical soundness of the project

Most threats to the coral reef ecosystem have been addressed in the proposal. One not mentioned though is that in both countries, the use of poison is becoming more common for live and dead food fish capture. This is a growing menace that is aligned with the aquarium trade since it started mostly for aquarium capture. This shows the need for comprehensive management of given areas to address the range of problems that exist and also the need for national policies that fully address these issues.

The proposal to give marine tenure to fishers for particular areas of capture is appealing and likely to be viable in the Philippines although it is not yet fully tested. The Fisheries Code of 1998 does allow local governments to issue permits for its resident fishers and implies that they can be excluded from adjacent local government jurisdictions. This has not been tested in court but might be soon since some municipalities in Cebu Province are not allowing nonresident fishers to enter their waters. In theory, entrance to fishing grounds can be limited by municipal or city ordinance as applied to MPAs and their use zones. MPAs with traditional fishing areas do have regulations on gear but entrance is equal for all fishers as long as they abide by the rules of the fishing zone.

The Reef Check monitoring system (MAQTRAC) may not be a viable long term monitoring tool because it depends too much on outside assistance to implement and to maintain the database and to analyze the data for management. It can be used to establish a baseline with assistance but the monitoring protocol needs to be simplified for local government and/or academic institutions to maintain in coordination and in collaboration with the stakeholders of the area. Also, it is not fully compatible with a system already endorsed for Philippines through the Philippine Coral Reef Network or PhilReefs coordinated by the University of the Philippines Marine Science Institute (UP-MSI) with more than 20 collaborators nationwide. It is suggested that the Reef Check system be made more flexible to accommodate the national system being used in the Philippines. This would have the benefit of allowing ReefCheck, in collaboration with various

Philippine institutions to have access to many times more baseline data that already exist for Philippine reefs. At the present, the data contained in the Reef Check data system is a small portion of the total reef monitoring data contained in PhilReefs system and that of the Coastal Conservation and Education Foundation MPA database that now has biophysical data on reef fish from more than 100 MPAs nationwide.

The MAMTI project suggests that fishers will need to restrict their fishing effort if scientific data indicates that over-fishing is occurring. This is a big if since it has never been applied in either the Philippines or Indonesia for any fishery at anytime. I would suggest that a more viable option would be to set catch limits from the outset based on the baseline information and to incorporate into the CRM and CAM plans and establish that by local ordinance. It will be extremely difficult to adjust catch levels according to refined information even though this is intellectually appealing and theoretically possible. Provisions can be made to make adjustments in catch levels but these should be a stage with all monitoring and evaluation is institutionalized locally with the assistance of local NGOs and academic partners operating in the area.

Indicators are useful to achieve the objectives but they need to be quite simple so that all project participants and local stakeholders can understand and endorse them. The indicators can provide benchmarks of success that will help to push the project along knowing that the ultimate goal and objectives will take time and long term investment. It would be useful to review indicators of several long-term CRM projects in the Philippines and Indonesia for compatibility and for seeing what is practical. The Coastal Resource Management Projects (CRMP) supported by USAID in the Philippines and separately in Indonesia both have indicators that useful to consider in that they are essentially the same as those ultimately adopted by the LGUs for their own CRM programs and helped build ownership of the project through local institutions.

Monitoring through the local governments and the private sector partners will be essential. The communities usually do not monitor themselves very well but at the municipal and city levels, this is possible with some prodding by NGOs, academe, BFAR, the Department of Environment and Natural Resources (DENR) or other agencies that are active in a given area. Presently a Monitoring and Evaluation System for CRM is established under the DENR through its Coastal and Marine Management Office (CMMO) at the national level and the CMM Division at the regional level. This M&E system is implemented by LGUs with some assistance from the CMMDs of DENR. The incentive that encourages its use is that of being certified in CRM once certain basic benchmarks are achieved. This system could provide a model for how monitoring and evaluation of the CAM plans and to some extent the overall objectives of the project.

The conservation of biodiversity is a large task that requires a fully integrated approach. This project will certainly contribute to marine biodiversity conservation in many ways but the big question is whether the demand for marine aquarium organisms will overrun the ability of the local collectors, middlemen and project collaborators to maintain control. At present, since a system does not really exist, conservation is not being achieved and biodiversity is being sacrificed. The project will slow this degradation and to turn it towards a more positive and sustainable track if implemented as proposed.

The primary risk of the approach being proposed is that it will expand the market and demand as mentioned. How this plays out at the field level remains to be seen but several pitfalls that the project needs to be mindful of are:

- a. Expanding and uncontrolled use of compressors (or scuba) for collection of fish and other organisms without strict controls on what fishers are doing and how they are collecting;
- b. Not encouraging aquarium collection where it is not yet established unless there is really a strong demand to do so with a good potential for control;
- c. The incentive to substitute organisms that are not captured using certified methods will increase as the demand for certified items increases along with the price.

The project does not seem controversial in any way and gaps that might exist revolve around the ability of the project to become sustainable. There are no easy short cuts to building sustainability at the local levels in either country. The project thus needs to be fully sensitive to the local government systems in both countries and to the culture of the communities involved from the fishers up to the exporters. Most of these potential issues are discussed in the project proposal but more emphasis needs to be placed to ensure local sustainability of the baseline assessment, development of the CAM plans and then monitoring and evaluation. This system needs to be aligned with the existing CRM systems now evolving in both countries and tailored to fit in the respective areas.

The legal instruments that will assist in project success will mostly be at the local government level as the plans are developed since local ordinances are the only way to legalize the plans. The plans must also be linked to local government development plans as such. At the national level, there is a need for improved policies linking the evolving ICM policy to fisheries management. This involves both the DENR and the BFAR in the Philippines and their equivalent in Indonesia. Particular aspects of these policies can be tailored to assist with management of the live marine fish and invertebrate export. National marine protected areas that fall under the jurisdiction of the Protected Area Management Boards (Philippines) and the Directorate of Nature Conservation in Indonesia will require national approvals although often plans for a given area are mostly developed locally with substantial LGU participation. The CAM plans can fit within these PAMB approved plans but time for approvals might be substantial.

