

Terminal Evaluation

Conservation and Sustainable Use of the Mesoamerican Barrier Reef System (MBRS) Project

A GEF Grant to

**Belize,
the Republic of Guatemala,
the Republic of Honduras
and
the United Mexican States**

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Abbreviations and Acronyms

CCAD	Central American Commission on Environment and Development
GEF	Global Environmental Facility
GoM	Government of Mexico
ICRAN	International Coral Reef Action Network
IUCN	World Conservation Union
M&E	Monitoring and Evaluation
MBC	Mesoamerican Biological Corridor
MBRS	Mesoamerican Barrier Reef System
MC	Monitoring Coordinators
MPA	Marine Protected Area
MTR	Mid-Term Review
NBRC	National Barrier Reef Committee
NC	National Coordinators
NGO	Non-Governmental Organization
PA	Protected Area
PACT	Protected Areas Conservation Trust
PAD	Project Appraisal Document
PCU	Project Coordinating Unit
PDF	Project Development Fund
REIS	Regional Environmental Information System
RSC	Regional Steering Committee
SA	Supporting Agencies
SAM	Sistema Arrecifal Mesoamericano
SICA	Sistema para la Integracion Centroamericana
SMA	Special Management Areas
SMP	Synoptic Monitoring Program
SPA	Special Management Areas
SPAG	Fish spawning aggregation sites
TE	Terminal Evaluation
TNC	The Nature Conservancy
TWG	Technical Working Group
USAID	United States Agency for International Development
WCS	Wildlife Conservation Society
WRI	World Resources Institute
WWF	World Wide Fund for Nature

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Terminal Evaluation (TE)

Mesoamerican Barrier Reef System Project

PART I. BACKGROUND

Introduction

The Global Environmental Facility (GEF) requires that all World Bank-implemented projects nearing completion undergo an independent Terminal Evaluation (TE) to determine the degree of achievement of project goals and objectives, gaps in project execution, outcomes, difficulties, sustainability and lessons learned.

To this end, an evaluation team comprised of Ms. Claudia Alderman, Mr. Lawrence Lechner and Dr. Karen Richardson, hired under contract to the firm “Protected Area Management Services” carried out the TE of the project named Conservation and Sustainable Use of the Mesoamerican Barrier Reef System, referred hereafter as the MBRS Project. This report summarizes the findings of the TE team.

Evaluation Methodology

The TE was conducted as per Terms of Reference issued by the Project Coordinating Unit (PCU) of the MBRS Project on December 4, 2006, and in accordance with the guidelines set forth by the Evaluation Office of the GEF (February, 2006) and the “*Draft Guidelines for Implementing and Executing Agencies to Conduct Terminal Evaluations*” (as of November 26th, 2006). The Terms of Reference for this evaluation, and the GEF TE rating criteria are found in Annex 1 and Annex 2 respectively. The professional qualifications of the TE team are found in Annex 3.

The TE team traveled to Belize from December 6-12, 2006, and subsequently visited each of the four participating countries from February 11-23, 2007. The team visited selected project sites and met with a broad array of project and government officials, representatives of non-governmental organizations (NGOs), project stakeholders and beneficiaries. The team visited all sites where the project had made major infrastructure investments. A list of the sites visited and the names of individuals interviewed is found in Annex 4. The list of documents reviewed by the TE team is found in Annex 5. The TE team evaluated the achievement of project objectives and outputs on the basis of the Key Performance Indicators for the project agreed between the World Bank and the CCAD under the “Amendment to the Grant Agreement” dated April 5, 2005. The Project’s performance indicators are found in Annex 6.

Project Background

The Mesoamerican Barrier Reef System (MBRS), extending from Isla Contoy on the north of the Yucatan Peninsula to the Bay Islands of Honduras, includes the second longest barrier reef system in the world. The MBRS contributes to the stabilization and protection of coastal landscapes, maintenance of coastal water quality, and serves as breeding and feeding grounds for marine mammals, reptiles, fish and invertebrates, many of which are of commercial importance. The MBRS is also of immense socio-economic significance, providing employment and a source of income to an estimated one million people living in the adjacent coastal areas.

The goal of the MBRS Project was to enhance protection of the unique and vulnerable marine ecosystems comprising the MBRS, and to assist the countries of Belize, Guatemala, Honduras and Mexico to strengthen and coordinate national policies, regulations, and institutional arrangements for the conservation and sustainable use of this global public good. The MBRS Project became effective on November 30, 2001, and has a revised closing date of June 30, 2007. A map of the project area is found in Annex 7.

The Project is near completion of a first 5-year phase of a 15-year Program to safeguard the integrity and continued productivity of the MBRS. The MBRS Project is executed by the Central American Commission on Environment and Development (CCAD) on behalf of the four participating countries. Day-to-day Project execution is the responsibility of the Project Coordinating Unit (PCU), located in Belize City. The Project is implemented by the World Bank on behalf of the Global Environmental Facility. GEF grant financing for this project was US\$11.0 million, with co-financing by participating countries of US\$3.2 million, and US\$0.5 million in-kind contribution from beneficiaries.

The MBRS Project aimed to:

- Strengthen Marine Protected Areas (MPAs);
- Develop and implement a regional ecosystem monitoring and information system to provide a synoptic view of the health of the MBRS and facilitate dissemination of these findings throughout the region;
- Promote measures which will serve to reduce non-sustainable patterns of economic exploitation of MBRS, focusing initially on the fisheries and tourism sectors;
- Increase local and national capacity for environmental management through education, information sharing and training; and
- Facilitate the strengthening and coordinating of national policies, regulations and institutional arrangements for marine ecosystem conservation and sustainable use.

To achieve these goals, the Project consisted of four components:

1. **Marine Protected Areas** - Planning, management, and monitoring of Marine Protected Areas and institutional strengthening.
2. **Regional Environmental Information System** - Creation and implementation of a distributed, web-based Regional Environmental Information System (REIS) and the establishment of a Synoptic Monitoring Program (SMP).
3. **Promoting Sustainable Use of the MBRS** - Promotion of sustainable fisheries management and facilitation of low impact coastal and marine tourism.
4. **Public Awareness & Environmental Education** - Development of an environmental awareness campaign and formal and informal education.

Activities under these components were implemented by experts from the four countries, government agencies, collaborating partners, supporting agencies, other beneficiaries and NGOs. The overall ratings of the project follow.

PART II. EVALUATION RESULTS
Summary of MBRS Project Performance Ratings¹

Overall Project Rating/Outcome:	S-HS
Quality at Entry:	HS
Assessment of Project Results by Component	
<i>Component 1. Marine Protected Areas</i>	S-HS
<i>Component 2. Regional Environmental Information System</i>	S-HS
<i>Component 3. Promoting Sustainable Use of the MBRS</i>	MS
<i>Component 4. Public Awareness & Environmental Education</i>	HS
Assessment of Project Results – GEF Criteria	
Relevance:	HS
Effectiveness:	HS
Efficiency:	S
Assessment of Sustainability of Project Outcomes	Varies by outcome: L to MU
Financial Resources:	ML
Sociopolitical:	ML
Institutional Framework and Governance:	L
Environmental:	MU
Assessment of Monitoring and Evaluation (M&E) Systems	
M&E Design:	S
M&E Plan Implementation:	S
Budgeting and Funding of M&E Activities:	S
Monitoring of Long Term Changes:	S
Institutional Development Impact:	S

¹ Ratings are as follows: HS=Highly Satisfactory; S=Satisfactory; MS=Moderately Satisfactory; MU=Moderately Unsatisfactory; U=Unsatisfactory; HU=Highly Unsatisfactory; L=Likely; ML=Moderately Likely; MU=Moderately Unlikely; U=Unlikely

Assessment of Development Objective and Quality at Entry

Rating: Satisfactory to Highly Satisfactory

The Development Objective of the MBRS Project was to assist the countries of Belize, Guatemala, Honduras and Mexico to manage the MBRS as a shared regional ecosystem; safeguard its biodiversity values and functional integrity; and create a framework for its sustainable use.

While ambitious, this development objective clearly responded to the need for a holistic approach to managing a shared coastal system. Although the multi-national nature of the project added a substantial level of complexity to implementation, this regional approach was, and continues to be, an appropriate and desirable strategy given the threats faced by the MBRS.

The MBRS Project was born amidst political support at the highest level and a formal strategy for the management of the MBRS. In 1997, the leaders of the four countries convened in Tulum, Mexico, and pledged their commitment to protecting the MBRS. A 15-year Action Plan aimed at safeguarding the integrity and productivity of the MBRS was adopted in 1999. The project was designed to help implement key aspects of this region-wide strategy. This connection to a visible and highly credible political and technical effort meant that the project was launched under highly favorable conditions.

Substantial effort was devoted to project preparation, which entailed 26 months of national and regional coordination and consultations. Moreover, project design incorporated several participatory mechanisms, aimed at providing technical input throughout the life of the project. This preparation phase, amounting to US\$1.2 million, was financed by several donors: The Dutch Trust Fund I (US\$360,000), The Canadian Government (US\$150,000); FAO (who financed a fisheries specialist); and GEF in the form of a PDF Block A grant (US\$25,000), and two Block B grants (totaling US\$ 494,000).

As can be expected, some components were better designed than others. While the components aimed at supporting key Marine Protected Areas and creating and implementing a Synoptic Monitoring Program had a strong technical foundation and adequate funding, the component aimed at providing “alternative livelihoods” and sustainable use of the MBRS was overly ambitious and somewhat unrealistic, and the level of funding allocated was not adequate for addressing such complex issues. In hindsight this component should have been an independent Project with considerably more resources.

A shortfall in project design was not including some public sector entities responsible for tourism and fisheries in the overall implementation of the project. These sectors have a substantial impact on the MBRS, and a formal link to the project would have provided greater political capital and improved the Project’s ability to better coordinate key activities and outcomes.

It can be argued that the project should have focused more on addressing the root causes of the problem facing the reefs. These include non-point source pollution, unsustainable tourism and associated development. However, it is the opinion of the TE team that at the time of project inception, such an approach would have exceeded the implementation capacity of almost any project. The basis for regional cooperation, the data on reef health, the awareness of the

importance of the MBRS, and the capacity to manage such a complex task, were simply not in place. The MBRS Project achievements and experience has only now established the basis to make such an approach viable.

Given the high level of political support for the project, the soundness of the regional approach to managing the shared resource, and the participative and extensive project preparation phase, the **Quality at Entry is rated Satisfactory to Highly Satisfactory**.

Achievement of Objectives and Outputs by Project Components

The Global Objective of the MBRS Project was to enhance the protection of the ecologically unique and vulnerable marine ecosystems comprising the MBRS, by assisting the littoral states to strengthen and coordinate national policies, regulations and institutional arrangements for the conservation and sustainable use of this global public good.

The project has been highly successful in achieving its Global Objective. The project catalyzed international cooperation between Belize, Guatemala, Honduras and Mexico on a number of significant conservation measures, regulations and cooperative agreements. Important baseline data were established in a dynamic regional database for planning and management, and protected areas throughout the region have new capacity to actively protect important cultural and natural sites. Additionally, a highly developed and specifically targeted environmental awareness program has brought new appreciation and understanding of the importance of the reef at all regional levels, from school children and local fishers to ministers and policy makers. Details and support for this assessment can be found throughout this report.

The MBRS Project is widely regarded as a model for unprecedented regional coordination and joint management of a trans-boundary resource. Key achievements of the project are summarized as follows:

1. Catalyzed the adoption of a common policy framework for sustainable management of resources in the areas of fisheries, tourism and marine protected areas (MPAs) between three of the four countries - Belize, Guatemala and Honduras, and adoption is pending in Mexico;
2. Fostered new mechanisms for coordination within the countries themselves via the National Barrier Reef Committees (NBRCs), comprised of representatives from both the public and private sectors. These committees provide a national-level mechanism for coordination on coastal and marine related issues;
3. Established a regional monitoring system and a baseline for the status of key indicators for tracking MPA management effectiveness, including biophysical and social indicators for reporting on status, trends and progress in MPAs;
4. Established a comprehensive Synoptic Monitoring Program, including information on reef health, seagrass and mangrove status, water quality and water contamination;
5. Developed and established a web-based Regional Environmental Information System with over 20 institutions permanently contributing data to the system;

6. Strengthened management capacity in fifteen MPAs through the development and implementation of numerous MPA training tools, the training of more than 200 park rangers, infrastructure support and reporting on management effectiveness;
7. Harmonized primary and secondary school curricula in all four countries on the value of the MBRS to the people of the region and to future generations, including training to over 2,000 teachers;
8. Organized the first ever Mesoamerican Fishers Congress to gain fishers' support for harmonized policies and norms;
9. Formulated a Draft MBRS Cruise Ship Policy; and
10. Served as catalyst in achieving recognition of the MBRS as a region of global importance, attracting attention and interest by numerous international actors.

Following below is a summary of the outputs, outcomes, sustainability and lessons learned for each of the four Project components. Annexes 8 to 12 of this report contain detailed evaluations of these components.

Component 1. Marine Protected Areas

(US\$ 5.0 million; GEF funding US\$ 2.5 million)

Component Rating: Satisfactory-Highly Satisfactory

Objective: Support immediate improvements in MPA protection and management while increasing the sustainability of management efforts. Measure management effectiveness and build capacity to manage through the development of management and operational plans, trainings and infrastructure development. Improve regional conservation efforts through trans-boundary cooperation.

Sub-component A. Planning, Management, and Monitoring of Marine Protected Areas

Marine Protected Areas (MPAs) played a significant role in the MBRS Project by protecting important areas of recognized biodiversity significance from over use, degradation and destruction. Additionally, the project built new constituencies for conservation around MPAs through educational efforts, and promoted new opportunities for livelihoods that are compatible with conservation objectives, principally through tourism.

The project successfully assisted in upgrading the operational plans of 11 MPA and in the drafting of 4 new master plans. The project also produced a "Training Manual On Design And Development of Management Plans For Marine Protected Areas" that can be used throughout the region for new areas or for updating existing plans as necessary and carried out trainings for management plan development, increasing MPA planning capacity throughout the MBRS.

The MBRS Project expended considerable time and effort reviewing existing systems for measuring effectiveness and created a new hybrid system for use in MPAs, described in MBRS Technical Document No. 5, “Recommendations for Monitoring Management Effectiveness in Marine Protected Areas” (available in English and Spanish). The Project developed a suite of 11 biophysical and 8 socio-economic measures as well as an application methodology for measuring management effectiveness. This is an explicit commitment to the adaptive management model that seeks to achieve area objectives by responding to local conditions and changes in those conditions as measured by agreed-upon measurements (standards). Identifying the relevant indicators and then agreeing to standards has always presented a great challenge for PA managers and planners. This was equally true for the MBRS team. Extensive review of many effective management models led to the creation of a survey instrument that was distributed to the target MPAs (Reserva Biosfera Banco Chinchorro, Arrecifés de Xcalac Reserve, Santuario del Manati, Corazol Bay Wildlife Sanctuary, Bacalar Chico Marine Reserve and National Park, South Water Caye Marine Reserve, Glovers Reef Marine Reserve, Gladden Spit, Sapodilla Cayes Marine Reserve, Port Honduras-Deep River Forest Reserve, Sarstoon-Temash National Park, Rio Sarstón Proposed National Park, Punta de Manabique Proposed Special Protection Area, Omoa-Baracoa Proposed Marine Reserve, Turtle Harbor Wildlife Refuge and Marine Reserve).

The documentation produced, and the process of developing a model for measuring effectiveness in MPAs, are major accomplishments and represent significant project outcomes. However, they do not necessarily translate to improved management effectiveness in the target MPAs and, as noted in the document, neither the process proposed nor the measurement of effectiveness was full achieved. It was only possible to make general assessments about the effectiveness of specific areas and the state of MPAs in the region. Important information was gathered but at an expense and effort that may not have been effective. The questions as to who should be responsible for measuring effectiveness, at what cost and in what manner require further investigation. The project did provide important insights and practical advice about measuring management effectiveness for MPAs and terrestrial PAs. The report recognizes the high cost of measuring effectiveness relative to scarce resources and staffing, “Given the average staffing level of 3.9 persons in each of the 13 MPAs for which we have data (range of 0 to 7), and the reports on their current responsibilities and funding (Section 4), it is clear that the human resources are not in place to undertake even the basic monitoring protocol, much less the full suite of 43 metrics recommended to be monitored. The managers are too busy managing to evaluate their management effectiveness!” (p. 46) and suggests that establishing effectiveness must be a long-term process that will involve greater cooperation of a variety of governmental agencies, the private sector, NGOs and other conservationists.

It is important to emphasize that the entire concept of measuring management effectiveness is unsettled among conservation scientists and practitioners. To say that we *should* measure effectiveness implies that we *can* and this may not be possible due to the complexity of biotic and cultural variables that influence natural systems. Equally important is the effectiveness of measuring management effectiveness. As pointed out in the MBRS report even the most basic efforts may not be merited within the constraints of extremely limited resources. It may be much wiser to dedicate such resources to measuring the effectiveness of particular management actions and using those results in the adaptive management framework. For example, if poaching

protected species on reefs is a major problem it may be worth measuring the effectiveness of enforcement vs. education to determine which action merits resources or greater emphasis.

The construction of five multi-function buildings that serve as administration, visitor and community centers as well as lodging for park personnel and researchers is one of the largest investments of the project. Major investments were made in Bacalar Chico (Belize), Xcalak (Mexico), Sapodilla Cayes (Belize), Rio Sarstún (Guatemala), and the Turtle Harbor Wildlife Refuge and Marine Reserve (Honduras). See Annex 13 for photos of the 5 visitor centers built under the project.

During the planning process it was decided that one basic design would be chosen and modified as necessary for specific sites. This approach was intended to save design costs and standardize construction details. Facilities included a multi-use room, offices, dormitories, bathrooms and food preparation areas. Additionally, an interpretative trail was built in most areas so that visitors could understand and experience the terrestrial environment. The project also supplied significant amounts of furnishings, equipment such as computers, boats, scuba gear and communication equipment. In all cases the management presence, capacity and effectiveness were greatly augmented and strengthened by these investments.

The new infrastructure legitimized the MPA presence and has been a major factor in securing grants, partners, and co-financing. There is strengthened governmental support for interpretation, educational and enforcement activities as well as operational and maintenance funding. Site examinations and interviews with staff at all of the MPAs that received infrastructure indicated that the infrastructure was very helpful in maintaining management presence, improving morale and providing the base for implementing management plans. This was exactly what the PAD had envisioned.

It is notable that each MPA utilizes its facility differently. In Bacalar Chico the public area is devoted to interpretation and has a strong tourism/education/visitor orientation. At Xcalak the public area is more devoted to community involvement and public awareness, as is suited for this site since it is located in the community. The center at Rio Sarstún provides a base of operations for the managing NGO, a hub for patrolling and housing for staff, volunteers and university researchers. In Sapodilla Cayes MPA the facility is jointly utilized by the Belize Fisheries and TASTE NGO that co-manage the site. The Sapodilla Cayes facility is still awaiting educational and interpretative materials.

At Utila, the Project provided a multi-use center based on the uniform design used in the other sites. At present only a small part of the center is being used by the Bay Island Conservation Association (BICA), the NGO in charge of the PA. The rest of the building is being used temporarily as classroom facilities by the local school until May, 2007. Ostensibly this one-time use will help build good community relations between the local community and BICA.

As is the case in most building endeavors, both the process and final product could have been improved, resulting in a more efficient development process and a more functional final product. A detailed analysis of the issues related to the construction, maintenance and use of the above infrastructure is provided in Annex 8.

Sub-component outputs:

- Management and/or operational plans for 15 target areas;
- System for measuring MPA effectiveness;
- Target MPAs measured and rated as to their capacity for conservation activities;
- Significant equipment provided to regional protected areas for monitoring, operations, environmental education and tourism management; and
- Major infrastructure investments at 5 protected areas.

Sub-component outcomes:

- Greatly increased capacity at national, regional and local levels for marine conservation;
- New constituencies to support conservation in the MBRS region;
- Greater NGO capacity and recognition locally and regionally;
- Major contributions to the protected area literature on the themes of MPA management, community involvement and trans-boundary cooperation;
- Greatly improved morale and respect among rangers, managers and others involved in MBRS conservation initiatives;
- Assistance with Belize National Protected Areas System Plan;
- Regional cooperation between protected areas; and
- Improved baseline data on protected area effectiveness.

Sub-component B. Institutional Strengthening of MPAs

The Project successfully carried out a series of regional training courses and workshops for protected area directors, technical staff, rangers, and key collaborators from local and national government agencies, collaborating NGOs, and local communities. One of the most significant outputs was a series of bilingual manuals that will serve far beyond the life of the Project for many aspects of MPA management. The Project, by undertaking these activities also developed significant training and facilitation capacity for management planning, community involvement, income generation and financial planning.

Examples include courses held early in the project in MPA Management Plan Development for directors and administrators of MPAs, park management staff, governmental organizations, NGOs and universities involved in management and co-management of MPAs within the MBRS region. The training course covered zoning, environmental education, tourism, research, monitoring, park protection and patrolling, and financial strategies, among others. A bilingual manual “Training Manual on Design and Development of Management Plans for Marine Protected Areas” was published and distributed throughout the region.

A Training Workshop on Income Generation for Protected Areas was held in Puerto Barrios, Izabal, Guatemala in 2002. The workshop was a joint effort between the MBRS Project, PROARCA/APM, the Mesoamerican Biological Corridor, WWF-Central America, and the Nature Conservancy. Financial strategies were proposed for several MPAs as a direct result of the workshop.

In order to promote greater regional MPA effectiveness, both a Southern and Northern Trans-boundary Park Commissions were established. Commission meetings produced recommendations on fisheries, tourism and Marine Protected Areas (MPA's) which were then used to formulate regional policies.

The Project developed a wealth of training materials, technical manuals, environmental educational materials and other books, pamphlets, curricula and co-management strategies to aid MPAs carry out their activities. This body of material is one of the most important contributions of the project and will serve the intended MPAs as well as the global conservation community. The original objective was to have a standardized training library in each MPA headquarters and ranger stations throughout the region. While the material does exist and most is available on the Internet, not one of the MPAs visited had the library as described in the PAD. This is unfortunate as the material could be quite helpful to managers, rangers, community members and other MPA partners. Most of the MPAs visited do not have Internet access so the on-line versions are of little use to them. Additionally, it would be quite costly and beyond the means of the areas to reproduce the materials.

Sub-component outputs:

- High quality manuals and guides on MPA management techniques, training, community conservation and involvement, and alternative livelihoods; and
- Trainings and workshops for rangers, fishers, community members and NGOs.

Sub-component outcomes:

- Regional cooperation between protected areas; and
- Increased capacity in multiple sectors to promote conservation in the MBRS region.

Sustainability:

Sustainability will be increased to the extent that management and operations are adequately funded in the future. The plans and planning processes developed during the project should improve the opportunities for conservation and future funding by demonstrating institutional strength. Importantly, the infrastructure and equipment provided has elevated the status and functionality of the MPAs qualitatively, in some cases increasing the likelihood of long-term success. Several areas have leveraged their new status to attract new donors, volunteers, and research partners.

Lessons learned:

- Determining management effectiveness is difficult, costly and time consuming;
- Models for determining management effectiveness developed for terrestrial protected areas may not function for MPAs;
- Infrastructure and equipment investments not only build management capacity but also build institutional recognition that can facilitate securing additional funding;
- Quality infrastructure (especially housing) can facilitate “buy in” to protected areas by area personnel, locals, NGOs, researchers and ministries.
- “One size fits all” infrastructure design approaches may not be the best option, despite the cost savings of making a single design for different sites; and
- Greater capacity to manage substantial infrastructure investments is needed than that typically available in a small project management unit; short-term contracting of a specialist with infrastructure experience may save time, money and produce a better final product.

Refer to Annex 8 for a detailed assessment of this component.

***Component 2. Regional Environmental Information System
(US\$ 4.4 million; GEF funding US\$ 2.3 million)***

Component Rating: Satisfactory-Highly Satisfactory

Objective: Increase knowledge and dissemination of information relating to coastal and marine ecosystem health in the MBRS.

Sub-component A. Creation of a Regional Environmental Information System (REIS)

The REIS was designed to consolidate and analyze data collected from various disparate sources, including the synoptic monitoring program. The database was designed by national and international experts as part of several consultancies and is well thought out, easy to understand and is a good example of the high standards of project products. There is extensive documentation on how to enter data, and attention has been paid to accommodate two languages, different names for the same species across the region and different categories of species threats across the region.

The oversight of not initially designing the database to be spatially explicit in a GIS format possibly delayed the release of some of the spatial information relevant to the region. However, the addition of GIS functionality in 2005-2006, greatly enhanced the future of the database and its power to focus monitoring and management activities. The maps show key health indicators such as seagrass biomass, disease coverage, presence of nutrients, and provide a snapshot of the situation across the region. Data from the REIS will help provide status reports on the health of the MBRS region to decision-makers and on-the-ground managers.

In addition, the website interface of the REIS serves as the gateway to all the MBRS documents and technical reports. It is easy to use and is available in two languages with exceptional transparency in terms of documentation. This is in itself a landmark for a large conservation project.

Sub-component Outputs:

- REIS designed and fully operational.
- Web-based interface for data providers and users.
- GIS-based dataset.
- Public access to database;
- Baseline and summary maps in JPEG format for 13 sites.
- The Project has trained a total of 98 biologists to-date in the use of the REIS database.
- Web-based, CD and printed format of all published material.
- Documents:
 - *User Manual for the REIS Volume 1-3 - June 2005*
 - *Database Design Documentation – August 2005*

Sub-component Outcomes:

- First regional, public database on marine protected area information.
- Essential tool to fill in information gaps needed for sound decision-making on natural resources.
- Greatly improved capacity to disseminate regional patterns and results.

- Regional coordination of scientists and biologists.
- Greatly improved transparency of data through public access to data
- First steps to integrate data from the socio-economic monitoring program under Component 4 (Public Awareness and Environmental Education) with REIS.

Sub-component B. Establishment of a Synoptic Monitoring Program (SMP)

The SMP was developed as a regional, multi-level methodology to monitor changes in ecosystem health. It was designed to be comprehensive in terms of data collection, time frames (short- medium-and long-term) and geographic coverage. The SMP methodology was developed to be implemented by monitoring teams, consisting largely of a mixture of members from the MBRS Support Agencies (SAs) (government, NGOs and fishers) in the four countries. A Monitoring Coordinator (MC) in each country had the responsibility for supervising each monitoring team. The MC then liaised with the PCU to update and verify data. The PCU managed and maintained the database and created summary base maps.

For a decade prior to the MBRS Project, several attempts were made to establish a regional monitoring program. When the project was designed, the goal was to streamline existing methodologies and agree upon and adopt a region-wide program. The process for developing the methodology appears to have been very consultative and assimilates most of the best practices in comprehensive coral reef monitoring worldwide. It is tailored to meet the specific needs for monitoring the health of the reef in the four countries involved. Four types of data are collected at each site (site description, meta data, physical data and specific parameters) and the time window (season) for each is well described. At each monitoring site, several locations are included which contain different ecosystems so as to maximize the information collected. This stratification is strategic and cost efficient and is based on best practice sampling methodologies. The project also produced a well organized data entry system in two languages, with established protocols for entering data for species that may have different names across the region. This is a key accomplishment in itself. Lastly, the methodology covered both *static* and *dynamic* measures of reef and ecosystem health.

The first summary of results, taken as the baseline for all future monitoring episodes, was published in October 2006 in *Linea Base del Estado del Sistema Arrecifal Mesoamericano*. The report summarizes sites monitored and baseline data for each area of interest. The results for coral reefs are comprehensive and clearly presented. Results for seagrass and mangroves are, however, fairly sparse. Results for water contamination and water quality are preliminary and not as robust in terms of temporal and spatial sampling. The lack of seagrass and mangrove data is most notable in Belize, where only one site has been monitored. By 2006, 49 sites were included, 13 of which received comprehensive assessments. Results for 2004 and 2005 are posted on the MBRS website. Data for 2006 were released internally to users and will be made public in early 2007. A full analysis of the SMP data is expected by March 2007, including an executive summary for decision-makers.

Overall, the SMP would not have been achieved without the partnerships established with the SAs, which, as mentioned earlier, included a mix of NGOs, fishers, and private partners, who contributed generously to this effort. The SMP enabled synergies between disparate groups monitoring different sections of the MBRS and supported the harmonization and standardization

of a monitoring methodology, which is, in itself, a considerable accomplishment. By producing a simple method that was well documented, the SMP was made accessible to a large number of people in the region and this enhanced its credibility. More data collection is needed for seagrasses and mangroves, water quality and contamination data are needed also (as capacity is built and effective partnerships for analysis are established). In the final analysis, the long term usefulness of the SMP for management and decision-making will depend on continuing the process of analyzing results on a regular basis and disseminating the information.

Sub-component Outputs:

- SMP designed and under implementation;
- Monitoring of 49 sites to date;
- Comprehensive baseline data for 13 sites across region;
- Results analyzed for 13 sites;
- Basic field equipment provided to Support Agencies;
- Training of monitoring personnel in Support Agencies;
- Documents:
 - *Manual Methods for the MBRS Synoptic Monitoring Program - April 2003*
 - *Linea Base del Estado del Sistema Arrecifal Mesoamericano - October 2006*
 - *Measuring Coral Reef Ecosystem Health – September 2006.*

Sub-component Outcomes:

- Increased capacity at national, regional and local levels for monitoring ecosystem health;
- Harmonized monitoring methodologies across the MBRS region;
- Increased Support Agency capacity to identify important indicators for coral reefs, mangroves and seagrass beds, sources of marine pollution; and ocean circulation and gyres patterns;
- Improved baseline and temporal data on key ecosystem indicators;
- Improved regional and inter-agency cooperation;
- Inclusion of baseline results in Belize's "State of the Reef" report; and
- Clear local ownership of the methodology.

Sustainability:

The REIS database is a 'clearing house' for marine protected area data across the region. It is well designed and comprehensive and with minimal financial support could deliver one the project's biggest long-term successes. However, at near project end, there are no arrangements in place to sustain the REIS if a second phase of project funding is not forthcoming. This includes no arrangements for a permanent institution to house and maintain the database, and no arrangements to continue the website that now provides an interface to data users. Additionally, users of the REIS will require continued assistance over the next few years to ensure data quality and entry into the system. Since there is a high turnover of trained monitors, training needs will have to be addressed in the near to medium term. Part of this burden can be shifted to the SAs over time, however this may be a gradual process. Lastly, the long term sustainability and usefulness of the REIS will also rely on the uptake of data and clear strategies for data transmission to decision-makers and on-the-ground managers.

The SMP has trained a large number of people in the SMP methodology. This is an important outcome for long-term sustainability, as it has built capacity in the countries. The sustainability of the program will rely largely on the SAs maintaining the standards they have adopted. The local, regional and global benefits of the SMP are emerging as results demonstrate the variability along the reef. These benefits will progressively increase if more data are collected.

The SAs have relied upon the MBRS Project to provide them with supplies and to store, manage and consolidate data. The long term sustainability of the SMP is questionable without another large contribution from either a follow-on project or another donor. Sites that are particularly at risk are primarily the transnational ones that receive little or no support from other funding sources. In the absence of a second phase of funding, monitoring of all reef variables is at risk of being decreased or discontinued in all sites in Guatemala, and in Utila and Puerto Cortez in Honduras. Monitoring mangrove and seagrass variables is at risk in all sites in Belize and in many sites in Guatemala and Honduras. Most importantly, the monitoring of water pollution and water quality, components that require a large amount of funding and analysis, will most likely be seriously threatened. To date, Mexico is the only country that has benefited from a long-term financial strategy to assist with monitoring. The Government of Mexico has committed a significant amount of funding from its reef tax to the SMP program and recognizes the cost effectiveness of monitoring in the wake of increasing threats including hurricanes and tourism impact. The collapse of the regional monitoring program would undermine progress to date to acquire a regional perspective of threats and recovery of the reef, and would hamper efforts to target specific management actions to assist species and habitats facing serious threats, including the Nassau grouper and critical mangroves and seagrass beds.

Lessons Learned:

- A clear plan to maintain and house data in the absence of long term funding must accompany any program that gathers a large amount of data. Ownership and responsibility for dissemination must be established prior to the completion of any project.
- Where it has been deemed that several different variables are critical to understanding threats and patterns of decline or recovery, data collection efforts should ensure that whenever possible, uniform effort is expended to collect data that are harder and more expensive to acquire such as water quality and contamination.
- For projects that potentially collect a large amount of data, there needs to be a clear purpose for the data and a seamless mechanism to transmit results to decision-makers and on-the-ground managers.
- In regions where unanticipated events can occur rapidly, such as hurricanes or coral bleaching, there needs to be local capacity (including emergency funding) built up during the project to respond to these events and carry out rapid assessments of the situation.

Refer to Annex 9 for a detailed assessment of this component.

***Component 3. Promoting Sustainable Use of the MBRS
(US\$ 1.9 million, GEF funding US\$ 1.12 million)***

Component Rating: Moderately Satisfactory

Objective: to support the introduction of new policy frameworks and management tools to increase institutional capacity, disseminate key information and create the necessary incentives for stakeholders to shift toward patterns of sustainable use of MBRS resources.

Sub-component A - Promotion of Sustainable Fisheries Management

Working with local fishers, researchers, and MPA personnel, the project identified spawning aggregation sites (SPAWS) and established monitoring protocols for those areas. Trainings and workshops, including the first regional workshop involving fishers, community leaders, NGOs and agency personnel, moved the area toward consensus on policy and best practice guidelines. Extensive trainings to promote alternative livelihoods, principally carried out by local NGOs, built new constituencies and training capacity.

Sub-component outputs:

- Policy agreements and regulation standardization on gill net use as well as conch, lobster and snapper takes;
- Agreement on seasons for lobster and queen conch;
- Four training manuals (themes: business management and tour guiding) that contribute to sustainable tourism; and
- Training of over 300 individuals on various aspects of sustainable tourism development and practices.

Sub-component outcomes:

- Groundbreaking regional cooperation on sustainable use of the MBRS;
- Policy dialogue between the four participating countries;
- New dialogue between fisherman and policy makers;
- Elevated profile of the importance of conservation of the Reef; and
- New constituencies for sustainable activities.

Sub-component B - Facilitation of Sustainable Coastal and Marine Tourism

This sub-component sponsored regional fora to establish baseline information and clarify the current tourism landscape in the MBRS region. Several important policy guidelines were developed including the Policy Proposal for Sustainable Cruise Tourism in the MBRS Region and a Training Manual on Environmental Impacts Assessments. All documents were produced in English and Spanish.

Sub-component outputs:

- Regional tourism fora that raised the profile of conservation and the environment in regional tourism;
- “Training Manual on Environmental Impact Evaluations and Environmental Auditing of Coastal Marine Tourism Operations and Infrastructure”
- A new policy proposal for cruise tourism in the MBRS region.

Sub-component outcomes:

- Elevated profile of the importance of conservation of the reef system;
- New constituencies for sustainable activities;
- Increasing involvement of the tourism sector in sustainability issues;
- Increasing interest of governmental ministries involved in tourism regulation throughout the MBRS.

Sustainability:

The outputs from this component are sustainable if regional buy-in continues, and are in turn translated into national regulations and policies that are enforced at the local level. Because governments, regulatory agencies and private sector enterprises tend to be reactive rather than proactive, policy and regulations that have been enacted under the Project have been slow to show on-the-ground impacts. Nevertheless, these tools are likely to become more relevant, especially in light of the alarming decrease of fish populations and the increase of negative tourism impacts, both of which have direct links to economic performance and public welfare.

The training manuals, policy statements and diagnostic methodologies prepared under the Project will endure and make a significant contribution if used by those promoting sustainable use of the MBRS. One area of concern will be leadership to promote dialogue and cooperation after the MBRS Project terminates. Ideally, those trained, especially MPA managers and agency personnel will fill this role. The outputs from this component are sustainable if regional buy-in continues, and is translated in turn into national regulations and policies that are enforced at the local level. Policy and regulations that have been enacted under the project are likely to become more relevant, especially in light of diminishing fish populations and the increase of tourism impacts, because these have a direct impact on economic performance and public welfare.

Lessons Learned:

- Policy harmonization is complex, demanding and requires significant time and resources to succeed;
- A thorough understanding of the labor and product markets, unemployment levels and skills capacity is necessary for alternative livelihoods programs to be effective;

- Alternative livelihood promotion will succeed only in conjunction with limitations on unsustainable livelihood activities (such as placing and enforcing limits on new entrants to fisheries in depleted areas);
- Alternative livelihood programs will only succeed where there is political will and adequate resources to enforce regulations on natural resource use, and violators are consistently, visibly and fairly sanctioned;
- Alternative livelihood training is not likely to have the desired impact of reducing pressure over a natural resource in areas of high unemployment because those trained are readily replaced by others in the targeted activity and where large numbers of persons are trained in a given area, that labor market quickly becomes saturated;
- A wider array of livelihoods and skills sets must be considered to provide true alternatives to unsustainable livelihoods and that may be beyond the scope/abilities of conservation projects;
- Tourism management, as contemplated in the original project design, was overly ambitious for this project;
- Involvement of the tourism sector is essential to tourism management but often proves difficult as the private sector tends to be off-site, have little incentive to alter profitable tourism practices and often possesses considerable political access;
- The tourism sector will need to be formally brought in to conservation and sustainable development planning for the MBRS region—possibly with the help of CCAD and the Regional Steering Group mandated under the Tulum +8 Declaration;
- Equally important for the success of tourism management is accountability on the part of the public and private sectors engaged in tourism for negative impacts to a common good, in this case the MBRS; and
- Involvement, support and promotion of NGOs can be a valuable tool for securing public and private sector accountability for environmental services provided by the natural resource base.