B. Identification of global environmental benefits

The global benefits that will accrue to biodiversity conservation are substantial. The MAMTI project aims to conserve coral reefs in its area of operation and if the system of aquarium fish certification works as envisioned, the area of impact, in terms of conservation, will be larger than the immediate geographic area of the project. The targets for reef conservation through MPAs and improved management outside of MPAs is significant and worthy of the investment.

C. How does the project fit within the context of the goals of GEF

The project fits well within the context of the goals of GEF in terms of supporting biodiversity conservation in tropical marine areas with a focus on coral reefs and nearshore fisheries as noted above in B.

D. Regional Context

The MAMTI project has a regional context since it will work in both Philippines and Indonesia, two of the most important countries in Southeast Asia in terms of marine biodiversity. This two-country project can help the project evolve solutions to aquarium trade problems that go beyond national boundaries. Also, since the two countries are somewhat interlinked in terms of influence

of methods used and fishing culture at the local level, good cooperation between the two national areas can enhance effectiveness overall.

E. Replicability of the project

It appears that the model being tested could be replicated in other regions of the same countries and to other countries and regions as well as long the parameters for the tropical fish collection are more or less similar. Some of the comments made above suggesting how to improve the project for technical feasibility, monitoring methods, assistance with MPAs and coordination with other similar projects will influence how easily the project can be replicated. In this regard, some adjustments may be needed.

F. Sustainability of the project

The question of sustainability is a large one with many unknowns since projects such as MAMTI are testing new waters and there are no proven solutions to some of the issues at hand. Comments concerning various aspects of the project are intended to address sustainability with the hope that these suggestions will add to the long-term value of the project beyond its completion date. In both countries, the big question is how to best institutionalize the processes for assessment, planning, implementation, monitoring and evaluation at the local government and community levels. Most of these functions will not necessarily be carried on by national government entities. One solution in this regard beyond just working the LGUs, as mentioned several times, is to engage other local, private organizations that have a real interest in conservation and related issues. In both countries there are viable NGOs and academic groups that should be part of the local area project implementation from the beginning so that they build up their expertise, staff and direction through the experience of MAMTI. In the Philippines, such organizations may be different in different parts of the country. In this regard, the project should seriously consider sub-contracting major parts of field operations and not attempt to undertake it all through project staff. Project staff may be more efficient during the project start and life, but once they are gone, the institutionalization will tend to fade away. Engaging other NGOs and academic partners, will tend to solve this problem. Also, much of the existing expertise that MAMTI will need to employ are now with other organizations so that it behooves the project to work through these other existing organizations instead of raiding personnel as needed for the project.

3. SECONDARY ISSUES

A. Linkage to other focal areas

The project may have some positive spin-offs to other focal areas of GEF through its conservation of coral reefs and all the benefits associated with conservation of this habitat and ecosystem. It is not foreseen that there will be any negative impacts on other focal areas. The only possible consideration might be if the project were to promote aquarium fish collection beyond its present boundaries and the collection methods are not controlled.

B. Links to other programs and action plans

The project appears to be well aware of all other programs supported by GEF as well as most other donors in the countries concerned. Several exceptions to this have been mentioned above.

C. Other beneficial or damaging environmental affects

The project will create numerous additional benefits to the extent that coral reefs and other nearshore ecosystems are conserved through limits on fishing efforts and through the implementation of MPAs. These benefits will be in the form of improved fish catches for food fish, possible ecotourism benefits through more scuba diving and snorkeling opportunities among others. Damaging environmental affects will only pertain to those areas where illegal fishing continues using destructive methods. Since the project aims to stop this, there should be a net gain for conservation.

D. Degree of involvement of stakeholders in the project

The involvement of stakeholders in the project in a meaningful manner to promote sustainability has been discussed above. A key point is that the more that local existing institutions can take on the role of the “project”, the better the chance of continuation of the systems being put in place. The project management must find that delicate balance between building up a large project team that is very capable and devolving responsibilities to subcontractors who are already working in the areas of concern. The latter system will payoff in the long-term and will build local capability. This does not imply that local fisher groups are the ones who will end up running the project but rather that fishers in association with respected NGOs, LGUs, academe and others will be the partners at the field level to make things work. Also building on systems that are already in place and understood by stakeholders will make for smoother sailing. This may be contrary to view that all survey techniques should be standardized for the whole of MAMTI. This may not be feasible and might be counterproductive to the longevity of the project. Going with what is in place, if it is basically good, will be much easier.

E. Capacity building aspects

Capacity building aspects of the project are dealt with in discussions above.

F. Innovativeness of the project

The project is innovative in trying to test a strategy that could promote much improved conservation of coral reef fish and reef habitats in wide areas and could transform the marine aquarium trade to a much more sustainable operation than at present. It attempts to build on lessons being learned from past and present projects and combines the skill and expertise of various organizations that have a track record in marine conservation. The concept of certification is innovative and is a trend that could prove very useful but it is still in the testing stage to have a wide and positive effect.

SUMMARY AND FINAL POINTS

Overall, the MAMTI project has many positive aspects and should be funded in some form to move ahead with its needed interventions to improve the marine aquarium trade and its practices. Comments in this review are mostly suggestions for improvement of the proposal based on a long experience with coastal management in the Philippines and Indonesia. A summary of a few key points made above follows:

- The role of LGUs can be highlighted more to ensure a local government base for the regulations being planned and implemented.