Refer to Annex 10 for a detailed assessment of this component.

Component 4. Public Awareness and Environmental Education
(US\$ 1.5 million; GEF funding US\$ 1.26 million)

Component Rating: Satisfactory-Highly Satisfactory.

Objective: To increase environmental awareness among a variety of stakeholders and develop the human capital necessary to plan and manage the diverse resources of the MBRS within a proven framework of conservation and sustainable use.

Sub-component A. Development of an Environmental Awareness Campaign

This sub-component created and fostered constituencies for sustainable reef use by working with public and private sectors to increase recognition of the importance of the MBRS to the tourism and fishing industries, as well as all those who benefit from the environmental services the reef provides. The MBRS Project website is particularly notable as a high-quality source of educational materials, scientific data, training and management manuals and Project information.

Sub-component outputs:

- Prepared and distributed more than 550 “Environmental Eco-tips” containing practical advice for preventing pollution of coastal marine ecosystems;
- At least 1000 posters and 1200 brochures on cultures in the MBRS were distributed in English, Spanish and Garifuna;
- Production of the Regional Strategy for Environmental Awareness and the Manual of Graphic Standards for the institutional logo;
- Provided materials and support to other components of the project such as graphics, socio-cultural data, and assisted in communication and outreach;
- Training for press chiefs in environmental ministries;
- Publicity spots on appropriate fishing techniques for radio;
- Numerous t-shirts, caps, posters and other promotional material to “brand” the MBRS activities; local and regional TV and radio spots to promote environmental awareness;
- National Journalists Workshop to promote activities in Belize and Guatemala; and
- Innovative program to put conservation messages in utility bills.

Sub-component outcomes:

- Greatly elevated the profile of the MBRS at national, regional and institutional levels;
- Created new constituencies for MBRS conservation in institutions (government ministries and educational institutions); and
- Wider distribution of MBRS materials.

Sub-component B. Formal and Informal Education

The project wisely invested in future generations by introducing educational curricula and training methods that teach the value of the MBRS and its importance to the lives of all members of the region. A leader in the development of school curricula in Belize said that the MBRS

Project not only helped revamp the entire natural history curricula regarding the environment, but that it also brought a dynamic new methodology for curricula development that was now being used country-wide. It should be noted that curricula uptake has been slower in Guatemala, Mexico and Honduras where national curricula review is more complicated. It is expected that the MBRS-developed curricula will be integrated into the schools as new curricula reviews are undertaken in all four countries.

Sub-component outputs:

- Preparation and production of teachers' guides;
- Regional teachers workshops to promote environmental awareness in teaching activities and demonstrate products available through the project;
- Training of teachers as trainers for promoting MBRS developed materials;
- National Workshops in Omoa and Utila in Honduras, Puerto Barrios in Guatemala, and 5 local workshops in Punta Gorda, Sarteneja, South Water Caye, Belize City and Dangriga in Belize; two local workshops in Puerto Cortes and Cuyamel in Honduras; 657 teachers trained; 5 teacher workshops in Mexico; and 514 teachers trained.

Sub-component outcomes:

- Created new constituencies for MBRS conservation in institutions (government ministries and educational institutions); and
- New methods for curricula generation for public education.

Sustainability:

The activities and outputs from this component are highly sustainable. The curricula, when adopted in regional school systems, will provide enduring benefits by educating primary and secondary students in the importance of their natural resources. The documents and training materials produced will also serve educational and interpretation activities not only in the MBRS region but in marine environments world-wide.

Lessons learned:

- Carefully targeted environmental education campaigns can be highly effective in garnering project support;
- Educational institutions are open to the idea of new curricula but slow to incorporate such materials and require much effort to negotiate the institutional hurdles;
- Environmental awareness campaigns are especially challenging when more than one country, culture or language is involved as cultural, linguistic and local variations require different approaches, increasing costs and efforts.

Refer to Annex 11 for a detailed assessment of this component.

Achievement of Project Results

The GEF Operational Program Objective of the MBRS Project was to enhance protection of ecologically unique and vulnerable marine ecosystems through introduction of an ecosystem approach to conservation and sustainable use.

The MBRS Project is rated as follows along the GEF criteria:

a. Relevance.

Highly Satisfactory. The MBRS, the second longest barrier reef in the world, is of immense ecological and socio-economic importance. As a marine trans-boundary resource, a regional-level approach to its management and conservation is paramount. The project achieved an unprecedented level of regional cooperation and coordination between the four participating countries in the sustainable management of this globally significant ecosystem.

b. Effectiveness.

Satisfactory. The regional focus and involvement engendered in the project has demonstrated the possibility of inter-governmental cooperation and agreement for trans-frontier natural resource management. The synoptic monitoring program has created an initial regional baseline and database which provides a foundation for future conservation activities. Additionally, the reinforcement of existing marine protected areas (MPAs) and capacity building for managing those areas has significantly improved the possibility of meaningful conservation throughout the MBRS region. In a number of cases, the Project turned marine protected areas from marginally functioning, well intentioned efforts into functional MPAs that were able to attract funding and undertake meaningful management. The Project also brought public awareness of the value of the reef to a much higher level throughout the region, from the elementary classroom to the highest levels of government. The project was however, less successful in its attempts to manage tourism impacts, promote sustainable tourism development or create alternative livelihoods for those engaged in unsustainable natural resource extraction such as fisheries.

c. Efficiency.

Satisfactory. The GEF investment in this project was US\$11 million for efforts in four separate countries over a period of five years. With this funding, the project achieved substantial, concrete results in terms of capacity building (technical and physical), policy reform, and collection of baseline data on the reef system. Given these outcomes, the project was highly efficient in its use of these limited resources (catalyzed investments)

Sustainability of Project Outcomes and Risks

Sustainability: Likely for some outcomes, Moderately Unlikely for others

Sustainability of a significant portion of the Project's outcomes is likely. These include:

- Adoption of common policy framework for sustainable management of resources in the areas of fisheries, tourism and marine protected areas (MPAs);
- Benefits derived by MPAs from having adequate infrastructure and management tools;
- Methodologies developed for measuring MPAs management effectiveness;
- Increased local capacity to manage MPAs;
- Methodologies for synoptic monitoring of the reef system;
- A framework for region-wide database for storing and analyzing data;
- An extensive body of new conservation literature including policy documents, training manuals and technical papers; and
- An institutionalized environmental education curriculum.

The sustainability of the achievements on reef monitoring are, however, moderately unlikely in the absence of continued external support. No arrangements are currently in place to sustain the REIS if a second phase of project funding is not forthcoming. This includes no arrangements for a permanent institution to house and maintain the database, and no arrangements to continue supporting the website that now provides an interface to data users. Additionally, users of the REIS will require continued assistance over the next few years to ensure data quality and entry into the system. Since there is a high turnover of trained monitors, training needs will have to be addressed in the near to medium term. Likewise, the long-term sustainability of the SMP is moderately unlikely without a large contribution from either a follow-on project or another donor. Without it, monitoring of all reef variables is at risk of being decreased or discontinued in all sites in Guatemala and Honduras. Monitoring mangrove and seagrass variables is at risk in all sites in Belize and in many sites in Guatemala and Honduras. Most importantly, the monitoring of water pollution and water quality, components that require a large amount of funding and analysis, will most likely be seriously threatened.

The sustainability of MPA management is only moderately likely if long-term partners are not forthcoming in the near future to assist the ministries in charge of MPAs with additional financing and personnel. This is primarily because the MPAs in question only receive minimal financial and personnel support from their respective governments.

The sustainability of the alternative livelihoods component is moderately unlikely without a more targeted approach, broader partnerships with NGOs and other organizations, and more comprehensive follow-up of needs and outcomes.

a. Financial resources.

Sustainability: Moderately Likely. At this point, the MBRS countries are looking to turn their attention to the root causes of the problem facing the reefs. To this end, they are actively seeking funding for a second phase of the Action Plan for the MBRS, as envisioned from the inception of the Project.

The TE team is unable at this time to evaluate the prospects of securing this funding. However, as discussed above, without external support, the countries are unlikely to have the resources needed to adequately manage the MBRS, and deal with the land-based threats to the reef system. While sound scientific data on reef health and trends is an essential tool for its successful protection, the SMP is costly, and the countries are not likely to be able to support a systematic reef monitoring program without substantial additional funding from the international community. While all of the countries have instituted visitor fees for the MPAs, this income is not sufficient to cover the costs of adequately managing the areas, dealing with land-based threats, or maintaining a data collection program.

Unfortunately, the funding gap between the Project's end and the proposed second phase threatens the capacity developed under the exiting project. This is particularly true for the PCU, as one of the strongest assets of the MBRS Project is its highly experienced staff. This threat also extends to some of the partnerships established by the Project, including those carrying out analyses (e.g. water quality, contamination and GIS data processing) and based at universities or other research-based institutions.

b. Sociopolitical.

Sustainability: Moderately Likely. The leaders of the four countries have reaffirmed their commitment to the protection of the reef, and are actively seeking financing for the second phase of the MBRS 15-year Action Plan. Nevertheless, socio-economic risks to project outcomes stem from immense economic and population pressures, leading to unsustainable development practices. Thus, the progress made by the MBRS Project towards protection and management of the reef can be undermined by short-term economic interests - notably in the areas of pesticide-intensive agriculture, tourism development and fisheries over-exploitation - which do not align with the goals of managing the ecological integrity of a reef system. More often than not, short-term economic interests have had a higher priority and greater authority in the MBRS region over those dealing with less tangible, but equally important issues of conservation and sustainable management.

c. Institutional framework and governance.

Sustainability: Moderately Likely. The MBRS made substantial progress towards policy harmonization between the participating countries. As previously discussed, conflicting agendas and mandates between sectors will continue to pose a serious challenge to the sustainable management of the MBRS. In the case of Mexico, additional difficulties are posed by the overlap of natural resource management jurisdiction between Federal and State-level entities. The involvement of CCAD elevated the profile of the MBRS as a system of regional importance at the ministerial level which should produce continued institutional interest. The Project itself maintained a very high level of transparency and demonstrated considerable competence in managing complex transboundary projects.

d. Environmental.

Sustainability: Moderately Unlikely. There are serious environmental threats to the MBRS, intrinsic to developing countries – pervasive poverty and population pressures that are beyond the scope of any single project. These threats include: a) declining water quality due to sedimentation, pesticide and nutrient run-off, and municipal and industrial waste; b) unregulated commercial development resulting in destruction of mangroves; c) mass tourism, particularly from cruise ships; d) unsustainable fisheries due to lack of zonation, no-take zones and enforcement; e) remaining un-harmonized policies; and f) climate change (severe weather patterns and increased water temperatures).

Although many political leaders understand the need for stricter regulation and management of natural resources they refuse to act because such policies are so politically charged. Supporting such policies as no-take fishing zones, land use policies that prohibit development in sensitive areas and stricter limits on fish take are examples of policies that are necessary for sustainability but political suicide for politicians. Until the political landscape changes to the point that allows for leadership on natural resource issues sustainability will always be subservient to policies that promote more immediate gratification. The project significantly raised the profile of the MBRS among governmental institutions. However, the degree to which this will translate into long-term political capital is an open question.

Threats to the MBRS will not be addressed without a significant commitment from the international community to assist the four countries to tackle some of these issues. These threats will not be negated by a single project, and continued support will have to be sought from a variety of sources to systematically address these threats. The strong foundation set by this project, however, provides a sound framework for future investments.

Catalytic Role of Project

The MBRS Project played a significant catalytic role in fostering dialogue between the four countries on the management of a shared natural resource. Prior to the Project, little discourse existed between the four countries with regards to the joint management of the reef or approaches to stem threats to this ecosystem. The Project laid the foundation for a systematic and regional approach to managing the MBRS, enabling a number of conservation measures, regulations and cooperative agreements. In particular, the Project was instrumental in fostering unprecedented cooperation between the countries to harmonize policies for fisheries and tourism.

The MBRS Project has an extensive track record of collaboration with other actors in the region. Please refer to Annex. 12 for a complete list of the project's partnerships and relationships with other projects and initiatives.

The infrastructure developed by the project at five marine parks has served to attract national and international researchers and funding to the area. The new dormitory facilities at the visitor centers have allowed dozens of scientists, volunteers and students to have access to the reef. The data they are collecting will greatly improve the knowledge-base of reef ecology and management. Through its Synoptic Monitoring Program, the Project mobilized a large number

of individuals and institutions to assist with methodical monitoring of the reef and associated ecosystems. It has also established a dynamic regional database, providing access to key data for decision makers, managers and researchers. Through its extensive training program, the project has greatly improved regional capacity to actively protect and manage important cultural and natural sites. Additionally, a highly developed and specifically targeted environmental awareness program has brought new appreciation and understanding at the local level of the importance of the reef.

Many of the Project's outputs such as training manuals, educational materials, methodologies, and data, are freely available via the web at the MBRS website. These can readily serve the needs of others around the world working on similar issues. Finally, the MBRS Project has been a major catalyst in elevating the MBRS as a region of global importance, attracting attention and interest by numerous international organizations and researchers.

Assessment of Monitoring and Evaluation Systems

a. M&E design.

The design of the M&E plan was participatory in nature and sound in design. The original plan was not extensive, but was concise and targeted. This plan was expanded around the Mid-Term Evaluation to include a new set of Key Performance Indicators, which were formally adopted by an amendment to the grant agreement in April 2005. The expanded plan was fairly comprehensive and contained specific time frames for achieving targets and outputs.

b. M&E Plan implementation.

The M&E plan was timely implemented and results and progress were tracked through both a log frame matrix and through Annual Progress Reports. These reports were made public via the Project's website and served to inform other partners and interested parties of the MBRS Project's progress. The PCU carried out the majority of the M&E, with input from Supporting Agencies and other partners.

One area where the M&E could have been stronger was in tracking the impact of training of fishers in alternative livelihoods. No data were collected to document if the training to fishers had resulted in the fishers shifting from unsustainable resource extraction to more sustainable activities (in this case tourism), nor on the degree to which training in fisheries co-management resulted in improved fishing practices.

Overall, however, the M&E plan was implemented as planned and served to track both project outputs and outcomes. The Key Performance Indicators were for the most part robust enough in nature to track progress towards achieving the project's goals. However, they did not provide sufficient information to monitor the long-term financial and technical sustainability of the project. More attention could have been paid during project design to include indicators that could have helped track progress towards achieving the Regional 15-year Action Plan- such as progress towards negotiating new sources of co-financing and partnerships.

c. Budgeting and Funding for M&E activities.

It appears that the M&E plan received adequate financing, with data collection coming directly from the various components. It is hard to separate money spent on M&E with the everyday tasks of the PCU, however there is no evidence that M&E activities suffered from a lack of financing.

d. Monitoring of Long Term Changes.

The Project is well poised to provide long-term data and play a significant role in using those data to understand trends and threats to the reef through the SMP and REIS. However, this accomplishment is at risk after 5 years of funding, because there is no permanent institutional arrangement to house the data or provide long-term analyses. This is in part because a second phase of financing is anticipated and in part because there is yet no obvious institution that can manage data from four countries. In theory, if additional funding is secured, the Project will be able to provide a state-of-the art monitoring system of the reef and associated ecosystems' health and changes over time.

Processes that Affected Attainment of Project Results

a. Preparation and Readiness.

As discussed earlier, the project benefited from a strong preparation phase and strategic, regional, and long-term approaches.

b. Country Ownership.

Throughout its life, the MBRS Project received political support at the highest levels. The roots of the project date back to 1997, when the leaders of the four countries convened in Tulum, Mexico, and pledged their commitment to protecting the Mesoamerican reef. The MBRS Project is grounded in the resulting 15-year Action Plan, adopted in 1999.

In July 2006, the heads of state of the four countries reaffirmed their commitment to managing and protecting the shared resource of the MBRS via a declaration termed "Tulum + 8". An updated Action Plan is being finalized, and was presented to the countries' Environment Ministers for endorsement. This continued, high-level political support has been key to securing the cooperation of the state entities in the various countries, and to maintaining visibility and credibility in the region.

The Project Coordinating Unit (PCU) received timely and sustained support from the Government of Belize which provided office space and other needed logistic support for project start-up.

At the operational level, the project has received extensive support from all of the four participating countries. Over 100 individuals - government officials, NGO staff, university students and teachers, scientists, as well as direct and indirect beneficiaries have devoted countless hours to advancing the objectives of the MBRS. Activities included, among other:

participating in meetings and workshops to define priorities and action plans, reviewing drafts of documents and studies, and carrying out monitoring activities.

In the end, measuring country ownership in terms of financial contribution alone is misleading. As developing countries, the financial resources available to any sector are limited at best and natural resource management is often a low priority. While Belize and Mexico, both more prosperous countries were able to make a more substantial contribution, Honduras and Guatemala were not in as advantageous position to contribute financially due to far more limited financial resources. As discussed in the section below, weaknesses in project implementation were related more to lack of resources and capacity than to a lack of project ownership.

c. Borrower Performance.

At the time of the TE evaluation over 90% of the funds allocated for the project had been disbursed, and the project had met a substantial portion of its key output indicators. The project's disbursement track-record was augmented by clean annual Independent Audit Reports, indicators of sound financial management.

Given the project's regional approach involving four separate countries, implementation arrangements were by necessity, complex and multi-layered. The main elements were as follows:

- The Executing Agency for the project was the Central American Commission on Environment and Development (CCAD).
- A Project Coordinating Unit (PCU), based in Belize City, was responsible for day-to-day management of the project.
- A National Coordinator (NC), in each country was responsible for facilitating the activities within their respective country.
- Four National Barrier Reef Committees (NBRC), comprised of representatives from both the public and private sectors in each country, were created as mechanisms to promote communication and coordination across sectors on a broad set of issues dealing with the MBRS as a whole, not only those directly related to the MBRS Project.
- The Regional Steering Committee (RSC), was comprised by the four National Coordinators, and was chaired by the Executive Secretary of CCAD. The role of the RCS was to provide policy guidance, approve the annual work plans prepared by the PCU and the NBRCs, and oversee overall program implementation.
- Technical Working Groups (TWG), one for each thematic area of the project provided technical support to the project.
- A Consultative Group, comprised of representatives from donor organizations and partner institutions working in the region, was established as a mechanism to facilitate coordination between the project and other activities in the region, to identify synergies for program development and to attract long-term co-financing.