- The need for an integrated planning and implementation process at the LGU level cannot be avoided and should be considered so that a broader and more sustainable impact results.
- Build on the marine tenure ideas of the proposal through the use of MPAs in creative ways.
- Use MPA rating and evaluation system being developed in Philippines.
- Reef assessment methods could be tailored to what is presently being implemented through local partners in the Philippines and Indonesia, Reef Check might want to consider modifying its protocol in this regard.
- The volunteer marine patrols or “bantay dagat” in the Philippines are ad hoc and vary tremendously in their effectiveness, these need to be institutionalized through LGUs and together with regional offices of national government.
- Project management will benefit from developing partnerships with existing organizations that have proven track records in contrast to building up a large project staff and operation. It will be better to keep it streamlined to provide technical support to existing entities close to the field or market regulation sites.
- Explore linkages with the new FISH project that will operate in Calamianes Islands and in northern Bohol, Danajon Bank area
- Address several outstanding national policy issues concerning aquarium trade and practices.
- Be wary of loans to small fisher groups and test this strategy in some areas and not in others.
- Try not to turn around bans on compressor fishing where they exist and are enforced.
- Keep tabs on how demand for certified aquarium organisms may drive the catch rates and methods used, e.g. don’t put the cart before the horse so to speak!

Review by Alan White

January 6, 2004

awhite@mozcom.com

For additional references: www.oneocean.org or www.coast.ph

MAMTI Partner Response to STAP Review

MAMTI GEF PROJECT PROPOSAL

January 6, 2004

Introduction

This document consists of responses to a STAP review of the MAMTI project proposal. The responses were prepared by the MAMTI partners including staff of the Marine Aquarium Council (MAC), Reef Check and Community and Conservation Investment Forum (CCIF). The MAMTI partners would like to express their appreciation for the very useful advice and strong support for the project given in the STAP review. The responses are given below following each STAP review comment.

- a. **Comment:** The role of LGUs is not adequately recognized to assist to sustain and institutionalize the project at the local level, monitor the Collection Area Management Plans (CAMPs) that need to be integrated in the municipal or city development plans.

Response: While MAMTI is a private sector focused project, we fully recognize the critical importance of involving the LGUs at all stages of design and implementation. The LGUs will be invited to participate directly in Collection Area Management Committees that are responsible for creating the management documents for each area – the Collection Area Management Plans. As noted in the project brief, LGUs will be critical partners in establishing, monitoring and enforcing marine protected areas established as an integral part of the Collection Area Management Plans.

- b. **Comment:** The CRM or ICM planning process needs to be incorporated into the initial stage of the local area management so that the local government builds on addressing all their CRM needs and not just aquarium fish collection.... It would be useful to review indicators of several long-term CRM projects in the Philippines and Indonesia for compatibility and for seeing what is practical.

Response: MAMTI is not an ICM project, however, the establishment of the Collection Area Management Plan (CAMP) Committees will ensure that many of the issues typically addressed in an ICM project will be introduced and considered. The failure of some ICM projects may be attributed to their trying to do too much in too many sectors at the same time. By focusing on the marine aquarium trade, MAMTI will be able to solve a major problem, and help begin the process of introducing the concepts, structures and process of ICM. We agree that it would be useful to review indicators of several long-term CRM projects in the Philippines and Indonesia to see what is practical and useful for the MAMTI project and we have incorporated this in to M&E development.

- c. **Comment:** The MPA rating system being initiated in the Philippines can assist to guide the MPA planning and development process of the project. Also, since many MPAs are legalized in the Philippines and Indonesia that are not yet functional or have deteriorated in their effectiveness, the project should be open to rehabilitating established MPAs that are no longer functional since this is often more efficient and acceptable to LGUs and communities than starting entirely new MPAs.

Response: We agree with the reviewer and we will use the MPA rating system in the evaluation of potential project sites and look for the opportunity to rehabilitate established MPAs that are no longer functional. As part of our previous work in the area, we have extensive documentation on

the location and management status of all existing marine protected areas in Indonesia and the Philippines. Under contract with the IUCN World Commission on Protected Areas (WCPA), we have developed “best practices” for turning paper parks into functional entities, including the establishment of proper legal foundations, the development of a local management board which is set up to incorporate NGO and private sector know-how, the development of long-term funding models, etc. We have worked for years with both the government entities and the NGOs responsible for marine park operation, including the TNC office in Komodo National Park, the USAID funded efforts in Bunaken National Park, the WWF-supported efforts at Tubbataha, etc. We fully expect to use these insights when we work with the LGUs to make these paper parks functional.

d. **Comment:** The need for improved national policy is not fully addressed in the project.

Response: We have been working closely with the national governments of both Indonesia and the Philippines on fisheries management and the success of the MAMTI project will be used to inform the development and design of national policy. For example, the national law and policy regarding cyanide in fishing is clear in both countries: it is illegal. However, neither country has the capacity to consistently and rigorously enforce these laws. The MAMTI project will provide compelling economic incentives for local communities to ensure destructive fishing is not occurring. The MAMTI project will work closely with the national governments to inform the development of policies that include these additional approaches to addressing fisheries.

e. **Comment:** The role of the Bureau of Fisheries and Aquatic Resources (BFAR) and the Department of Marine Resources and Fisheries (DKP) in Indonesia are not adequately reflected in the proposal.

Response: We have been working closely with both of these agencies in both countries for several years both at the national and local levels and have had input from them in the MAMTI proposal development. The project partners will ensure there is a substantial level of involvement by these agencies in the planning and implementation of MAMTI. For example, both BFAR and DKP will be invited to be represented in the Project Advisory Committee. The MAMTI project will become a demonstration project on how to use appropriate economic incentives to augment the resource management laws and policies, with the potential to be duplicated for other near-shore fisheries, and even for terrestrial/forestry applications. We will work very closely with both departments to ensure that the concept becomes part of the “tool kit” which is used to find solutions to highly complex environmental problems.

f. **Comment:** The potential to collaborate with existing projects and potential partners is not fully elaborated in the proposal. The new FISH project has potential as a partner as well as several NGOs that are capable of performing specific tasks to assist with the project field activities or take on whole areas of operation.