The involvement of CCAD elevated the profile of the MBRS as a system of regional importance at the ministerial level which should result in continued institutional interest.

The MBRS Project benefited from having a PCU with a strong technical team, representative of all four participating countries. In particular, the PCU Executive Director, Mr. Noel Jacobs, was both highly qualified and efficient, and provided strong leadership and direction to the Project. National Coordinators were unanimous in expressing their satisfaction with the way the PCU carried out its responsibilities. The feedback received from government officials interviewed in all four countries indicated that the PCU was respectful of their countries' sovereignty, receptive to their input, and responsive to their needs. The National Coordinators told the TE team that they felt that the project had been managed in a fair and transparent manner by the PCU.

Throughout the life of the project, one area of weakness of the PCU was procurement expertise. While the Bank's supervision mission of June 2005 reported improved capacity over the previous year, a May 2006 mission reported a decline in the quality of procurement processes, likely resulting from the change of procurement specialist at the PCU. However, while there were learning-curve issues, the procurement problems identified during the 2006 mission seem minor, and do not appear to have seriously detracted from project implementation.

It is worth noting the excellent job by the PCU of making all the information related to project activities available via its website. Any interested party can easily find all Annual Work Programs, Annual Progress Reports and Auditors Reports on-line. This level of transparency provides a high level of credibility to the project.

The Steering Committee provided an essential mechanism for coordination among the participating countries and served as an effective tool for project implementation and regional-level oversight of the PCU. A weakness noted by the TE team was that the RSC did not perform annual performance evaluations of the PCU senior staff. Best practices suggest that good management oversight includes periodic staff performance evaluations in order to provide objective and systematic feedback to the staff member, and to improve accountability.

The funding of the NC was part of the country's counterpart contribution. In theory, the financial support by the participating countries was meant to demonstrate the country's commitment to the project. In reality, the ability of the NCs to adequately fulfill their roles was constrained by limited human and financial resources intrinsic to their countries. As such, performance was often correlated with the relative strength or weakness of the host institution and/or the specific individual nominated to the NC position. In Honduras, for example, lack of continuity was a problem, having had seven different NCs over the five years of the project. In all four countries, NCs had extensive responsibilities besides those associated with their role in the MBRS Project. Thus, the NC's ability to devote the required effort to the project, and their ability to respond in a timely manner, varied by country and varied, within a given country, over the life of the project. All the NCs mentioned that in retrospect, the lack of a dedicated person to the MBRS Project hampered their country's ability to participate optimally in the project. However, Bank funding of staff in the public sector is not permitted, and there are substantial trade-offs in sustainability, capacity building, and authority if the NC positions were held by consultants rather than public servants. Perhaps a middle ground arrangement can be considered in the future, whereby the NC is provided some resources to employ help for specific project related activities. While this means additional costs to the project, strengthening the capacity at the national level may be a cost-effective investment.

At the field level, some personnel in the protected areas felt that the process to obtain resources or equipment was overly bureaucratic and cumbersome. People in the field reported a circular and time consuming effort to get basic support, and that responsiveness to their needs was highly variable depending on the caliber of the NC at a given time. In one case the NC blocked or attempted to divert resources intended for the MPA. To its credit, the PCU interceded on behalf of the MPA involved, and the matter was resolved.

The NBRC committees were established by ministerial decree at the onset of the project. Their degree of engagement varied from country to country (Belize for example has a strong and active NBRC, while those in Honduras, Mexico and Guatemala meet less frequently). A concern raised at the time of the MTR was that the NBRCs focused exclusively on issues related to the MBRS Project and had thus not fulfilled their anticipated role to address issues at a broader context. Nevertheless, they provide a potential tool to support the sustainable and participatory management of the MBRS.

The Technical Committees met with various degrees of success. One limitation was that the members in these committees served *ad-honorem*, and as such, were not always able or willing to give the project the level of attention needed. Notwithstanding, as discussed below, members of the Technical Committees participated in the development of the Annual Work Programs, and many individuals generously gave many hours of their time and expertise at little or no cost to the project.

The benefits envisioned in the PAD of the Consultative Groups were not fully realized. While the group met in two occasions, these meetings did not lead to the anticipated coordination or synergies. It appears that these shortcomings resulted from a combination of diverse agendas, a lack of time or willingness to devote to coordination, and differences in personalities and professional styles among the Consultative Group and other project stakeholders.

As mentioned earlier, the Heads of State of the four participating countries gave the project political strong support. Unfortunately, conflicting missions within some of the ministries charged with protected areas sometimes undermined the efficiency of attaining certain objectives. This was most noticeable when fisheries and protected areas goals conflicted. Similarly, tourism and development agendas with short-term economic interests did not also align with the goals of the entities responsible for managing the ecological integrity of a reef system. More often than not, economic interests had a higher priority and greater authority over those dealing with less tangible but equally important issues of conservation and sustainable management. As such, the project suffered at times from lack of support from ministries which had direct impact on MBRS processes but which were not full partners to the project. In some cases, the relevant ministry was not formally included as a partner in the project at inception, while in other cases, a change of ministerial responsibilities rendered a given sector outside of the project scope.

c. Stakeholder Involvement.

Given the project's objectives, the primary constituents of the project were the public sector entities directly responsible for the management of the MBRS. As such, the project was structured to be highly receptive to the needs of the partner governments, and to provide ample mechanisms of participation and decision-making to the countries.

Specifically, the project's organization structure included a Regional Steering Committee, 7 Technical Working Groups (one for each thematic area of the project) and 4 National Barrier Reef Committees. These entities provided the means for direct stakeholder participation.

Decisions on allocation of resources and programmatic priorities were made via a participatory process involving the four countries. Each year the PCU prepared a draft Annual Work Program (AWP), which was discussed and refined in a two-day workshop attended by representatives from each country. Each delegation was comprised of the NC plus two individuals from each of the seven Technical Working Group (one from the public and one from the private sectors), for a total of 15 representatives per country. The completed AWP was then approved by the Regional Steering Committee.

As previously highlighted, a limitation of the project, common to many environmental projects, is that responsibility for natural resource management is often shared by several potentially conflicting sectors. This problem was significantly exacerbated by having four participating countries. It became a monumental task to involve all relevant ministries and entities. In this respect, the MBRS achieved remarkable success in bringing together 3 of the four countries in adopting a common policy framework for sustainable management in the areas of fisheries, tourism and marine protected areas.

Throughout its life, the project sponsored numerous meetings and workshops to discuss diverse aspects of MBRS conservation, management and use. A broad array of individuals and institutions were invited to these meetings and given the opportunity to help shape the direction and priorities of the project. As can be expected, different, and sometimes conflicting, agendas among participants meant that not everyone involved felt that their areas of concern received adequate consideration or that they were sufficiently involved in the implementation process.

Several local NGOs in each country participated in the project as beneficiaries, as partners or under contract to execute various project activities. As such, these entities benefited from the partnerships, equipment and or funding provided by the project. In most cases, the project helped raise the profile of these NGOs allowing them access to a wider network of expertise and funding.

Direct participation by local communities, other than as beneficiaries, was weaker. In fact, a recommendation expressed by various individuals is that any follow-up projects be designed with the explicit objective of working more directly with local communities. One such experience, which received praise from several people interviewed, was the congress of fishers organized by the MBRS Project. This event provided a first-time opportunity for fishers from the four countries to come together to discuss their experiences and problems. The outcome of this meeting was support on the part of the fishers for harmonized policies and norms in the sector.

One set of stakeholders, however, consistently reported that the project failed to engage in meaningful participation and collaboration. Some international NGOs and bilateral donors expressed the view that while the MBRS Project purported to facilitate cooperation, this seldom translated into fruitful partnerships.

d. Financial Planning.

Project effectiveness was initially delayed by the lack of an acceptable financial system in place at the effectiveness date. The consultants hired to develop this system failed to deliver, and the MBRS was forced to design their own “quick and dirty” system which in the end proved to be fully adequate for the entirety of the project.

After this initial delay, however, the project quickly began project activities, and maintained a disbursement profile consistent with the amounts programmed in the approved Annual Work Plans. At the time of the TE evaluation over 90% of the funds allocated for the project had been disbursed, and the Project had met a substantial portion of its key output indicators. The Project’s disbursement track-record was augmented by clean annual Independent Audit Reports, indicators of sound financial planning and management.

e. Implementing Agency/Executing Agency Supervision and Backstopping.

The World Bank provided extensive technical support to the countries in the preparation of the project, and demonstrated a high level of commitment to the project during its implementation. Ms. Marea Hatzios, the Bank’s Task Team Leader has been with the project since its inception, and contributed substantial technical expertise. The PCU and the countries reported that her level of involvement and dedication to the project has been exemplary.

The project’s Mid-Term Review (MTR), which took place in March 2004, provided extensive guidance to the project. One problem is that it provided over fifty recommendations. These included, among others: consultation with political partners outside the current cast of MBRS ministries; coordination with bilateral donors and international NGOs; socio-economic studies to identify alternative livelihood opportunities; directly engaging coastal communities in project planning and execution; developing a plan for approaching the private sector to help set up an endowment fund for coastal and marine resource conservation; and securing financing sources via user fees. In the end, fewer, more targeted recommendations, and more systematic follow-up would probably have been more effective.

Supervision missions by the Bank are frequently limited by financial resources, however, due to the complexities and multi-national nature of this project, the Bank could have been more strategic in bringing additional resources to trouble-shoot issues and provide support in areas outside the expertise of the technical support team. This was particularly relevant for tourism and alternative livelihoods components which showed weaker performance dating back to as early as the MTR.

The PCU expressed their frustration with the effectiveness condition of developing the rigid LACY financial management system, which in the end had to be abandoned by the project and which the Bank later abandoned. The PCU also felt that the Bank should have done a better job of communicating its requirements. Specifically, the PCU indicated that they had not been informed early enough that they needed to have written no-objections to their Annual Work Plans, approval of their Procurement Plan, or acceptance letters of their auditor's reports. The PCU lamented that the Bank did not respond expediently to requests for training in procurement, disbursement and Bank procedures. Training in these areas, they felt, was not offered frequently enough to meet Project's needs. For its part, the Bank reported that they did offer sufficient training, but that turn-over of PCU personnel set-back progress made towards building the PCU's capacity in these areas.

The PCU also indicated that they felt that the Bank did not have good arrangements in place to deal with absences of their disbursement officers - when this officer was on leave, the person covering for them did not know the project well enough, creating disbursement delays and imposing additional burdens on the PCU by requesting information and documentation already provided.

Some of the National Coordinators expressed their frustration with the Bank's rigid procurement rules, which proved to be a considerable hindrance at times. Illustrative of this was the need to have a list of confirmed participants in a workshop prior to obtaining the Bank's no-objection. This created a 'chicken-and-egg' situation, because without the no-objection, the country could not make the necessary financial and logistic commitments to secure the agreement of the participants.

f. Cofinancing and Project Outcomes and Sustainability.

The PAD specified that the allocation of co-financing resources would be determined through annual programming, and was not shown in project costs tables at the time. At the time of appraisal, co-financing in the amount of \$9.0 million was expected from the following sources:

WWF	US\$ 2.5 million
Government of Canada	US\$ 0.5 million
Oak Foundation	US\$ 5.0 million
University of Miami	US\$ 1.0 million

However, co-financing by these organizations is difficult to quantify. While it is clear that they have made substantial investments in the region through local NGOs, the details of the amounts are not public information. Unlike the MBRS Project, their annual work plans and budgets are not readily-accessible. Rough estimates for their level of expenditures for 2001 to 2006 are: WWF US\$ 2 million, Oak Foundation US\$ 1 million, The Summit Foundation US\$2 million, USAID US\$1.5 million, UNF 1.5 million, and The Nature Conservancy US\$ 2 million.

g. Delays and Project Outcomes and Sustainability.

There was a six month delay between Project approval and effectiveness, resulting from the need to put in place a financial management system acceptable to the Bank. The project received a one year extension, offsetting this delay and providing an additional six months for

implementation.

One problem, hardly unique to the MBRS Project, is the fact that a project extension means that the operation of the PCU requires expenses not originally budgeted. In cases where the project has under-performed, and disbursements are well behind, the cost of maintaining the PCU during for the additional time is a small percentage relative to funds for project activities to be disbursed during the extension period. However, in the case of the MBRS Project, disbursements were well on-track. Thus, in order to finance the PCU for the additional 12 months (a cost of approximately \$400,000), some project activities had to be sacrificed. In the end, tourism and alternative livelihood components lost substantial funding, which in turn may have diminished their overall outcomes. However, it should be noted that these components were under performing throughout the project, in part as a result of unrealistic expectations generated during project design and thus the reallocation was completely justified.

The extension did not result in losses to Project sustainability. Rather, it has allowed the participating countries additional time to seek funding and partnerships which could potentially allow the project to move into a second phase, and develop more permanent and sustainable long-term institutional arrangements.

h. Relationship with other Actors and Projects in the Region.

The MBRS project was pivotal in developing, amalgamating and harmonizing methodologies, protocols and policies for the MBRS region. These activities attracted partners and co-sponsors. Some of these were joint ventures and others were direct support to on-going activities, such as the SMP. The list of the Project's partnerships and joint investments, provided by the PCU is found in Annex 12.

Notwithstanding these achievements, as early as the Mid-Term Review there was recognition that the MBRS project needed to more actively engage other actors in the region, and that stronger networking was needed with other projects, such as ICRAN-MAR and PROARCA and organizations such as PACT, WWF, and WCS. The existence of a Consultative Group had been contemplated in the PAD, as it was recognized at the time of project design that donor coordination would be essential. According to the MTR, "These coordination efforts should dispel any concern voiced among some partner organizations that MBRS activities tend to be insular."

While the Consultative Group met in two occasions, some individuals indicated that in their minds, the MBRS project fell short in their efforts of coordinating with other actors in the region. It appears that this resulted from a combination of diverse agendas, a lack of time or willingness to devote to coordination, and differences in personalities and professional styles among the Consultative Group members and other project stakeholders.

Compliance with Bank Safeguard Policies

The MBRS Project fully complied with all applicable Bank safeguard policies as listed below.

Applicable Policy	Rating
Environmental Assessment (OD 4.01)	S
Natural Habitats (OP 4.04)	S
Indigenous Peoples (OD 4.20)	S
Involuntary Resettlement (OP 4.12)	S
Ratings: HS=Highly Satisfactory; S=Satisfactory; MS=Moderately Satisfactory; MU=Moderately Unsatisfactory; U=Unsatisfactory; HU=Highly Unsatisfactory	

Lessons Learned

- Despite the added complexity to project preparation and implementation, it is key to include all public sectors with management responsibility or a vested interest on the natural resource the project is trying to protect/manage in order to ensure buy-in and collaboration;
- Quality infrastructure and equipment investments not only build management capacity but also can facilitate “buy in” to protected areas by area personnel, locals, NGOs, researchers and ministries;
- “One size fits all” design approaches may not be the best option, despite the cost savings of having a single design for different sites;
- Greater capacity to manage infrastructure investments is needed when they are a significant part of PA projects; inclusion of someone with infrastructure experience could save time, money and produce a better final product;
- For projects that potentially collect a large amount of data, there needs to be a clear purpose for the data and a seamless mechanism to transmit results to decision-makers and on-the-ground managers.
- A clear plan to maintain and house data in the absence of long term funding must accompany any program that gathers a large amount of data across multi-national region. Ownership and responsibility for dissemination must be established prior to the completion of any project.
- In regions where unanticipated events can occur rapidly, such as hurricanes or coral bleaching, there needs to be a local capacity (including emergency funding) built up during the project to respond to these events and carry out a rapid assessment of the situation.
- A thorough understanding of the labor market, unemployment levels and skills capacity is necessary for alternative livelihoods programs to be effective;

- Alternative livelihoods are not likely to succeed in areas of high unemployment where those trained are readily replaced by others in the targeted activity. For this reason, alternative livelihood promotion will succeed only in conjunction with limitations to new-entrants to unsustainable livelihood activities;
- For tourism standards and regulation to succeed at the policy level, tourism ministries must be involved in project design and implementation;
- Involvement of the private sector is essential to tourism management but often proves difficult as the private sector tends to be off-site, have little incentive to alter tourism practices and often possesses considerable political access.
- Carefully targeted environmental education campaigns aimed at policy makers, educators and children can be highly effective in garnering support for conservation activities.
- Educational institutions are open to the idea of new curricula but slow to incorporate such materials and require much effort to negotiate the institutional hurdles.

Recommendations

a. The GEF Project Cycle and Second Phase Funding.

From its inception, the MBRS Project was part of a long-term strategy (a 15-Year Action Plan) to address the threats to a globally important, transboundary resource. For many valid reasons, the GEF only committed to fund the first five years of this strategy. However, this time frame is simply too short to consolidate project outcomes, particularly in light of an ecosystem approach. For example, collection and analysis of reef data requires time series data of more than a couple of years to distinguish trends from background noise and to translate findings into appropriate policy measures and management tools. Likewise, effective management of the MBRS, which spans four countries, will require continued coordination and cooperation between the four nations. Transaction costs for such cooperation continue, and progress to date will quickly reverse if this coordination is not actively supported and pursued.

The MBRS Project's track record makes it a strong candidate for second phase funding. Thus, the PCU and CCAD have devoted substantial effort during the past six to eight months to seeking funding for a second phase of the project. This has meant having to spend substantial time and energy that could have been devoted to project implementation activities during the final months of this phase. Yet, to date, while there are several promising partners, no funding has been secured and prospects are likely to depend on commitment from a large donor such as the GEF. Even if financing for a second phase is ultimately secured, a funding gap in an otherwise successful project results in a loss of momentum and a high degree of uncertainty which can be costly in terms of financial and human resources, and sustaining key processes which may bear fruit in the future.

Recommendation: The GEF may reduce inefficiencies resulting from funding gaps by allowing projects with a long term horizon and a clear performance track record to begin the process of applying for subsequent funding at an earlier stage, rather than having to wait until the project is almost ready to close.

b. Project Partnerships.

An important lesson of the MBRS project was the need to include all relevant ministries which have direct impact on MBRS processes as full partners to the project.

Recommendation: A second phase of the project should be far more multi-sectoral its design and implementation partners, to ensure buy-in from all the public entities with a stake or impact on the MBRS.

c. Legal and Policy Framework

The first phase of the MBRS laid the foundation for a systematic and regional approach to managing the MBRS region. Prior to the MBRS Project, little dialogue existed between the four countries on the joint management of the reef or approaches to stem common threats to the reef.

One of the most significant outcomes of the project was the harmonization of policies and protocols and the adoption of these by national governments. This outcome was not anticipated in the initial development of the project, as the component to strengthen the policy framework was not included in the original project design. However, early on, it became a strong focal point and a component with excellent support from all four countries.

These achievements have instilled a sense of pride in the countries and a willingness to continue with broader legal and policy reforms. These accomplishments have also been clearly recognized as the first step for achieving improved capacity for public governance of environmental resources. The expansion of these activities has been incorporated into a large component proposed for a second project phase. The component includes strengthening the legal framework and creating conditions for better enforcement of and compliance with environmental laws governing MBRS resources in addition to continued harmonization of policies and regulations. The inclusion of this component in a second phase is immensely important, as all four governments recognize that the legal and policy framework forms the backbone to long-term management of the reef.

Recommendation: A second phase of the project should continue to support harmonization processes in using lessons learned from harmonizing policies within fisheries to include watershed management, land base pollutants and tourism policies. In addition, it should supplement said reforms with targeted training and capacity-building, especially with training on the goods and service value of MPA and watershed protection.

d. Environmental Monitoring

The synoptic monitoring program has been heralded as a success both in terms of its protocol and implementation. The protocol is a result of many years of dialogue and testing of methodologies by experts in the region. It has been adopted widely across the region and has been disseminated throughout Support Agencies; including being taken up in MPAs outside of the MRBS project targeted-MPAs. Although there are several areas the SMP will have to focus

on in the next phase (in particular more data for sea grass beds and mangroves, water quality and contamination), the initial baseline data collected via the MBRS Project is of high quality and has provided a snapshot of regional patterns.

A large number of people were trained under this component and if they can be retained within the project and/or at various MPAs, there is a high likelihood of sustainability for the monitoring program. The shortcomings of the program under the current project have been identified and include a lack of comprehensive spatial and temporal data for the above mentioned categories, the lack of socio-economic and cultural indicators, and better links between data collection, analysis and adaptive management based on results. Inclusion of these parameters in a second project phase will assist with better informed management decision-making at a regional level.

The initial proposal for a second phase includes a comprehensive monitoring program with an expanded protocol to correct the identified shortcomings. In order for the SMP to be effective in a second phase however, emphasis will have to be placed on identifying the objectives of the monitoring program, and how it can assist with management decisions. Regional priorities have also shifted to include coral bleaching, connectivity between reefs, water pollution and contamination, and sources of land based pollutants. These new priorities may overwhelm the SMP and care will be needed to ensure that the project does not become overcommitted with the monitoring program.

Recommendation: The environmental monitoring program should remain tightly focused and should retain its centralization of data verification and dissemination. Partners for monitoring variables additional to those linked directly to MPAs, the SMP, and pilot work in watersheds should be sought. This should be accompanied by close collaboration on methodology and implementation. Finally, Technical Working Groups and management authorities should be enlisted to assist the project staff to identify adaptive management needs, data analysis needs and avenues to apply results to on-the-ground management.

e. Regional Environmental Information System

The establishment of a REIS was a significant achievement of the current project. The REIS was well designed, fairly comprehensive and easily accessible. To adapt to increased data from monitoring, including socio-economic and cultural parameters, the REIS will have to be enhanced in a second project phase. Moreover, its outputs need to be focused to better inform management decisions.

Recommendation: Expand the REIS with stakeholder input and a careful consideration of the need to monitor socio-economic and cultural variables, watersheds parameters, ecosystem good and services capture and management effectiveness.

f. Marine Protected Areas and Special Management Areas.

The MPA component under the MBRS Project was seminal in supporting MPA management efforts and improving the effectiveness of management. The investment in infrastructure was critical for leveraging support and for establishing a significant presence in the 5 targeted MPAs. The Project focused on creating a baseline database on management effectiveness and supporting the completion or updating of management plans for many MPAs. All of the targeted MPAs in the project now have management plans and a list of priority actions. The current preliminary proposal for a second phase of the project appears to be shifting its focus to Special Management Areas (SMAs) and watershed management. As such, it would pay special attention to the integrated coastal zone management of two Special Management Areas-SMAs (Belize-Mexico and Gulf of Honduras) by means of harmonized management regimes across the various MPAs within these areas. These areas would also be the basis for generating best practices on linking economic activity with biodiversity conservation. A partnership with MarViva, an organization with a good deal of experience in such areas, has been proposed and this would enhance the project's capacity to work on-the-ground in the transnational areas.

Recommendation: The project should focus on using the MPAs and associated watersheds in the SMAs to demonstrate explicit links between biodiversity conservation, ecosystem goods and services and linkages to various economic sectors at the regional-level.

g. Integrated Watershed and Coastal Zone Management

The proposal for a second phase of the project proposes to develop and implement high-impact management interventions in nine transnational watersheds draining into the MBRS. This approach is consistent with the Ridge-to-Reef approach and would be linked to other natural resource management operations in the same watersheds. The shift towards watershed management and away from core management of existing MPAs is ambitious and may only be successful if true partnerships with other implementing agencies can be established very early on. IUCN-Mesoamerica has indicated its willingness to partner with the project on this component. This partnership will be critical for co-financing and technical support. It is recognized that watershed management is critical for the long-term management of MPAs. However, a future project needs to demonstrate clear project links between watershed protection and MPA management in order to maintain the achievements gained in the first phase.

Recommendation: A second phase of the project should focus on 2-3 pilot watersheds to demonstrate the integrated approach proposed by the project to manage watersheds and MPAs. These showcase watersheds should be carefully selected and supported by complementary projects being developed or underway.

h. Alternative Livelihoods

The alternative livelihood component in the MBRS project targeted primarily fishers. The development of alternative livelihoods was aimed at transitioning fishers to tourism-based activities. The MBRS project was successful in providing short-term training and directional workshops, but failed to deliver a comprehensive program of alternative livelihoods. A second phase of the project would target poor farmers in the watersheds and artisanal fishers whose current livelihoods from fishing are increasingly unsustainable. The aim would be to relieve

pressure on fragile ecosystems within the MBRS region by introducing sustainable agricultural techniques and viable economic alternatives to fishing that would help reduce fishing effort in the sector. Experiences from the MBRS project indicate that the next phase of activities should include wider consultation on appropriate alternative training, market demand analyses. Moreover, targeted training needs and better follow through and quality control.

Recommendation: Alternative Livelihoods activities need to consider employment alternatives other than tourism. Decisions on training offerings need to be based on widespread consultation with potential beneficiaries and market demand. Trainings offered need to be comprehensive enough to allow a reasonable probability that the training will be sufficient to make the transition from the unsustainable activity to a different employment/income source. Additionally, the opening of new opportunities has to go hand in hand with policy reforms to prevent new entrants into the unsustainable activity.

PART III. ANNEXES

- Annex 1: Terms of Reference for the Terminal Evaluation of the MBRS
- Annex 2: GEF Terminal Evaluation Criteria
- Annex 3: Professional qualifications of the TE team
- Annex 4: Sites visited and individuals interviewed
- Annex 5: Project documents reviewed by the TE team
- Annex 6: Performance Indicators
- Annex 7: Map of the MBRS Project area.
- Annex 8: Component 1. Marine Protected Areas
- Annex 9: Component 2. Regional Environmental Information System
- Annex 10: Component 3. Promoting Sustainable Use of the MBRS
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- Annex 12: Joint Investments and Synergies
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MBRS Terminal Evaluation
Annex 1: Terms of Reference for TE Evaluation

International Consultancy: Final Evaluation of the Mesoamerican Barrier Reef Systems Project

Executing Agency: SICA-CCAD/Project Coordinating Unit (PCU)

Funding Agency: GEF/World Bank.

Countries: Belize, Guatemala, Honduras and Mexico

Length of Consultancy: 68 person days

Period of Consultancy: December 6, 2006 to March 20, 2007

Background

The Mesoamerican Barrier Reef System (MBRS), extending from Isla Contoy on the north of the Yucatan Peninsula to the Bay Islands of Honduras, includes the second longest barrier reef in the world. It is unique in the Western hemisphere due to its length, composition of reef types, and diverse assemblage of corals and related species. The MBRS contributes to the stabilization and protection of coastal landscapes, maintenance of coastal water quality, and serves as breeding and feeding grounds for marine mammals, reptiles, fish and invertebrates, many of which are of commercial importance. The MBRS is also of immense socio-economic significance providing employment and a source of income to an estimated one million people living in adjacent coastal areas.

The goal of the Mesoamerican Barrier Reef System Project is to enhance protection of the unique and vulnerable marine ecosystems comprising the MBRS, and to assist the countries of Belize, Guatemala, Honduras and Mexico to strengthen and coordinate national policies, regulations, and institutional arrangements for the conservation and sustainable use of this global public good. The Project is the first 5-year phase of a 15-year Program to safeguard the integrity and continued productivity of the MBRS. The MBRS initiative is being actively promoted by a variety of donors and partners in the region and within the context of the Mesoamerican Biological Corridor Program.

The objectives of the GEF/Bank supported MBRS Program, agreed to by the four participating countries, are to: (1) strengthen Marine Protected Areas (MPA's); (2) develop and implement a regional ecosystem monitoring and information system that will provide a synoptic view of the health of the MBRS and facilitate dissemination of these findings throughout the region; (3) promote measures which will serve to reduce non-sustainable patterns of economic exploitation of MBRS, focusing initially on the fisheries and tourism sectors; (4) increase local and national capacity for environmental management through education, information sharing and training; and (5) facilitate the strengthening and coordinating of national policies, regulations and institutional arrangements for marine ecosystem conservation and sustainable use.

The MBRS Project was declared effective on November 30, 2001. It is executed by the Central American Commission on Environment and Development (CCAD) on behalf of Belize, Guatemala, Honduras and Mexico. Day-to-day Project execution is the responsibility of the Project Coordinating

MBRS Terminal Evaluation
Annex 1: Terms of Reference for TE Evaluation

Unit (PCU), located in Belize City, and is an operational arm of CCAD. The Project is implemented by the World Bank on behalf of the Global Environmental Facility (GEF).

I. Scope of the Consultancy

The GEF requires that all World Bank-implemented Projects nearing completion undergo independent Terminal Evaluations to determine level of achievements of Project goals and objectives, gaps in Project execution, outcomes, difficulties, sustainability and lessons learned.

The consultant team will be responsible for carrying out the MBRS's Terminal Evaluation in accordance with the guidelines set forth by the Evaluation Office of the GEF (February, 2006) and the *"Draft Guidelines for Implementing and Executing Agencies to conduct Terminal Evaluations"* (as of November 26th, 2006). These guidelines constitute an integral part of these TORs.

II. Objectives of the Evaluation and Guidelines

The objective of the evaluation is to fully review and critically assess the progress and accomplishments in Project implementation, with respect to specific Project objectives 1-5 described above, and consistent with the Project's Logical Framework Matrix and Process Framework. The evaluation should specifically address:

- a) Outputs achieved through the implementation of Project activities, based on key performance indicators, such as the design of an Environmental Monitoring Program, the Regional Environmental Information System, the strengthening of management capacity in MPAs, the training of fishers and MPA staff, Alternative Livelihoods, Exemplary Practices in Tourism, Fisheries Monitoring, Environmental Awareness and Education, and Project Management.
- b) Achievements towards the global objectives of the Project;
- c) Strengths and weaknesses in Project implementation;
- d) Institutional and operational arrangements and the resulting implications on effective Project execution and ownership;
- e) Level of national and regional coordination as well as the level of public involvement in Project's activities;
- f) An assessment and differentiation of specific outputs and processes initiated as a result of Project investments;
- g) Level of ownership of the Project by the participating countries, as an indicator of their commitment to the provision of counterpart contribution;
- h) Assess compliance with the Process Framework and the Indigenous Peoples Development Plan (IPDP) as appears in the Project Appraisal Document. Evaluate the practicality and validity of this compliance as it relates to Project Design and the realities in the field;
- i) Critically evaluate and highlight joint investments and relationships with other Projects and/or institutions to achieve added value.

In keeping with GEF guidelines for Terminal Evaluations, the evaluation team should address the following, and provide ratings as per guidelines:

MBRS Terminal Evaluation
Annex 1: Terms of Reference for TE Evaluation

- a) **Relevance:** Were the project's outcomes consistent with the focal areas/operational program strategies and country priorities?
- b) **Effectiveness:** Are the project outcomes commensurable with the expected outcomes as described in the project document and the problems the project was intended to address?
- c) **Efficiency:** Was the project cost -effective and was the project the least cost option?
- d) **Likelihood of Sustainability:** What is the likelihood that project outcomes will be sustainable, and what risks are likely to affect the persistence of project outcomes during the next project phase? Ratings should be provided for:
 - Financial resources: Are there any financial risks involved in sustaining the project outcomes?
 - Sociopolitical: Are there any social or political risks that can undermine the longevity of project outcomes?
 - Institutional framework and governance: Do the legal frameworks, policies and governance structures and processes pose any threat to the continuation of project benefits?
 - Environmental: Are there any environmental risks that can undermine the future flow of project environmental benefits?
- e) **Assessment of Monitoring and Evaluation Systems:** This should include a review of the following:
 - Did the project establish and use an adequate M&E system during implementation?
 - Was the M&E system sufficiently budgeted and funded?
 - Did this project contribute to the establishment of a long term monitoring system?
 - If it did not, should the project have included such a component?
 - What were the accomplishments and short comings in establishment of the system?
 - Is the system sustainable?
- f) **Assessment of Processes that Affected Attainment of Project Results:** This should address the following aspects:
 - Preparation and readiness.
 - Country ownership/Drivenness.
 - Stakeholder involvement.
 - Financial planning.
 - Implementing Agency/Executing Agency Supervision and backstopping.
 - Co-financing and Project Outcomes and Sustainability.
 - Delays and Project Outcomes & Sustainability.

MBRS Terminal Evaluation
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- g) Lessons and Recommendations:** This entails an analysis of lessons learned and recommendations on aspects related to factors that contributed or hindered the: a) attainment of project objectives; b) sustainability of project benefits; c) innovation; d) catalytic effect and replication; and e) project M &E.

III. Specific Tasks

Task 1. Prepare and submit to the Task Team Leader at the World Bank and the Project's Regional Coordinator in the PCU no later than December 22, 2006, a Work Schedule that is consistent with the dates defined in this Terms of Reference.

Task 2. Review the Project Appraisal Document, Project Work Plans, Project Progress Reports, Project Technical Documents, and the Project's 5-year Implementation Video to be fully familiar with the Project's design, objectives, scope, time-frame, outputs, institutional arrangements, and long-term vision.

Task 3. Conduct a series of interviews and meetings with the Project's key stakeholders and the general public including, but not limited to: The Executive Secretary of the CCAD, Project Staff at the PCU in Belize City, the National Coordinator in Belize, Guatemala, Honduras and Mexico, members of the Regional Steering Committee, members of the National Barrier Reef Committees, members of the Technical Working Groups, the World Bank, Marine Protected Areas Staff, Fishers, Tour Guides, teachers, national and regional NGOs, etc.

Task 4. Conduct visits to at least two Project sites in order to confirm investments and outputs in the field. These sites will be selected by the evaluation team in consultation with the MBRS Task Team Leader and PIU.

Task 5. Provide preliminary indications as to the processes and activities that may need to be continued/added in future phases of the Project in order to better address the conservation and sustainable use of MBRS resources. Particular attention should be paid to the necessity/feasibility of including land-based sources of pollution in future phases.

Task 6. Prepare draft and final Evaluation Reports, as per GEF/WB guidelines and schedule below.

IV. Methodology

The consultant team will work under the direct supervision of the Task Team Leader of the MBRS Project at the World Bank, and will be required to begin work with an initial meeting with the Task Team Leader and the MBRS Regional Coordinator, to finalize details of the methodology and schedule.

The evaluation will start with a review of all the relevant documentation and videos.

The team will make a short trip to Belize in December 2006 to meet with the PIU, government officials and stakeholders, followed by a visit in February 2007 to each of the four project countries to collect the information needed for the evaluation.

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The team will interview key individuals within the project and Government, and with participating agencies, NGOs and academia. These should include, but not limited to: the Executive Secretary of the CCAD, staff of the MBRS Project, the MBRS National coordinators, the Regional Steering Committee, Members of the National Barrier Reef Committees, Protected Areas Staff, fisheries personnel, fishers trained in alternative livelihoods or fisheries co-management, tour guides, primary and secondary school teachers, relevant personnel of the World Bank, participants and beneficiaries of the Synoptic Monitoring Program and Regional Environmental Information Systems, NGO partners and other key actors in the region, and other members of the communities bordering the MBRS.

The team will also visit some of the marine protected areas supported by the Project.

V. Deliverables

The consultants should deliver the following product(s):

1. A Draft Report of international standard and quality, submitted no later than March 5, 2007.
2. A Final Report of international standard and quality, submitted no later than March 20, 2007.
3. Both reports should be provided in hard copy and on CD in Microsoft Word, to the Executive Secretary of CCAD, the Task Team Leader of the MBRS Project, in the World Bank, and the Regional Coordinator of the MBRS Project.

VI. Profile of the Consultants

This consultancy is intended for team of consultants. The team should consist of experts in Monitoring & Evaluation, and particularly in the evaluation of GEF and/or World Bank trans-national multidisciplinary projects. Other specialties and discipline expected of the team include expertise in Marine Protected Areas, Information Systems and Environmental Monitoring, Training, Infrastructure, and Public Awareness and Education.

Members of the team must be fully bilingual in English and Spanish, and be prepared to travel to Belize, Guatemala, Honduras, Mexico, El Salvador, and the U.S.A. Experience in the evaluation of trans-national coastal projects will be a key asset.

VII. Length of Consultancy

The length of this consultancy should not exceed 68 person days, with the Final Report being submitted no later than March 20th, 2007.

VIII. Location of Consultancy

The consultancy will be conducted in Belize, Guatemala, Honduras, Mexico and possibly El Salvador and the U.S.A.

Annex 2: GEF MBRS Terminal Evaluation GEF Terminal Evaluation Criteria

The following is the evaluation and rating criteria outlined in the “*Draft Guidelines for Implementing and Executing Agencies to Conduct Terminal Evaluations*” (as of November 26th, 2006).

1. Assessment of Project Results

The GEF Monitoring and Evaluation Policy, 2006, specifies that TEs will at the minimum assess achievement of outputs and outcomes and will provide ratings for targeted objectives and outcomes¹. The assessment of project results seeks to determine the extent to which the project objectives were achieved, or are expected to be achieved, and assess if the project has led to any other positive or negative consequences. While assessing a project’s outcomes TEs will seek to determine the extent of achievement and shortcomings in reaching project’s objectives as stated in the project document and also indicate if there were any changes and whether those changes were approved. If the project did not establish a baseline (initial conditions), the evaluator should seek to estimate the baseline condition so that achievements and results can be properly established. Since most GEF projects can be expected to achieve the anticipated outcomes by project closing, assessment of project outcomes should be a priority. Outcomes are the likely or achieved short-term and medium-term effects of an intervention’s outputs. Examples of outcomes could include but are not restricted to stronger institutional capacities, higher public awareness (when leading to changes of behavior), and transformed policy frameworks or markets. For GEF 4 projects it is required, and for GEF 3 projects it is encouraged, that the evaluators assess the project results using indicators and relevant tracking tools.