Response: As noted in the Project Brief, we welcome and will seek opportunities to collaborate with existing partners including NGOs, and projects, that have the appropriate (or potential) capacity and focus to undertake the activities and deliver the results needed to achieve MAMTI outcomes. While partners will play a critical role (especially at the local level), the success of MAMTI will depend on the rapid duplication of a well developed business model across many communities and collection areas, including modules for training, business development, CAMP developments, accounting, reporting, etc. We strongly believe that we will need a central staff of experts and managers to drive the development and replication of the business model and rapidly “roll out” the MAMTI model, with all the transparency and accountability that is required - especially in the critical first years. This requires consistency and discipline that cannot be achieved by loose partnerships. Regarding the USAID FISH project in the Philippines, this is a very recent development and we have not had access to planning documents and will look

forward to examining possible areas of collaboration in the Philippines. This has now been included in the Project Brief.

- g. **Comment:** Loans to small fisher organizations and community groups have not worked because since such groups are small and individual in nature and they often lose the money or have internal problems after a loan is made.

Response: The initial infrastructure required to set up the collector initiatives will be funded by small grants (<\$2,500) – this greatly increases the probability of economic success for the collaboratives. The micro-financing scheme envisioned for MAMTI involves loans to existing business groups, i.e. cooperatives of collectors, not individual fishermen. When designed well, such loans have enjoyed pay-back rates in excess of 95% in the Philippines and Indonesia. We will be working exclusively through highly experienced microfinance institutions in designing loan programs to ensure that best practices are followed.

- h. **Comment:** At the LGU level, there is a move to ban the use of compressors in some areas. This strategy of control that has been proven to be more effective to date to stop the use of cyanide than most other attempts to control destructive fishing.

Response: MAMTI will not encourage the use of compressors where they are not already used and will support the ban (and all other relevant laws and regulations) wherever they are in place. There are LGU's and communities that have sought to replace a compressor ban with a MAC Certified fishery and the MAMTI project will respond to the interest of stakeholders in these situations. In areas where compressors are used, the MAMTI project provides diver safety educational materials and training as part of the overall package of achieving best practice standards.

- i. **Comment:** Marine tenure has a strong appeal and potential as is been seen through the substantial interest in the use of marine protected areas with different use zones. ...Appropriate and participatory CRM plans can help set the trend within project LGUs for effective implementation of MPAs and associated CAM plans.

Response: Noted and agreed. But see response "b" above.

- j. **Comment:** The worry is that there is already a large demand for the certified organisms but the supply will be low to begin with. This will create pressure to increase the supply and to sacrifice control, monitoring and quality.

Response: The MAMTI project does not seek to open new areas to the marine aquarium trade. The focus is on transforming the marine aquarium fishery through certification in areas where it is already being undertaken. It is true that at the present, demand for certified product exceeds supply. We strongly believe that certification is the only way the aquarium fishing industry will remain sustainable, environmentally sound and viable over the long term, and that the development of adequate supply is critical to the success of that certification effort. Higher prices for MAC Certified fish may in fact reduce demand on organisms in the wild. The higher survival rates of marine ornamentals due the use of best practices during harvest, holding, transport, etc will reduce the fishing pressure, as a much greater percentage of the initially harvested organisms will now survive to market. The success of the certification effort will depend on the rigor and consistency of the certification process – sacrifices in control, monitoring and quality would quickly backfire and shall not be not allowed or tolerated. Compliance with MAC Certification Standards is determined by independent 3rd-party certifiers. This makes it is very unlikely that pressure to increase the supply would result in reduced control, monitoring and quality in adhering to the Standards.

- k. **Comment:** Reef assessment methods could be tailored to what is presently being implemented through local partners in the Philippines and Indonesia, Reef Check might want to consider modifying the MAQTRAC protocol in this regard.

Response: The MAQTRAC methods were designed with the assistance of two international workshops to specifically answer questions pertinent to stock assessment of marine ornamental fish and invertebrate at the species level and have been used for several years in the Philippines and Indonesia. Reef Check is working closely with the University of the Philippines and has full access to their databases on Philippine coral reefs.

- l. **Comment:** The volunteer marine patrols or “bantay dagat” in the Philippines are ad hoc and vary tremendously in their effectiveness.

Response: In both the Philippines and Indonesia, specific plans for monitoring and enforcement of the regulations in effect locally, and making use of the best and most effective local surveillance capacity, will be incorporated in the CAMPs. Much has been learned in the past five years about “best practice” in the protection of protected or managed marine areas. This includes the development of local management boards, establishment of the right legal framework, joint patrols involving government agencies as well as NGO and community reps, etc. These practices have been put to work with remarkable success in places such as Bunaken National Park and Komodo National Park. The MAMTI project will apply many of these lessons learned in the establishment of the managed collection areas and associated marine protected areas.

- m. **Comment:** I would suggest that a more viable option (to adaptive management) would be to set catch limits from the outset based on the baseline information and to incorporate into the CRM and CAM plans and establish that by local ordinance.

Response: We agree that this is one possible approach that should be considered at the upcoming Workshop on Stock Assessment and Management for the Marine Aquarium Trade that is included as a MAMTI project activity.

Annex 24: Case Study of MAC Experience in Batasan, Bohol

I. Background

The Philippines is one of the main exporters of marine ornamental fish. Recent estimates on the value and volume show that exports to the US overall averaged US\$ 6.7 million from 1990-1994, to the EU ranged in value from US\$ 1.3-1.7 million per year from 1992-1998. Although data on the locations within the Philippines in which specific numbers of collectors are found is not available, the general areas of harvest are known. Of the fish that were shipped by air to Manila in 1997, 37% were from Cebu, 24% from Surigao, and 21% from Mindanao. There are an estimated 4,000-8,000 fishers working at over 200 collection areas in the Philippines, but no solid information on the numbers of collectors and their catch or collection effort in general, much less in relation to a known reef area or fish stock.