To determine the level of achievement of project results and objectives following three criteria will be assessed in the TEs:

- **Relevance:** Were the project’s outcomes consistent with the focal areas/operational program strategies and country priorities? The evaluators should also assess the extent outcomes specified in the project appraisal documents are actually outcomes and not outputs or inputs.
- **Effectiveness:** Are the project outcomes commensurable with the expected outcomes (as described in the project document) and the problems the project was intended to address (i.e. original or modified project objectives²)? In case in the original or modified expected outcomes are merely outputs/inputs then the evaluators should assess if there were any real outcomes of the project and if yes then whether these are commensurate with the realistic expectations from such projects.
- **Efficiency:** Was the project cost effective? Was the project the least cost option? Was the project implementation delayed and if it was then did that affect cost-effectiveness? Wherever possible the evaluator should also compare the cost-time vs. outcomes relationship of the project with that of other similar projects.

¹ See page 21 – Minimum requirement 3: Project Evaluation - in The GEF Monitoring and Evaluation Policy, 2006.

² The GEF Secretariat, IAs and EAs are currently seeking to better align the focal area program indicators and tracking tools with focal area strategic priorities, and project objectives. This will enable the aggregation of outcomes and impacts for each focal area to annually measure progress toward targets in the program indicators and strategic priorities. Projects are expected to use GEF focal area program indicators and tracking tools to trace progress towards project outcomes during implementation.

Annex 2: GEF MBRS Terminal Evaluation GEF Terminal Evaluation Criteria

The evaluation of relevancy, effectiveness and efficiency will be as objective as possible and will include sufficient and convincing empirical evidence. Ideally the project monitoring system should deliver quantifiable information that can lead to a robust assessment of project's effectiveness and efficiency. Since projects have different objectives assessed results are not comparable and cannot be aggregated. To track the health of the portfolio project outcomes will be rated as follows:

Highly Satisfactory (HS): The project had no shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.

Satisfactory (S): The project had minor shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.

Moderately Satisfactory (MS): The project had moderate shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.

Moderately Unsatisfactory (MU): The project had significant shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.

Unsatisfactory (U) The project had major shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.

Highly Unsatisfactory (HU): The project had severe shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.

Relevance and effectiveness will be considered as critical criteria. The overall outcome rating of the project may not be higher than the lowest rating on either of these two criteria. Thus, to have an overall satisfactory rating for outcomes a project must have at least satisfactory ratings on both relevance and effectiveness.

The evaluators will also assess positive and negative actual (or anticipated) impacts or emerging long term effects of a project. Given the long term nature of impacts, it might not be possible for the evaluators to identify or fully assess impacts. Evaluators will nonetheless indicate the steps taken to assess project impacts, especially impacts on local populations³, local environment (e.g. increase in the number of individuals of an endangered species, improved water quality, increase in fish stocks, reduced greenhouse gas emissions) and wherever possible indicate how the findings on impacts will be reported to the GEF in future.

³ Impacts are positive and negative, primary and secondary long-term effects produced by a development intervention, directly or indirectly, intended or unintended. *Glossary of key terms in evaluation and results based management*. OECD, Development Assistance Committee. For the GEF, environmental impacts are the main focus.

2. Assessment of Sustainability of Project Outcomes

The GEF Monitoring and Evaluation Policy, 2006, specifies that a TE will assess at the minimum the “likelihood of sustainability⁴ of outcomes at project termination, and provide a rating for this.” The sustainability assessment will give special attention to analysis of the risks that are likely to affect the persistence of project outcomes. The sustainability assessment should also explain how other important contextual factors that are not outcomes of the project will affect sustainability. Following four dimensions or aspects of sustainability will be addressed:

- **Financial resources:** Are there any financial risks involved in sustaining the project outcomes? What is the likelihood that financial and economic resources will not be available once the GEF assistance ends (resources can be from multiple sources, such as the public and private sectors, income generating activities, and trends that may indicate that it is likely that in future there will be adequate financial resources for sustaining project’s outcomes)?
- **Sociopolitical:** Are there any social or political risks that can undermine the longevity of project outcomes? What is the risk that the level of stakeholder ownership will be insufficient to allow for the project outcomes/benefits to be sustained? Do the various key stakeholders see that it is in their interest that the project benefits continue to flow? Is there sufficient public / stakeholder awareness in support of the long term objectives of the project?
- **Institutional framework and governance:** Do the legal frameworks, policies and governance structures and processes pose any threat to the continuation of project benefits? While assessing on this parameter also consider if the required systems for accountability and transparency, and the required technical know-how is in place.
- **Environmental:** Are there any environmental risks that can undermine the future flow of project environmental benefits? The TE should assess whether certain activities in the project area will pose a threat to the sustainability of the project outcomes. For example, construction of dam in a protected area could inundate a sizable area and thereby neutralizing the biodiversity related gains made by the project.

On each of the dimensions of sustainability of the project outcomes will be rated as follows.

Likely (L): There are no risks affecting this dimension of sustainability.

Moderately Likely (ML). There are moderate risks that affect this dimension of sustainability.

Moderately Unlikely (MU): There are significant risks that affect this dimension of sustainability

Unlikely (U): There are severe risks that affect this dimension of sustainability.

All the risk dimensions of sustainability are critical. Therefore, overall rating for sustainability will not be higher than the rating of the dimension with lowest ratings. For example, if a project has an Unlikely rating in either of the dimensions then its overall rating cannot be higher than Unlikely, regardless of whether higher ratings in other dimensions of sustainability produce a higher average.

⁴ Sustainability will be understood as the likelihood of continued benefits after the GEF project ends.

3. Catalytic role

The terminal evaluation will also describe any catalytic or replication effect of the project. If no effects are identified, the evaluation will describe the catalytic or replication actions that the project carried out. No ratings are requested for the catalytic role.

4. Assessment monitoring and evaluation systems.

The GEF Monitoring and Evaluation Policy, 2006, specifies that a TE will assess whether the project met the minimum requirements for project design of M&E (minimum requirement 1) and the application of the Project M&E plan (minimum requirement 2)⁵. GEF projects must budget adequately for execution of the M&E plan, and provide adequate resources for during implementation of the M&E plan. Project managers are also expected to use the information generated by the M&E system during project implementation to improve and adapt the project. Given the long duration of many GEF projects, projects are also encouraged to include long-term monitoring plans to measure results (such as environmental results) after project completion. TE reports will include separate assessments of the achievements and shortcomings of these two types of M&E systems.

M&E during project implementation

M&E design. Project should have a sound M&E plan to monitor results and track progress towards achieving project objectives. An M&E plan should include a baseline (including data, methodology, etc.), SMART⁶ indicators and data analysis systems, and evaluation studies at specific times to assess results. The time frame for various M&E activities and standards for outputs should have been specified.

M&E plan implementation. An M&E system was in place and facilitated timely tracking of results and progress towards projects objectives throughout the project implementation period. Annual project reports were complete, accurate and with well justified ratings. The information provided by the M&E system was used during the project to improve project performance and to adapt to changing needs. Projects had an M&E system in place with proper training for parties responsible for M&E activities to ensure data will continue to be collected and used after project closure.

Budgeting and Funding for M&E activities. M&E was sufficiently budgeted and was adequately and timely funded during implementation.

Project monitoring and evaluation system will be rated as follows on each of the dimensions:

Highly Satisfactory (HS): There were no shortcomings in the project M&E system.

Satisfactory(S): There were minor shortcomings in the project M&E system.

Moderately Satisfactory (MS): There were moderate shortcomings in the project M&E system.

⁵ See page 21 – Minimum requirement 3: Project Evaluation - in The GEF Monitoring and Evaluation Policy, 2006.

⁶ SMART: Specific, Measurable, Achievable, Realistic and Timely.

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Moderately Unsatisfactory (MU): There were significant shortcomings in the project M&E system.

Unsatisfactory (U): There were major shortcomings in the project M&E system.

Highly Unsatisfactory (HU): The Project had no M&E system.

“M&E plan implementation” will be considered a critical parameter for the overall assessment of the M&E system. The overall rating for the M&E systems will not be higher than the rating on “M&E plan implementation.”

Monitoring of long term changes

M&E of long term changes is often incorporated in the GEF supported projects as a separate component and it may include determination of environmental base lines, specification of indicators, provisioning of equipment and capacity building for data gathering, analysis and use. This section of the TE will describe the actions and accomplishments of the project in the establishment of a long term monitoring system. The review will address the following questions:

Did this project contributed to the establishment of a long term monitoring system?

If it did not, should the project have included such a component?

What were the accomplishments and short comings in establishment of the system?

Is the system sustainable, i.e. is it imbedded in a proper institutional structure and has financing?

Is the information being generated by this M&E system being used as originally intended?

5. Assessment of processes that affected attainment of project results.

Among other factors, it is suggested that the evaluation team considers following issues affecting project implementation and attainment of project results. However, evaluators are not expected to provide ratings on these issues:

- **Preparation and readiness.** Were the project’s objectives and components clear, practicable and feasible within its timeframe? Were capacities of executing institution and counterparts properly considered when the project was designed? Were lessons from other relevant projects properly incorporated in design? Were the partnership arrangements properly identified and the roles and responsibilities negotiated prior to project entry? Was availability of counterpart resources (funding, staff, and facilities), passage of enabling legislation, and adequate project management arrangements in place at project entry?
- **Country ownership/Driveness.** Was the project concept in line with the national sectoral and development priorities and plans? Are project outcomes contributing to national development priorities and plans? Were the relevant country representatives, from government and civil society, involved in the project? Did the recipient government maintain its financial commitment to the project? Have the government approved policies or regulatory frameworks been in line with the project’s objectives?

Annex 2: GEF MBRS Terminal Evaluation GEF Terminal Evaluation Criteria

- **Stakeholder involvement.** Did the project involve the relevant stakeholders through information sharing, consultation and by seeking their participation in project's design, implementation, and monitoring and evaluation? For example, did the project implement appropriate outreach and public awareness campaigns? Did the project consult and make use of the skills, experience and knowledge of the appropriate government entities, NGOs, community groups, private sector, local governments and academic institutions in the design, implementation and evaluation of project activities? Were perspectives of those that would be affected by decisions, those that could affect the outcomes and those that could contribute information or other resources to the process taken into account while taking decisions? Were the relevant vulnerable groups and the powerful, the supporters and the opponents, of the processes properly involved?
- **Financial planning.** Did the project have the appropriate financial controls, including reporting and planning, that allowed management to make informed decisions regarding the budget and allowed for timely flow of funds. Was there due diligence in the management of funds and financial audits? Did promised co-financing materialize?
- **IA/EA Supervision and backstopping.** Did Implementing and Executing Agency staff identify problems in a timely fashion and accurately estimate its seriousness? Did Implementing and Executing Agency staff provide quality support and advice to the project, approved modifications in time and restructured the project when needed? Did the Implementing and Executing Agencies provide the right staffing levels, continuity, skill mix, frequency of field visits?
- **Co-financing and Project Outcomes & Sustainability.** If there was a difference in the level of expected co-financing and actual co-financing, then what were the reasons for it? Did the extent of materialization of co-financing affect project's outcomes and/or sustainability, and if it did affect outcomes and sustainability then in what ways and through what causal linkage did it affect it?
- **Delays and Project Outcomes & Sustainability.** If there were delays in project implementation and completion, then what were the reasons for it? Did the delay affect the project's outcomes and/or sustainability, and if it did affect outcomes and sustainability then in what ways and through what causal linkage did it affect it?

6. Lessons and recommendations.

The evaluators will present lessons and recommendations on all aspects of the project that they consider relevant in the TE report. The evaluators will be expected to give special attention to analyzing lessons and proposing recommendations on aspects related to factors that contributed or hindered: attainment of project objectives, sustainability of project benefits, innovation, catalytic effect and replication, and project monitoring and evaluation.

Evaluators should refrain from providing recommendations to improve the project. Instead they should seek to provide a few well formulated lessons applicable to the type of project at hand or to GEF's overall portfolio. TEs should not be done with the motive of appraisal, preparation, or justification, for a follow-up phase. Wherever possible TE reports should include examples of good practices for other projects in a focal area, country or region.

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EDUCATION

Yale School of Forestry and Environmental Studies

Master of Environmental Studies, 1990

Thesis Topic: A Study of the Role of Privately-Owned Lands Used for Nature Tourism, Education and Conservation.

George Washington University

Bachelor of Arts, Sociology, 1983

Special concentration: Third World Development Sociology.

PROFESSIONAL EXPERIENCE

Independent Consultant, December 2006 – present

- Team leader responsible for the Independent Evaluation of the Meso America Barrier Reef Project. This evaluation was conducted using Global Environmental Facility (GEF) guidelines for independent terminal evaluations. Client: The MBRS project, Belize.
- Responsible for evaluating the contribution of small grants to conservation outcomes in World Bank/GEF Biodiversity projects. The study's goal is to provide guidance in designing and implementing small grants programs. Client: The World Bank, GEF Biodiversity Team.

THE WORLD BANK GROUP, January 1991- January 2005

Senior Environment Specialist

- Latin America and the Caribbean: Fifteen years experience as Task Team Leader responsible for the preparation, appraisal, supervision and evaluation of over a dozen environment projects (list of projects in page 2).
- Africa: While based at the South Africa Resident Mission for one year (1998-1999). Team leader for the preparation of the Implementation Completion Report for the Kenya Protected Areas Project; provided cross-support for the Malawi Environment Project,
- Special assignment with the Department of Institutional Integrity, providing support in the investigation of allegations of fraud and corruption in projects in Bolivia, Venezuela and Colombia (2001-2004).

Annex 3: MBRS Terminal Evaluation Qualifications of TE Team

FRIENDS OF THE PERUVIAN RAINFOREST, July-September 1990

Consultant: Developed and implemented a plan to ensure that giant river otters are not harmed by tourism in Manu National Park. Provided lectures to tourists on local conservation work in the park. These lectures elicited donations for conservation from over fifty percent of visitors.

CONSERVATION INTERNATIONAL, May-August 1989

Summer Intern for the Science Program: Responsible for developing maps of protected areas in Latin America.

SMITHSONIAN TROPICAL RESEARCH INSTITUTE, Jan.-May 1986

Research Assistant, Barro Colorado Island: Surveyed experimental plot for the Forest Dynamics Project.

SUMMARY OF PROJECT EXPERIENCE

- **Peru: Trust Fund for Protected Areas, Team Leader** for preparation, appraisal, supervision and Implementation Completion Report.
- **Caribbean (6 country project): OECS Solid Waste Management Project, Team Leader** during 2 year supervision.
- **Guyana: Protected Areas System, Team Leader** for preparation and appraisal.
- **Caribbean (11 country project): Planning for Adaptation to Climate Change, Team Leader** for preparation, appraisal and supervision.
- **Brazil: Extractive Reserves Project, Rain Forest Program, Team Leader** for preparation and appraisal.
- **Brazil: National Forests Project, Rain Forest Program, Team Leader** for preparation and appraisal.
- **Brazil: Natural Resources Management, Rain Forest Program, Team Leader** for project identification.
- **Bolivia: Protected Areas System, Team Leader** for preparation and appraisal.
- **Kenya: Protected Areas System, Team Leader** for the Implementation Completion Report.
- **Malawi: Environment Project, Team member** - supervision.
- **Mexico: Environment Project, Team member** - preparation and appraisal.
- **St. Lucia: Protected Areas Project, Team member** - project identification and preparation.

REFERENCES

The World Bank Group, 1818 H St. NW, Washington DC, 20433	
Ms. Maria Donoso-Clark,	Lead Social Development Specialist (202) 473-9710
Dr. George Ledec,	Lead Ecologist (202) 473-9267
Mr. Diomedes Berroa,	Senior Operations Officer (202) 458-8907
Dr. Claudia Sobrevila,	Senior Biodiversity Specialist (202) 473-5004

Annex 3: MBRS Terminal Evaluation Qualifications of TE Team

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EDUCATION

M. S. Natural Resource Recreation and Tourism, 1996

Colorado State University, Fort Collins, CO

major: Park and Protected Area Management

minor: Ecotourism, Land-use Planning

Thesis topic: "Evaluating Infrastructure in Costa Rican Parks and Protected Areas: Lessons in Comprehensive Infrastructure Planning and Evaluation"

B.A. – Philosophy, 1971

Colorado State University, Fort Collins, CO

major: Epistemology and Philosophy of Science

minor: English

Intensive Spanish language training:

Instituto Cultural de Oaxaca, Oaxaca, Mexico 1993

Baden Powell Institute, Moralia, Mexico 1994

Intensive Portuguese language training:

Universidad de Paraná 1999

SKILLS AND EXPERIENCE

- Extensive experience in protected area management, planning and training
- Ecotourism and tourism planning in protected areas; public use of protected areas
- Park and commercial infrastructure planning, evaluation, and design including
- environmental monitoring and environment, health and safety management on infrastructure development projects
- Environment, Health and Safety Management planning and monitoring
- On-site project management, evaluation and monitoring
- Ability to design monitoring programs, select indicators, and carry out program evaluation
- Natural resource site analysis
- Experience with Geographic Information Systems (ArcInfo, ArcView, Idrisi) and Global Positioning Systems
- Advanced computer skills in word processing, spread sheet, data base, statistical analysis (SPSS, SAS), GIS (Arcinfo, ArcView, IDRISI), CAD (MiniCad, Vector Works), Access DB Certification, and estimating programs
- Visitor survey design and statistical analysis, database development
- Ability to plan, implement, and direct public involvement processes
- Advanced trail planning, design and construction skills
- Alternative energy design, evaluation and installation
- Drafting, design, and engineering skills
- Extensive experience in carpentry, cabinet making, metal fabrication, and concrete construction

Annex 3: MBRS Terminal Evaluation Qualifications of TE Team

- Personnel management, client relations, estimating and job scheduling skills
- Extensive training and teaching experience
- Advanced Spanish language skills, Portuguese language skills
- Advanced photography and digital processing

PROFESSIONAL EXPERIENCE (previous 10 years)

Affiliate Faculty, College of Natural Resources, Department of Natural Resource Recreation and Tourism

Center Affiliate, Center for Protected Area Management and Training, Colorado State University

Poverty and the Environment, Capacity Building in Afghanistan 2006

- Carried out needs assessment and designed program for capacity building to manage conservation areas, plan tourism and develop infrastructure for Ministry and field levels
- Worked informally with other professionals on PA planning and tourism potential
- Carried out 3 week course for Ministry, ADB, and other professionals involved in conservation planning and program development with field components in two locations.