Unfortunately, unsustainable collecting practices and the poor husbandry of aquarium organisms have been part of the marine ornamental trade. Destructive collecting practices include the use of sodium cyanide to stun and catch fish, the breaking of corals, and the over harvesting of organisms from limited areas. Even when collected in a responsible manner, aquarium organisms often suffer from poor husbandry practices such as improper handling, inadequate facilities, poor water quality during storage and transport, and high packing densities that result in reduced survivorship. Mortality levels of 40 to 60% or more from reef to exporter have been reported.

For many years marine environmental non-governmental organizations have tried to eradicate the use of chemicals such as cyanide to stun and collect fish, primarily by training collectors in the use of nets. These efforts have only been successful for short periods of time with limited numbers of collectors.

As part of its certification program for the marine aquarium trade launched in 2001, the Marine Aquarium Council (MAC) realized that it had to undertake capacity building at all levels of the supply side within the Philippines not only to eradicate cyanide use but also to significantly decrease mortality post harvest.

In 2002 MAC entered into a contract with International Marinelife Alliance (IMA) to train collectors in Coron, in Northern Palawan and Bagac, Bataan and Palauig, Zambales. The selected sites were areas where they had worked for years as part of their cyanide reform program and areas that had been developed as part of the "Feasibility Study" work that was undertaken by IMA for MAC in 2001. This partnership was to provide all aspects of capacity building from the hiring of trainers and project supervision through to work with the communities to develop "certifiable" collection areas, training of collectors and, ultimately, delivery of a half dozen sites and collectors groups fully prepared to be assessed for MAC Certification. Unfortunately, this subcontracting of capacity building of communities and collectors proved to be problematic and no successful results were achieved.

This experience shows that there are few organizations that have been a good match for developing and delivering the training and capacity building to achieve certification in collection and ecosystem management that is timely, efficient, well managed and cost-effective. As a result, there has been a need for a greater level of MAC staff involvement in the capacity building efforts. It became clear that a significant MAC role and effort is essential to delivering capacity building and training for fishers and their communities to achieve compliance with the MAC Standards for EFM and CFH in a timely, efficient, well managed and cost-effective manner.

MAC decided to find an area that had experience of reform programs but where MAC could manage the capacity building itself. Bohol was chosen with the collection sites of Batasan and Clarin being chosen as the first two sites to be worked on with MAC undertaking the management of the project.

Batasan Island is located in the municipality of Tubigon in the province of Bohol and shares its borders with Clarin on the east, Calape on the west, Catigbi-an and San Isidro on the south. The harvesting of marine ornamental organisms within the waters of Tubigon can be traced back from early 70's when Olango Island collectors introduced the gathering of marine ornamental fish with sodium cyanide. Since mid 1980s, there have been various attempts to combat the cyanide problems by training collectors in net collection of ornamental fish. Unfortunately, net training alone has the effect of only really making collectors better cyanide users if this is not undertaken in conjunction with small business skills training and international marketing and incentives in terms of better prices for net-caught fish.

In March 2002, the collectors' of Batasan interest in supplying the market with "clean" fish was revived with their introduction to the possibility of MAC Certification. Unlike previous initiatives, MAC Certification program aims to establish a direct link between responsible practices to consumer preference and demand for "certified fish." MAC hired trainers and a community organizer that had previously worked for MAC and commenced capacity building in Batasan in 2002.

This case study describes the capacity building for MAC Certification in Batasan and highlights a number of lessons learned. It also looks into the socio-economic costs and benefits of certification and how the program contributes to movement towards achieving sustainable use of coral reef resources.

II. The MAC Certification Process at the collection level

The MAC Certification process covers a wide range of activities that can be grouped into four major categories: 1) Site Selection; 2) Collectors' Training; 3) Collection Area Management Plan development; and, 4) Certification Status Maintenance. MAC's pilot experience in Batasan has offered valuable lessons and insights in the development of adaptive management approaches, the enhancement of operating guidelines and selection criteria, the fine-tuning of training modules and the refinement of the MAC Certification and the MAC Standards.

1. Site Selection

The choice of Batasan Island as a pilot area for MAC Certification was based on the following practical considerations:

- Batasan has a pool of aquarium collectors who have received training on net use by the IMA.
- The island was one of the more successful project areas of the USAID-funded Coastal Resource Management Program as evidenced by its well-defined, properly maintained marine protected area and highly-motivated fishers organization well-versed on eco-governance and resource stewardship issues.
- There were a number of other non-government organizations (NGO) with conservation programs in the area, including the Haribon Foundation and Project Sea Horse.

- The municipality of Tubigon (which has jurisdiction over Batasan) indicated strong support for the MAC Certification process and committed itself to ensuring the success of the program and its link to the Tubigon CRM plan.
- The collection area has species that are in demand in the export market.
- The continued use of cyanide by some aquarium fish collectors could be traced to a lack of incentive system for those who use non-destructive collection techniques, the very problem the MAC Certification is designed to address.
- The area has a depleted marine aquarium fishery that if fished in a sustainable manner on a part time but commercially viable basis in line with MAC Standards should be able to recover.

1.1 Challenges

In early 2002 following the launch of MAC Certification, MAC had to respond to the following immediate challenges:

- to have the applicability of its standards assessed vis-à-vis conditions and realities in the field.
- to meet increasing market demand for certified fish flowing through a certified chain.

The MAC field team based the decision to select Batasan Island as the pilot site on overly optimistic assumptions regarding the site selection considerations described above which at the time did not include a robust socio-economic profile and community organizing.

Additionally the MAC approved resource assessment protocol (MAQTRAC) was still at a developmental stage.