Signage and Infrastructure at Wadi Gemal National Park, Egypt (USAID/Chemonics) 2006

- Work with LIFE: Red Sea Sustainable Economic Growth in the Red Sea Governorate
- Assessed current situation regarding park signage
- Surveyed and identified key locations in park where signage is needed
- Developed simple but informative templates for sign design, in Arabic and English
- Identified mechanisms for using local artisans, locally-procured and low-cost materials, to produce signs made from a uniform, quality-controlled set of templates
- Prepared an *Action Plan for Signage in Wadi Gemal National Park* that included immediate and longer term priorities, steps, responsibilities, resource requirements, and critical assumptions
- Worked with Rangers and other personnel to establish sign program and sign shop.

Infrastructure and Trail Training and Capacity building in Latin America 2000-2006

- Designed and implemented on the ground trainings for specific Protected Areas in Latin America
- Topics included infrastructure planning, design, implementation, monitoring and maintenance
- Cost, risk and needs analysis relating to infrastructure
- Trail planning, design, implementation, monitoring and maintenance
- Development of infrastructure and trails materials in Spanish and Portuguese
- Development of a "Train the Trainers" program for trails
- Micro enterprise development for trail construction and maintenance program (El Salvador)
- Sites included: Costa Rica, Nicaragua, El Salvador, Brazil, Chile, Panamá, México

USAUD MIRA Trails and Infrastructure Training, Pico Bonito NP, Honduras 2005

- Work with IRG to provide on-site training for infrastructure and trails training
- Lead one week training in Pico Bonito NP
- Design and build, with participants, new trail sections in Pico Bonito NP
- Conducted and supervised field exercises
- All instruction and materials in Spanish
- Work with the Honduran Natural Resource Ministry (COHDAFOR) and the Tourism Ministry (IHT) to develop standards for infrastructure throughout their NP system.

Meso American Tourism Association Infrastructure and Trails Training, Copan, Honduras 2005

Annex 3: MBRS Terminal Evaluation Qualifications of TE Team

- Capacity building for ecotourism infrastructure development
- Conducted training and field exercises
- Themes included private sector ecotourism development and its relation to conservation, protected areas, concession management, zoning, interpretation, trail building and zoning.

Sabana – Camagüey GEF Biodiversity Conservation Project / Centro Nacional de Areas Protegidas and Sociedad de Espeleologica de Cuba, Cuba 2001-3

Workshop on Public Use in Karst Areas

- Provided training for infrastructure planning and development in caves and karst areas
- Worked with architects and planners and speleologists involved in conservation and cave and karst issues throughout Cuba; Conducted and supervised field exercises

GEF / World Bank St. Lucia Coastal/Wetlands Conservation and Sustainable Alternative Livelihood Project 2001-2

- Project team leader for PAD preparation activities
- Protected Area Specialist responsible for Infrastructure Component, Information Management Component and Environmental Education Component
- Responsible for coordination of 9 person consultant team; Responsible for reviewing consultant reports and producing final Project Appraisal Document Proposal

Pro-Atlantica/GFA Terra, Curitiba, Brazil 2002

- Analyzed potential and prerequisites for tourism and public use of Parque Estatal Lauráceas in Paraná, Brazil
- Layout and evaluated trail and other infrastructure development

Sabana – Camagüey GEF Biodiversity Conservation Project / Centro Nacional de Areas Protegidas, Cuba 2001

- Provided training for infrastructure planning and development; Worked with architects and planners involved in conservation and protected areas throughout Cuba; Conducted and supervised all field exercises, including 5 workshops

FATAMA (Fundação do Meio Ambiente) and IPHAN (Instituto do Patrimonio Historico e Artistico Nacional) 2001

- Provided training for infrastructure and trails planning and development; Conducted and supervised field exercises; All instruction and materials in Portuguese

AATA International 2000

- Developed data analysis and write up for the Flora / Fauna section of the Tanghuu Gas Pipeline Facility
- Developed Flora / Fauna sections for the Tanghuu section of the ANDAL (Indonesian EIA) assessment of impacts; Developed soil erosion models for ANDA, and Access data base of photo archive for the Cuiabá gas pipeline project

World Bank/GEF OECS Solid Waste Management Project 2000

- Provided field support for missions to St. Lucia and St. Kitts & Neves
- Assessed problem and wrote annexes on bio medical waste disposal and incineration issues
- Consulted with various facility managers and government officials and provided information to mission team
- Evaluated current solid waste management practices on site and provided feedback to mission team
- Evaluated country requests for project extensions
- Wrote Block B project request for development of GEF/World Bank conservation project, later approved

AATA environmental consultant for Overseas Private Investment Corporation 18" Cuiabá gas pipeline 2000-1

project, Caceres, Brazil

- Field office manager for environmental management of the Brazil portion of 18" gas pipeline

Annex 3: MBRS Terminal Evaluation Qualifications of TE Team

- Acted as field environmental inspector for OPIC
 - Developed database for field data collected in Bolivia and Brazil; Assessed operations for compliance with OPIC charter; Identified and assessed potential environmental constraints and developed mitigation strategies
 - Identified and assessed biodiversity threats, especially concerning bats and endemic species;
 - Identified and reported on karst issues related to pipeline construction
- World Bank/GEF Consultant to Trinidad and Tobago Protected Areas and Wildlife Mgmt. Project 1999
- Reviewed and adjusted technical and institutional design of the proposals for establishing three coastal/marine sites as protected areas
 - Examined proposed project plan in relation to current and proposed legislation, examined technical base with relation to GEF Operational Strategy guidelines on biodiversity and Operation Program, reviewed investment proposals and recurrent cost projections, commercial/management aspects, staffing and institutional structure, buffer zone interventions, training, and monitoring and evaluation system
- World Bank/GEF Consultant to Jamaica Cockpit Country Conservation Project 1999
- Team Protected Area Specialist; Assessed proposed biodiversity, land use, training, and infrastructure analysis
 - Advised project preparation team on monitoring and evaluation indicators and outputs;
 - Assessed information needs related to buffer zone management
- World Bank Consultant to Malawi Environmental Management Project 1999
- Evaluated proposed infrastructure and prepared background papers on infrastructure component
 - Reviewed EIA for infrastructure component
- World Bank Consultant to provide implementation support to the National Trust Fund for Protected 1999
- Assisted PROFONANPE with the preparation of the 1999 Work Plan (WP) and with the 1998 Annual Progress Report
- World Bank Consultant for the Implementation Completion Review of the Kenya Protected Areas and Wildlife Services (PAWS) Project 1999
- Contributed to the preparation of the Report, with a specific focus on evaluating achievement of the project development objectives relating to: (i) rehabilitation of infrastructure in the National Parks and Reserves; (ii) improving management of the National Parks and Reserves; (iii) strengthening the Wildlife Protection Service of the Kenya Wildlife Service; and (iv) improving research and planning capacity of the KWS
- Project Development Workshop: Integrating Biodiversity Information Management into the Curricula of Wildlife Training Institutions, World Conservation Monitoring Center, London, England 1999
- Worked with 24 natural resource professionals from throughout the world to identify information management needs, resources, and techniques appropriate to protected area management, biodiversity conservation and monitoring
- Owner and operator of Delphic Productions, a design/build company 1974-present
- Design, estimate costs, and construct numerous buildings and structures
 - Responsible for customer and personnel relations, estimating, site analysis, structural design and construction supervision
- Technical Advisor, Volunteers for Outdoor Colorado, Denver, CO 1993-present
- Plan, design and supervise the construction of a variety of outdoor facilities including: handicapped accessible fishing docks at the Environmental Learning Center, Fort Collins, CO; covered picnic areas, Ridgeway, CO; signage, Pine, CO; wilderness trail in the San Juan National Forest; accessible trail system at Easter Seals Handicamp

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National Trails Surface Symposium, Santa Cruz, CA	1999
Worked with a team of 12 natural resource professionals to develop standards for the evaluation of trail surfaces suitable for use by disabled persons in recreational settings; and design best practice standards for trails design intended for use by disabled persons in recreational settings	
Colorado State Trails Seminar	1998
Instructor for Trails Design seminar, a one day short course	
Cuban Protected Area Management Training	1998
- Worked with the Cuban National Center for Protected Areas to design training program - Visited several protected areas in Cuba, discussed management policies, needs, and problems - Worked with others to develop a detailed design for a one month short course in Cuba - Currently working on grant proposals for Cuban short course	
Professor for Conservation Planning, Santa Teresa, Espirito Santo, Brazil	1998
- Lectured on trail construction, site analysis, infrastructure development, Recreation Opportunity Spectrum planning, visitor management, conflict resolution, visitor studies, & concession management - Directed field training on trail construction, site analysis, and conducted planning exercises - Supervised development of management plans for Ecological Reserve Museu de Biologia Prof. Mello Leitao	
Gary Carghill Memorial Trail, Empire, Colorado	1998
- Designed and supervised construction of a 3,500 foot trail designed to test new surface materials - Designed guidelines for handicapped users	
Reserva Natural Salto Morato, Parana, Brazil	1998-2001
- Designed 3 km. trail reroute - Lectured on trail construction, site analysis, infrastructure development, Recreation Opportunity Spectrum planning, visitor management - Directed field training on trail construction, site analysis, campsite monitoring, and conducted planning exercises	
Consultant to the World Bank Guyana National Protected Areas System Project	1998
- Prepared Monitoring and Evaluation plan for Guyana Protected Area Management System - Assisted in development and preparation of final negotiation documents for Guyana Protected Area Management System - Conducted site visits and area evaluations, - Evaluated proposed infrastructure plans for pilot park at Kaieteur Falls, including potential trail routes, building sites and developmental needs, including design, costs and feasibility - Made recommendations for infrastructure development at Kaieteur Falls for recreational and management use, including costs & feasibility	
Consultant to WWF/Brazil Projeto de Desenvolvimento de Trilhas Interpretativas em F. de Noronha 1997	
- Used Visitor Impact Management planning framework to evaluate, plan and design terrestrial and marine trail system at Fernando de Noronha National Park, Brazil - Developed and designed infrastructure - Developed monitoring system for trails, interpretation and infrastructure - Created long-term monitoring strategy for program evaluation and environmental impact	

KAREN SUZANNE RICHARDSON

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H3Y 2P8, CANADA

Email: karen.richardson@mcgill.ca

Ph: Home: (514) 484-8381, cell (514) 206-8300, work (514) 398-4944

EDUCATION

- | | |
|------|--|
| 2000 | Ph.D. Department of Geography, McGill University, Montreal, Canada. Thesis title: <i>Biodiversity Priorities and Conservation Decision-Making: The role of spatial scale, irreplaceability and vulnerability in Guyana</i> . Supervisor: Prof. Thom Meredith |
| 1990 | M.Sc. Department of Biology, McGill University, Montreal, Canada. Thesis title: <i>Space Use by Vervet Monkeys (Cercopithecus aethiops) and its Consequences for the Genetic Structure of the Barbados Population</i> . Supervisor: Prof. Wayne Hunte |
| 1986 | B.Sc.(Hons) Department of Biology, Queens University, Kingston, Canada. |

PROFESSIONAL EXPERIENCE

- | | |
|--------------|--|
| 2005-2006 | Research Associate: Department of Geography, McGill University
Lecturer: Terrestrial and Marine Protected Areas – Geography 370 |
| 2000-2005 | Senior Research Fellow: Cooperative Research Centre on Tropical Rainforest Ecology and Management, Department of Zoology and Entomology, University of Queensland, Brisbane, Australia (60 %). |
| 1992-present | Consultant Biodiversity Specialist: World Bank, Washington, D.C. USA |
| 1998 -1999 | Research Officer: Cooperative Research Centre on Tropical Rainforest Ecology and Management, Department of Zoology and Entomology, University of Queensland, Brisbane, Australia. |
| 1996 – 1999 | Research Associate: Centre for Conservation Biology, University of Queensland, Brisbane, Australia. |
| 1991-1992 | Long-term consultant to the West and Central Africa Agriculture Division: World Bank, Washington, D.C. USA. |
| 1991 | Researcher: Biology Department, Concordia University, Montreal, Canada |
| 1990 | Project Manager: Project on the ecology of howler monkeys in the dry forest of Costa Rica funded by Duke University. |
| 1986-1989 | Teaching assistant: Biology Department, McGill University, Montreal, Canada |

LANGUAGES

Native speaker of English and French, conversational Spanish.

COURSES TAUGHT

Winter 2006: McGill University. Protected Areas – Geog. - 370. Third year course. **Course description:** Discussion of the goals of protected areas, focusing on the potential conflict between biodiversity conservation and use for recreation, education and sustainable extraction of resources. Principles and current issues in protected area design and management are reviewed. Examples are taken from developed and developing countries.

GUEST LECTURES

Fall 2005 – McGill University. Geography of Development. Geog-408

Fall 2004 – University of Queensland. Conservation and Wildlife Biology. Cons-6009

Winter 2004 - University of Queensland. Ecology and Environment BIOL-1016

Fall 2003 – University of Queensland. Conservation and Wildlife Biology. Cons-6009

Winter 2003 - University of Queensland. Ecology and Environment BIOL-1016

CONSULTANCIES AND RESEARCH GRANTS

2005-

2006 World Bank/GEF - Biodiversity consultant on a study assessing the linkages between biodiversity conservation and poverty alleviation for World Bank GEF projects. Lead consultant on study for Environment Department, World Bank (6 months).

2004 Cooperative Research Centre on Tropical Rainforest Ecology and Management operating grant (\$56,000).

2003 Cooperative Research Centre on Tropical Rainforest Ecology and Management operating grant (\$65,000).

2003 Environmental Protection Agency, Queensland - “A comparison of processes for assessing relative values for biodiversity significance” with Prof. Hugh Possingham (\$34,000).

2003 World Bank/GEF - Biodiversity consultant on the Uganda ICB-PAMSU Project, World Bank. Lead consultant on the Implementation Completion Report.

2002 Environmental Protection Agency, Queensland - “An evaluation of the Biodiversity Assessment Methodology” with Prof. Hugh Possingham (\$10,000).

2002 Cooperative Research Centre on Tropical Rainforest Ecology and Management operating grant (\$38,000)

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- 2002 World Bank/GEF - Biodiversity consultant on a study assessing the linkages between biodiversity conservation and poverty alleviation for World Bank GEF projects. Lead consultant on study for Environment Department, World Bank (4 months).
- 2001 World Bank/GEF - Biodiversity consultant on the Uganda Mgahinga and Bwindi Impenetrable Forest Conservation Trust GEF Project, World Bank. Lead consultant on the Implementation Completion Report (2 months).
- 2000 World Bank/GEF - Biodiversity consultant on the Congo Wildlands Protection and Management GEF Project, World Bank. Lead consultant on the Implementation Completion Report (2 months).
- 1996-1998
World Bank/GEF - Biodiversity consultant and task manager for the Global Environment Facility and AusAid funded Rapid Appraisal of Biodiversity in Papua New Guinea Project, World Bank. Managed the several aspects of the project from Brisbane and travelled to Canberra and Papua New Guinea (7 months).
- 1998 World Bank/GEF - Biodiversity consultant for the proposed Guyana Global Environment Facility (GEF) National Protected Areas System Project in Guyana, World Bank (1 month in Guyana).
- 1997 World Bank/GEF - Biodiversity consultant for the proposed Guyana Global Environment Facility (GEF) National Protected Areas System Project, World Bank. Project Appraisal mission (1 month in Guyana).
- 1997 World Bank/GEF - Biodiversity consultant for the Global Environment Coordination Division, World Bank. Assisted in organizing and participating in a workshop on monitoring and evaluation of biodiversity projects in Bali, Indonesia (2 weeks).
- 1996 World Bank/GEF - Biodiversity consultant on the Congo Wildlands Protection and Management GEF Project Mid-term Evaluation Mission, World Bank (1 month in Congo).
- 1996 World Bank/GEF - Biodiversity consultant for the proposed Guyana Global Environment Facility (GEF) National Protected Areas System Project, World Bank (6 weeks in Guyana).
- 1996 World Bank/GEF - Biodiversity consultant for Global Environment Facility (GEF) and AusAid Rapid Appraisal of Biodiversity in Papua New Guinea project, World Bank. Identification mission (2 weeks in Australia).
- 1995- 1996
World Bank/GEF - Biodiversity consultant and task manager for the proposed Guyana Global Environment Facility (GEF) National Protected Areas System Project, World Bank (5 months in Guyana and Washington, D.C).
- 1995-1996
World Bank/GEF - Biodiversity consultant for the Global Environment Coordination Division, World Bank. Assisted in project review and the development of a biodiversity strategy (4 months in Washington, D.C).
- 1995 World Bank/GEF - Biodiversity consultant on the Congo Wildlands Protection and Management GEF Project supervision mission, World Bank (1 month in Congo).

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- 1995 World Bank/GEF - Biodiversity consultant, mission leader and task manager for the proposed Guyana GEF National Protected Areas System Project, World Bank. Identification mission, prepared PDF/PPA request, terms of reference and Project Identification Document (4 months in Guyana and Washington, D.C.)
- 1995 World Bank/GEF - Biodiversity consultant on the Congo Wildlands Protection and Management GEF Project supervision mission, World Bank (1 month in Congo).
- 1995 World Bank - Biodiversity consultant for the Global Environment Coordination Division, World Bank. Assisted in project review and the development of a biodiversity strategy (1 month in Washington , D.C).
- 1994 World Bank/GEF - Biodiversity consultant on the Congo Wildlands Protection and Management GEF Project supervision mission, World Bank (5 weeks in Congo).
- 1994 World Bank/GEF - Biodiversity consultant for the proposed Guyana GEF National Protected Areas System Project, World Bank. Project identification mission (1 month in Guyana).
- 1994 World Bank - Biodiversity consultant for the Global Environment Coordination Division, World Bank. Supervised two summer interns, reviewed project concepts, managed several tasks of the operation officer, assisted in the development of a biodiversity strategy and helped coordinate several projects with other donors (3 months in Washington, D.C.).
- 1994 World Bank/GEF - Biodiversity consultant on the Congo Wildlands Protection and Management GEF Project supervision mission, World Bank (1 month in Congo).
- 1993 World Bank/GEF - Biodiversity consultant on the Congo Wildlands Protection and Management GEF Project supervision mission, World Bank (6 weeks in Congo).
- 1993 World Bank - Biodiversity consultant for the Global Environment Coordination Division, World Bank. Reviewed technical and managerial components of all World Bank/GEF biodiversity projects and collaborated on a paper that was presented at the first International Forum on Biodiversity in Geneva, Switzerland (2 months in Washington).
- 1993 World Bank/GEF - Biodiversity consultant on the Congo Wildlands Protection and Management GEF Project, project start-up mission and workshop, World Bank (1 month in Congo)
- 1992 World Bank/GEF - Biodiversity consultant on the Congo Wildlands Protection and Management GEF Project, negotiation mission, World Bank (1 month in Congo).
- 1992 World Bank/GEF - Biodiversity consultant for the Global Environment Coordination Division, World Bank. Prepared monitoring and evaluation guidelines for GEF biodiversity projects and organized consultative meetings on guidelines (2 months in Washington, D.C.).
- 1991- 1992
World Bank/GEF - Assisted with the preparation of the Congo Wildlands Protection and Management GEF Project, including five missions to Congo (18 months in Washington and Congo).