As a result, there were several unforeseen stumbling blocks that the MAC field team faced during the course of the capacity building that a more thorough preparation would have prevented. Some of the critical issues were:

- the negative sentiments of some members of the local community against NGO-funded training programs due to “failed interventions” in the past.
- the pre-conceived notions of some stakeholders that the requirements of MAC EFM Standard would require drastic overhaul of their “preferred” management approaches.
- the negative reaction of NGOs with past and existing projects on the island to newcomers like MAC.
- the ability of some local players that the MAC program would displace (such as former middlemen and hard-core cyanide collectors) to sabotage the program.
- the impact of local politics on the degree and quality of community support to the MAC program.
- the effect of Batasan’s imbalance species mix (over-abundance of a few endemic species and very little supply of high-end varieties) on business profitability.
- Lack of structured training modules for use by the MAC field team.
- Lack of appropriately skilled trainers and community organizer.

1.2 Lessons Learned in Site Selection

While the MAC Field team managed to complete the training process in the end, this took far longer than was necessary. Reflecting on the problems encountered and mistakes made, the following lessons learned from the Batasan experience are invaluable to developing better site selection:

- There is a need to develop a detailed site selection criteria to guide the MAC field team during site selection process.
- The site selection criteria must be wide-ranging, detailed and comprehensive enough as to be able to provide a complete picture of the candidate collection area and collectors group.
- The scoping, baseline data gathering and profiling activities must be carried out within a reasonable time frame by a team of qualified researchers so that any future problems can be detected early.
- Resource assessment using MAQTRAC survey must be made an essential component of the selection criteria.
- Profitability and sustainability of the ornamental fish collection enterprise in the candidate collection must be assessed and given special attention in the selection criteria.

2. Collectors Training

In Batasan, the MAC field team found 67 ornamental fish collectors who had had training in net use. Only 37 of these collectors expressed interest in MAC Certification while the rest were either skeptical, had found other sources of income or did not believe they could comply with the requirements of the MAC Standards.

Of the 37 collectors who became candidates for MAC training, 31 completed the capacity building. The 6 who did not make it were either disqualified because of age (less than 18 years old) or had to leave Batasan for one reason or another.

The previous training conducted by the Ilaw Foundation and much later by IMA was useful because the MAC team found that the collectors had demonstrated good collection skills (with some being more skillful than the others). However, they all shared a common weakness in the area of post-harvest handling, screening, packing and overall fish husbandry. This weakness led to high rate of organism mortality.

The training began in early March 2002 and continued until late October 2002. The MAC field team consisted of two trainers and a community organizer whose main task was to conduct the capacity building on MAC Certification, its goals and objectives, its salient features, what it takes to become MAC Certified and the benefits of achieving certified status.

The candidate collectors were encouraged to form themselves into an organization with a set of officers and advisers. They were also encouraged to elect a collection area coordinator who would be mainly responsible for managing the “enterprise”. The coordinator, aside from putting up the necessary working capital, would also be responsible for making it easier for the collectors to comply with MAC Standards by assuming responsibility over the requirements of a new and evolving system, especially those related to collect-to-order arrangements, mortality reduction, traceability, segregation and documentation.

A priority activity undertaken early in the training phase was the construction of a floating cage that served as a holding pen where the fish caught by collectors are kept after the customary purging and before packing for shipment. The in-water training activities were conducted in the mornings. Emphasis was on collection skills enhancement, improved handling, screening and packing techniques and familiarization with the documentation requirements of MAC Certification. The trainees were provided nets, jars, packing materials and other training supplies.

To support the training program some exporters in Manila offered to buy the fish caught during training. The President of Philippine Tropical Fish Exporters Association (PTFEA) traveled to Batasan to assure the collectors there were buyers in Manila who were eager to purchase MAC Certified fish at fair prices. It helped too that another exporter, a non-PTFEA member, also visited Batasan later and volunteered to provide the collectors valuable tips on better handling, screening and packing of fish.

2.1 Challenges

The training in Batasan eventually achieved its goal and resulted in collectors and the coordinator obtaining MAC Certification. However, the process was not without challenges. The following are difficulties that the MAC field team experienced during the training program:

- The MAC field team had not had any previous experience in the MAC process as the exercise in Batasan had had no precedent anywhere else in the world.
- The MAC training modules were still under development and not as organized and systematic as they should have been.
- The collectors had different levels of skill, creating complications on the traceability aspect of the certification process.
- The collectors had acquired bad habits and practices that were not easy to correct.
- The MAC field team utilized a uniform training approach for all collectors instead of organizing training efforts into specific collectors groups with specific skills such as screening, packing, documentation or resource assessment.
- The collectors were initially intimidated by the documentary requirements of MAC Certification such as the logbook, order system, etc.
- Some collectors were skeptical about the training program due to historical baggage and negative sentiments associated with failed training programs in the past.
- As more collectors gained greater proficiency in post-harvest handling, they found that the supply of training materials such as jars became inadequate.
- The collectors' coordinator was discouraged by the initial trial shipments to Manila as he could not achieve profitability.

2.2 Lessons Learned

The following are some of the valuable lessons learned from the Batasan experience:

- The training should be guided by organized and systematic training modules.
- There is a need to identify the collectors' level of skills and to rate of them accordingly.
- It is important to relate the collector's skills to the traceability requirements of certification (i.e. who have the skills to collect what species).
- Trainees who are qualified to receive specialized training on specific components of MAC Certification like screening, packing, documentation or resource assessment should be identified early on and have a special training focus.
- There are advantages to identifying supportive buyers early on.
- Inadequate materials and supplies adversely affect the collectors' productivity so it important to help them gain easy, affordable access to sources materials and supplies.
- Greater training emphasis should be given to such important activities such as documentation, screening, packing, collect -to-order compliance, handling, husbandry and reduction of fish mortality.

- More time should be spent in-classroom training to monitor and evaluate progress achieved as the training progresses.

3. Collection Area Management Plan (CAMP) Development

MAC Certification requires a collection area to develop Collection Area Management Plan (CAMP) that demonstrates compliance to the MAC Ecosystem and Fishery Management (EFM) Standard. A CAMP needs to include basic description of the collection area (boundaries, state of resources, etc.), identification of all stakeholders relevant to the collection area, basic data for the marine aquarium organisms collected or fished in the collection area, collection and fishing history of the collection area, process for monitoring of the use of destructive collection and fishing practices, among others. The CAMP development process thus requires careful planning that involves stakeholder participation in documenting management measures which have to be undertaken in the collection area.

3.1 The CAMP Development Process

The plan to develop the Batasan CAMP was introduced midway into the training program. During the initial stakeholder consultation, almost all of the stakeholders understood the importance of the CAMP. The MAC field team did not have a problem in getting the support of the local community.

However, the CAMP process was delayed when some stakeholders started to realize the importance of linking it to the Tubigon Coastal Resource Management (CRM) plan. In the beginning, the collectors had difficulty entrusting the development of the CAMP to senior local government officials who live and work in distant locations. After further discussions, they later understood that the involvement of the Municipal Planning Officer, the Municipal Agricultural Officer and the town's Fisheries technician had built-in advantages as it was an assurance of instant support from the municipal leadership.

To ensure steady progress in the CAMP development a CAMP Committee was created consisting of representatives from the local government, NGOs, collectors, and other stakeholders. However, the CAMP process still took longer than expected as the consultation meetings were infrequent for the simple reason that the main stakeholders had other official responsibilities. The development of the CAMP acquired a sense of urgency only after the certifier assessment schedule was announced. The writing of the bulk of the CAMP was completed only a week before the certification assessment was to take place.

Another issue in the CAMP development was the fact that the MAQTRAC methods and capacity for undertaking a survey were not in place. A limited rapid resource assessment was conducted by Reef Check instead. The Batasan CAMP Committee had recognized early on that it was necessary to incorporate the result of the resource assessment survey in the CAMP. However, since the MAQTRAC protocol was still being developed at that time, the Reef Check assessors did not have enough assessment framework to translate survey results into management detailed recommendations. Still, to the credit of Reef Check, it was able to provide provisional recommendations to the CAMP Committee on suitable adaptive management approaches.

Given the limited time the Batasan CAMP Committee had to complete its work, MAC provided the CAMP Committee a template of what a basic CAMP should contain. The CAMP Committee ended up developing a CAMP document that closely followed the template. In spite of these

difficulties, the Batasan CAMP was assessed by the independent certifier and became the first MAC Certified collection area in the world.

3.2 Challenges

Aside from time constraint, the development of the Batasan CAMP faced the following challenges:

- Some members of the community who were displaced by the MAC program tried to sow disunity in the ranks of the CAMP Committee through a campaign of misinformation and vilification.
- Some people tried to drive a wedge between MAC and the municipal leadership.
- The task of developing the CAMP was entrusted to busy municipal officials who had other responsibilities.
- There were limited resource assessment results to guide the development of sound management measures.

3.3 Lessons Learned

The following are some of the lessons learned in CAMP development from the Batasan experience:

- The initial stakeholders' consultation must begin during the site selection process to allow early identification of supportive stakeholders as well as potential problems.
- There needs to be basic CAMP development guidance material that the MAC field team can use as a reference.
- It is crucial to ensure a strong link between an existing CRM with the CAMP development process from the beginning, if CRM exists in the location.
- The actual CAMP development process must begin right at the start of collectors training.
- The CAMP Committee must be encouraged to entrust the drafting of the CAMP to a core working group of three or four individuals who have the time and capability to lead the process. The work of the core group should then be submitted to the entire committee for discussion, amendment and eventual adoption.
- It is essential to incorporate the results of resource assessment into the CAMP primarily by translating the survey results into concrete management recommendations.

4. Maintaining Certification Status

Batasan Island collection area and collectors achieved MAC Certified status in October 2002. This achievement was marked by festive graduation activities where newly MAC Certified collectors performed a swearing in ceremony. However, it became immediately clear that the main challenge was how well the collectors would adhere to the MAC Standards and MAC Certified status. Integral to this is the assurance of continued benefits that the collectors could reap from MAC Certification.

To ensure stronger link between MAC Certified collectors and exporters, MAC facilitated the forming of the MAC Philippines Certified Collectors and Exporters Group (CCEG). Collector's coordinators from Batasan and Clarin met with representatives of certified exporters. All parties agreed that it was in everyone's interest to maintain the supply of MAC Certified, high quality

organisms and they worked through a series of discussions on difficult issues such as pricing, screening, payment procedures and communication timelines.

4.1 Challenges

The collectors and other stakeholders in Batasan continued to face the following challenges after they achieved certification status:

- Due to limited species variety, the products coming out of Batasan are not too attractive to MAC Certified exporters in Manila.
- In some cases, MAC Certified collectors in Batasan have sold their products to a number of Cebu-based non-certified exporters to save on transportation cost.
- There has been inconsistent performance in maintaining mortality rates due to technical problems such as the placement of floating cage, and screening and packing techniques.
- There has been inconsistent performance in keeping up with documentation requirements.
- Some collectors continued to prioritize quick income over maintaining the quality of the fish, putting the collectors' coordinator in a difficult situation.

4.2 Lessons learned in maintaining certification

From the Batasan experience, it was clear that more efforts are needed in assisting collectors and community stakeholders to maintain their MAC Certified status. The following are some of the lessons learned:

- There is a need for MAC staff to conduct periodic monitoring to ensure that compliance is maintained especially regarding record keeping (i.e. log books, order forms, etc.).
- There is a need to have certified chain express a clear preference for MAC Certified organisms out of Batasan.
- There is a need to ensure that CAMP is periodically audited and evaluated by the CAMP Committee to take into account new information that is recently obtained.

III. Socio Economic Analysis

To take Batasan operation to a level where it is ready for certification assessment, MAC invested in a 7-month training period (March-October 2002). MAC field team consisted of 1 community organizer and two collector's trainers. Additional assistance was also provided by the MAC Documentation Specialist and Reef Check scientists throughout the training period. MAC Philippines Country Director was also directly involved in preparing Batasan for certification from the site selection process to final preparations.

In addition to MAC training efforts, local stakeholders have made the following investments:

- Collection equipment
- Floating cage and holding pen
- Working capital provided by the collectors coordinator
- In-kind time contribution of CAMP Committee members
- Community contributions in organizing graduation ceremony

The Tubigon municipal government also made contributions in the following forms:

Annex 24: Case Study of MAC Experience in Batasan, Bohol

- Assigning Municipal Planning Development Officer, Agricultural Technician for Fisheries and Municipal Fish Warden of Tubigon to participate in the CAMP Committee
- Conducting fish warden training

With the certification process initiated by MAC, Batasan collectors who had undergone training enjoy the following benefits:

- Significant decrease in mortality and rejection rate.
In 2003, the mortality and rejection rate of shipment of fish to exporter was on average 1.9% per shipment. This is considered as a major improvement from a rejection rate of 10-30%.
- Increase in price.
Exporters have agreed to give a premium to MAC Certified fish due to the improved quality of fish being produced out of Batasan. This translates to an average of 10% increment in total sales per shipment. To date average sales of shipment on weekly basis ranges from PHP 6,500.00 to PHP 9,000.00 excluding other incentives that they receive from the exporter (i.e. coordinator's fee, share on shipment cost, etc.).
- Guaranteed buyer and consistent, stable orders.
The order system provides collectors the security of having their catch purchased by MAC Certified exporters who have placed the orders. The order system helps in maintaining control over the utilization of the ornamental fish stocks, regulating the overexploitation of the resource base and reducing the dependency of the collectors to the middlemen
- Improved management of coral reef resources.
Batasan collectors are now more aware of the need to promote responsible and sustainable fishing and utilization of the coastal resources. They also become the active custodians and more vigilant in the protection and conservation of their fishing areas. This in turn has led to a decrease in the occurrences of illegal fishing activities and intrusion of poachers to their fishing grounds. The establishment of CAMP management committee ensures a more effective management of the existing fish sanctuary

IV. Resource Sustainability Analysis

The reefs in the municipality of Tubigon in central Philippines, where Batasan Island is located, are an important source of exported marine ornamentals. It is estimated that this area was a source of over 14,000 fish individuals in 2002. The green mandarinfish and the anemonefishes accounted for the majority of the fish collected.

The establishment of a monitoring program is one of the requirements of the MAC Ecosystem and Fishery Management Standards. The monitoring program (using MAQTRAC) is devised to determine the efficacy of the reef and fishery management in Batasan and to act as an early warning system to detect impacts resulting from the trade. Specifically, the protocol has been designed to detect the impacts of the collection, and help design and refine Collection Area Management Plan (CAMP).

A Control-Impact sampling design was used by Reef Check in Tubigon, central Philippines from September to October 2002 to infer the impacts of the local marine ornamental collection. The collection sites surveyed included the reefs in Batasan, Ubay and Ubayon-Ubay Islands and the shoals in Balikog and Klorinyo. The control (non-collection) sites were the reefs in the

established marine sanctuaries in Batasan, Bilang-bilangan, Cuaming and Hambungan Islands. The reefs in these marine sanctuaries have been closed to fishing for at least 2 years. A total of 20 transects were deployed in collection sites and another 20 in the non-collection sites. The transects were deployed in approximately 3 to 5 meters water depth where the ornamental collection is heaviest. The control reef sites were usually small in area (approximately 10 hectares each). These control sites could accommodate 5 transects laid almost end-to-end. This totaled 80 paired observations (or transect segments) in collection and non-collection sites.

A total of 66 target ornamental fish species were recorded during the survey. Densities were very low so that only eight fish species could be analyzed with 80% statistical power. There were statistically significant differences in the densities of these eight target reef fish species (Table 1). Seven of these species had significantly higher densities in the non-collection (control) sites. The fishes that had higher densities in non-collection sites were *Dascyllus aruanus* (three-striped damselfish), *Dascyllus reticulatus* (two-striped damselfish), *Centropyge vroliki* (halfblack angelfish), *Chaetodon baronessa* (baronessa butterflyfish), *Chaetodon octofasciatus* (eight-banded butterflyfish), *Chromis viridis* (green chromis) and *Pseudocheilinus hexataenia* (six-lined wrasse). Only the wrasse *Halichoeres prosopion* had higher densities in the collection sites. However, this species is not collected in significant numbers in Batasan Island and nearby reefs. There is a planned resurvey of the sites in February 2004 to determine whether these patterns are consistent through time.

Reef Check is currently developing both density-based and yield-per-recruit (YPR) analyses of total allowable catch in Batasan and nearby reefs. The first approach is promising and is formulated using species average densities, maximum natural mortality rates based on the literature and estimated reef area. An international workshop is planned for mid-2004 to review and finalize these approaches. For Batasan, there is a need to develop more accurate methods in estimating reef area in order to have more reliable estimates of target fish species' standing stocks. The YPR approach has limited applications due to low densities on the reefs. Aggregation of more transect data is currently being explored in order to increase the number of species that can be analyzed.

There is a need to develop more accurate estimations of the volume of target species collected and the species catch-per-unit data. Catch-per-unit effort data are also needed that include both certified and non-certified catch. The latter data can be a valuable index of target species abundance and are also important in estimating levels of sustainable collection.

V. Conclusion

MAC Certification is a work in progress where improvements to the systems are made periodically. It was in this context that Batasan the pilot certification was developed where the main focus of MAC effort has been to get a less than perfect system up and running and to learn from the process. MAC and its stakeholders are working together to address the issues and learn from the experience and use adaptive management to improve the Certification system and capacity building process. From the Batasan experience, we have learned that MAC Certification has provided tangible benefits for collectors but there will need to change "the culture of aquarium collection" with more focus on sustainable reefs and fishing communities.