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- 1990 National Geographic Society Grant - “Population genetics and use of fragmented habitats by howler and spider monkeys in northwest Costa Rica” with Dr. Colin Chapman and Dr. Ken Glander (\$15,000).
- 1989 EarthWatch and the Conservation Agency - “Research on the conservation of Chinese pangolins and other mammals in southeast of China and Hong-Kong” (2 months in China)
- 1988 EarthWatch and the Conservation Agency - “Research on the conservation of Chinese pangolins and other mammals in southeast of China and Hong-Kong” preliminary study (1 month)

PUBLICATIONS

- Ferrier, S., G. Manion, J. Elith and K.S. Richardson. In press. Using generalised dissimilarity modelling to analyse and predict patterns of beta-diversity in regional biodiversity assessment. *Diversity and Distribution*.
- Guisan, A., C.H. Graham, J. Elith , F. Huettmann, R. Anderson, M. Dudik, S. Ferrier, R. Hijmans, J. Leathwick, A. Lehmann, J. Li, B. Loiselle, G. Manion, C. Moritz, M. Nakamura, Y. Nakazawa, J. Overton, A. T. Peterson, S. Phillips, K. Richardson, R. Scachetti-Pereira, R. Schapire, J. Soberón, S. Williams, M. Wisz, N. E. Zimmerman. In press. Sensitivity of predictive species distribution models to change in grain size: insights from a multi-models experiment across five continents. *Diversity and Distribution*.
- J. Carwardine, W.A. Rochester, K.S. Richardson, K.J. Williams, R.L. Pressey and H.P. Possingham. 2006. Conservation planning with irreplaceability: does the method matter? *Biodiversity and Conservation*. Online First:1-14.
- K.S. Richardson and V.A. Funk. Planning for persistence of biodiversity in Guyana. Submitted to Royal Society of London Proceedings B.
- E. Vázquez-Domínguez, C. Moritz, K.S. Richardson and S. Ferrier. Incorporating evolutionary processes when prioritizing areas for conservation. Submitted to *Molecular Ecology*.
- Elith, J., C.H. Graham, R.P. Anderson, M. Dudik, S. Ferrier, A. Guisan, R. Hijmans, F. Huettmann, J.R. Leathwick, A. Lehmann, J. Li, L.G. Lohmann, B.A. Loiselle, G. Manion, C. Moritz, M. Nakamura, Y. Nakazawa, J.M. Overton, A.T. Peterson, S.J. Phillips, K. Richardson, R. Scachetti-Pereira, R.E. Schapire, J. Soberon, S. Willimas, M.S. Wisz and N.E. Zimmermann. 2006. Novel methods improve prediction of species’ distributions from occurrence data. *Ecography*. 29:129-151.
- Funk, V.A., K.S. Richardson, S. Ferrier. 2005. Survey-gap analysis in expeditionary research: Where do we go from here ? *Biological Journal of the Linnean Society*. 8:549-567.
- Ferrier, S., George V.N. Powell, K.S. Richardson, G. Manion, J.M. Overton, T.F. Allnutt, S.E. Cameron, K. Mantle, N.D. Burgess, D.P. Faith, J.F. Lamoreux, G. Kier, R.J. Hijmans, V.A. Funk, G.A. Cassis, B.L. Fisher, P. Flemons, D. Lees, J.C. Lovett and R.S.A.R Van Rompaey. Mapping more of

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Annex 3: Qualifications of TE Team

- terrestrial biodiversity for Global Conservation assessment: A new approach to integrating disparate sources of biological and environmental data. 2004. *BioScience* 54 (12): 1101-1109.
- Funk, V.A. and K.S. Richardson. 2002. Systematic data in biodiversity studies: use it or lose it. *Syst. Biol.* 51(2): 303-316.
- Funk, V.A., A.K. Sakai and K.S. Richardson. 2002. Biodiversity: The interface between systematics and conservation. *Syst. Biol.* 51(2): 2353-237.
- Moritz, C., K.S. Richardson, S. Ferrier, G. B. Monteith, J. Stanislac, S.E. Williams and T. Whiffin. 2001. Biogeographic concordance and efficiency of taxon indicators for establishing conservation priority in a tropical rainforest biota. *Proc. Roy Soc. Lond. B* 268:1875-1881.
- Dimitrakopoulos, R and K.S. Richardson 2000. Sustainable mineral development and environmental conservation: A framework for decision-making. In: Singhal and Mehrotra (eds.) *Environmental Issues and Management of waste in energy and mineral production*. pp. 29-34. Balkema, Rotterdam
- K.S. Richardson and V.A. Funk. 1999. An approach to designing a systematic protected area system in Guyana. *Parks*. 9:7-16.
- Newcombe, K. and K. S. Richardson. 1994. A Technical Review of the GEF's Pilot Phase Biodiversity Investment Portfolio: Lessons for the Convention. In: A. Krattiger et al. *Widening Perspectives on Biodiversity*. International Academy of the Environment.
- Richardson, K.S. 1992. Monitoring and Evaluation of GEF Biodiversity Projects. Technical Paper, Global Environment Facility, World Bank.
- Grant, J.W.A., C.A. Chapman and K.S. Richardson 1992. Defended versus undefended home range size of carnivores, ungulates and primates. *Behavioral Ecology and Sociobiology* 31:149-161.
- Chapman, C.A., L.J. Chapman and K.S. Richardson. 1989. Sex-ratio in primates – a test of the local resource competition hypothesis. *Oikos* 56:132-134.

RECENT PAPER AND POSTERS PRESENTED

- Ferrier, S., G. Manion, K. Mantle, G. Powell, T. Allnutt, N. Burgess, S. Palminteri, M. Dickerson, K. Richardson, J. Overton, S. Cameron, G. Kier, W. Küper, J. Mutke, J. Lamoreux, D. Faith, J. Lovett, M. Vargas, Q. Luke, R. van Rompeay, G. Schatz, B. Loiselle, V. Funk, D. Lees, C. Kremen, and B. Fisher. 2003. A Methodology for Analyzing Gaps in the World's Protected Area System using Environmental and Biogeographical Surrogates Calibrated with available Biodiversity Data. Vth IUCN World Parks Congress, 8-17 September, Durban, South Africa.
- Powell, G., T. Allnutt, N. Burgess, S. Palminteri, M. Dickerson, S. Ferrier, G. Manion, K. Mantle, K. Richardson, M. Mcknight, J. Overton, S. Cameron, G. Kier, W. Küper, J. Mutke, J. Lamoreux, D. Faith, J. Lovett, M. Vargas, Q. Luke, R. van Rompeay, G. Schatz, B. Loiselle, V. Funk, D. Lees, C. Kremen, and B. Fisher. 2003. Addressing Data Needs and Data Gaps in an Assessment of the Representativeness of the World's Protected Area System for Poorly-Known. Vth IUCN World Parks Congress, 8-17 September, Durban, South Africa.
- MacKinnon, K. and K.S. Richardson. 2003 Linkages: Biodiversity conservation and poverty alleviation- Findings from World Bank/GEF Biodiversity projects. Vth IUCN World Parks Congress, 8-17 September, Durban, South Africa.
- Hollowell, T., V. A. Funk, K. Richardson, and S. Ferrier. 2003. Using GIS to apply museum collections data to biodiversity studies and conservation in Guyana. 23rd Annual ESRI International User Conference, San Diego CA, 7-11 July. (poster).
- Richardson, K.S., D. Faith, S. Ferrier and C. Margules. 2002. Beta diversity in the Wet Tropics: Bugs to Birds. Ecological Society of Australia Meeting, Cairns, 11-14 Dec.
- Ford, A. and K.S. Richardson 2002. Seeing the Gaps for the Trees, Where are the Species Hiding ? Ecological Society of Australia Meeting, Cairns, 11-14 Dec. (poster)
- Richardson, K. S.2002. Surrogates for biodiversity: A comparison between the Wet Tropics in Australia and Guyana. Rainforest CRC meeting, Cairns 5-6 Dec.

MBRS Terminal Evaluation
Annex 4: Site Visits and Individuals Interviewed

1. The TE team visited the following MBRS offices and project sites:

- MBRS Project Coordinating Unit, Belize City
- Belize: National Coordinator, Ministry of Natural Resources and the Environment
- Belize: Bacalar Chico Marine Reserve
- Mexico: Xcalak Marine Protected Area
- Guatemala: National Coordinator, Ministerio de Ambiente y Recursos Naturales
- Honduras: National Coordinator, Secretaria de Recursos Naturales y Ambiente
- Mexico: National Coordinator, Comision Nacional de Areas Naturales Protegidas
- Mexico: Cancun Marine Protected Area
- Honduras: Utila, Turtle Harbor Wildlife Refuge
- Belize: Sapodilla Cayes Marine Reserve
- Guatemala: Sarstoon-Temash National Park Visitor Center

2. The TE team interviewed the following individuals:

Person/Position	Institution/Relation to MBRS Project
Noel Jacobs, Regional Director	PCU, Belize City
Oscar Lara, NRM Specialist	PCU, Belize City
Tomas Camarena, EM Specialist	PCU, Belize City
Miguel Garcia, EM Specialist	PCU, Belize City
Marydelene Vasquez, IS Specialist	PCU, Belize City
Demetrio Martinez, Sociologist	PCU, Belize City
Delmar Lanza, Finance Director	PCU, Belize City
Humberto Paredes, Procurement & Disbursement Coordinator	PCU, Belize City
Miguel Garcia, Proc. Specialist	PCU, Belize City
James Azueta, Belize National Coordinator (Acting)	Oversees Project activities in Belize; Chair of National Barrier Reef Committee; Member of Regional Steering Committee
Alicia Martinez, Manager	Bacalar Chico Marine Reserve. Received major infrastructural support from MBRS
Wadu Hadad López, Coordinator Manager	Xcalak Marine Protected Area. Received major infrastructural support from MBRS
Mito Paz, Executive Director	Green Reef. NGO that worked in MBRS Alternative Livelihood Activities with fishers

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Wil Maheia, Executive Director	Toledo Institute for Development and Environment (TIDE) NGO that worked in MBRS Alternative Livelihood Activities with fishers
John Briceno, Deputy Prime Minister and Minister of Natural Resources and the Environment	Liaison Minister of the CCAD in Belize and Minister responsible for the MBRS in Belize
Valdemar Andrade, Executive Director	Protected Areas Conservation Trust (PACT) Strategic partner in the planning of MBRS interventions in MPAs in Belize
Nelson Longsworth, Director	Ministry of Education, Quality Assurance Unit. Instrumental in the development and adoption of MBRS Primary and Secondary School Curricula in Belize
Alfonso Yah, Assistant Director	Ministry of Education. Instrumental in the development and adoption of MBRS Primary and Secondary School Curricula in Belize
Melanie McField, Coordinator	Healthy Reefs for Healthy People Initiative
Ryan Finchum	Emerald Planet
Jim Barbarak	Conservation International
Carlos Saavedra	Summit Foundation
Eloy Sosa	ECOSUR, Mexico. Consultant to MBRS regarding fisheries and participant in technical meetings
Barbara Best, Policy Advisor	USAID
Anna Dominguez-Hoare, Executive Director	Belize Audubon Society
Mark Willuhn	Mesoamerican Ecotourism Alliance
Lauretta Burke	World Resources Institute
Brian Huse, Executive Director	Coral Reef Alliance
Alba Nydia Perez, Guatemala National Coordinator	Ministerio de Ambiente y Recursos Naturales
Juan Pablo Suazo, Honduras National Coordinator	Direccion General de Biodiversidad, Secretaria de Recursos Naturales y Ambiente (SERNA)
Alfredo Arellano, Mexico National Coordinator	Comision Nacional de Areas Naturales Protegidas
Juan Carlos Huitron Vaca, Sub Director Parque Nacional Costa Occidental	Comision Nacional de Areas Naturales Protegidas
Alejandro Vega Zepeda, Monitoring Coordinator	Comision Nacional de Areas Naturales Protegidas
Roberto Ibarra Navarro Reef Restoration	Comision Nacional de Areas Naturales Protegidas
Jose Juan Dominguez, Sub Director Regional Tecnico, Coordinador Monitoreo Sinoptico	Comision Nacional de Areas Naturales Protegidas
Jack Nightingale, Director	Toledo Association for Sustainable Tourism and Empowerment (TASTE)
Janet Gibson, Associate Conservation Scientist	Wildlife Conservation Society, Marine Program, Belize

MBRS Terminal Evaluation
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Grant Galland, volunteer	Peace Corps
Lisa Agudelo, Project Coordinator	International Coral Reef Action Network
Marco Gonzales Executive Director	Central American Commission on Environment and Development
Calina Zepeda, Executive Director	Bay Islands Conservation Association (BICA)
Lilian Morgan	Vice Alcalde, Utila
Mary Dueñas Martinez	Maestra, Utila
Danial Fabro, owner builder of Bacalar Chico Center	Fabro Industries Ltd.
Jason Guy, manager	Sapodilla Cayes Marine Protected Area
Godwin Humes, biologist	Sapodilla Cayes Marine Protected Area
James D. Rosborough	Earthwatch Volunteer, Sapodilla Cayes MPA
Jocelyn Rae Finch, science officer	Toledo Association for Sustainable Tourism and Empowerment (TASTE), Sapodilla Cayes Marine Protected Area
Burton Shank, researcher	Biology Dept. Boston University
Oliver Carbutt, tour operator	Sapodilla Cayes Marine Protected Area
Silja Ramirez Yela, Asistente Technica	Río Sarstún MPA
Marcos F. Tiul, Technico de Campo y Guardaparque	Rio Sarstún MPA

The TE Team reviewed the following project documents:

[Agreements on Common Enforcements in the MBRS Geographical Area.](#) 8p.

[Annual Work Plan, July 2001 - June 2002](#) 41p.

[Annual Work Plan, July 2002 - June 2003](#) 47p

[Annual Work Plan, July 2003 - June 2004](#) 48p

[Annual Work Plan, July 2004 - June 2005](#) 54p.

[Annual Work Plan, July 2005 - June 2006](#) 56p.

[Best Practices and Codes of Conduct for Cruise Tourism in the MBRS Region.](#) July 2006. 30p.

[Building Synergies in the Mesoamerican Reef Region: An Analysis of Conservation Investments to Strengthen Collaboration and Partnerships - Phase 1.](#) October 2005. 31p.

Database Design Documentation: Design and Implementation of a Regional Environmental Information System (REIS) for the MBRS Project. August 2005. 60p.

[Declaración de Chetumal. Resultados del Primer Congreso Mesoamericano de Pescadores.](#) 6p.

[Design and Implementation of the MBRS Sustainable Tourism Forum.](#) March 2003. 84p.

[Environmental Interpretation Manual for Protected Areas in the Mesoamerican Barrier Reef System Region.](#) December 2005. 53p.

[Guidelines for Developing a Regional Monitoring and Environmental Information System](#) 101p

Handbook - Standard Guide for the Assessment of Environmental Impact Studies of Tourist Projects comprised in the Mesoamerican Barrier Reef System Zone 97 p.

Linea Base del Estado del Sistema Arrecifal Mesoamericano – Version para revision. December 2006.

[Manual for the Rapid Evaluation of Management Effectiveness in Marine Protected Areas of Mesoamerica.](#) December 2004 56p

[Manual for Training Rangers of Marine Protected Areas in the MBRS Region.](#) November 2004. 220p.

[Manual of Methods for the Preparation of Public Use Programs in Protected Areas in the Region of the Mesoamerican Barrier Reef System.](#) July 2005. 50p.

[Manual of Methods for the MBRS Synoptic Monitoring Program. *Selected Methods for Monitoring Physical and Biological Parameters for Use in the Mesoamerican Region.*](#) P.C. Almada-Villela, P.F. Sale, G. Gold-Bouchot y B. Kjerfve. April 2003. 155p

[MBRS Mid-Term Review Report March 9 - 21, 2004](#) 24p.

Measuring coral reef ecosystem health: integrating societal dimensions, 2006 79p.
<http://www.worldbank.org/icm>

[Policy Proposal for Sustainable Cruise Tourism in the MBRS Region. July 2006.](#) 23p.

[Progress Report No. 1 March 1 - December 31, 2001.](#) 30p.

[Progress Report No. 10 January - June, 2006.](#) 31p

[Progress Report No. 2 January 1 - June 30, 2002.](#) 34p.

[Progress Report No. 3 July 1 - December 31, 2002.](#) 34p.

[Progress Report No. 4 January 1 - June 30, 2003.](#) 31p

[Progress Report No. 5 July - December, 2003.](#) 35p

[Progress Report No. 6 January - June, 2004.](#) 41p

[Progress Report No. 7 July - December, 2004.](#) 34p

[Progress Report No. 8 January - June, 2005.](#) 37p

[Progress Report No. 9 July - December, 2005.](#) 35p

[Recommendations on Methodology for Monitoring the Effectiveness of MPA Management. April 2003.](#) 59p.

[Reef Fish Spawning Aggregation Monitoring Protocol for the Mesoamerican Reef and the Wider Caribbean. July 2004](#) 81p.

[Regional Environmental Awareness Strategy. April 2003.](#) 66p.

Regional Project for the Conservation and Sustainable Use of the Mesoamerican Barrier Reef System (MBRS) [Project Appraisal Document](#), 2001 176p.

[Reporte de Avance No. 10 Enero - Junio, 2006.](#) 31p.

Scaling up marine management - the role of marine protected areas, 2006, 120p.
<http://www.worldbank.org/icm>

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MBRS Terminal Evaluation
Annex 6: Performance Indicators

Componentes del Proyecto/Actividades	Indicadores de Logros a vigencia del Proyecto (diciembre del 2006)	Indicadores de Logros al 31 de Diciembre del 2006		Observaciones / Comentarios
<u>1. Áreas Marinas Protegidas</u>		Logros a la Fecha	% Logros a la Fecha	
A. Planeamiento, Manejo, y Monitoreo	1. 8 AMP con línea base de datos establecida y programa de monitoreo implementado para el año 4.	Diseño de la línea base, publicación y distribución del documento completado. 20 AMP con línea base, en proceso la edición del reporte regional final..	98%	Se ha generado con los Directores de las AMP la línea base, completa para 20AMP's; 4 en Honduras (Utila, Cayos Cochinos, Cuero y Salado, Laguna Guaimoreto), 3 en Guatemala (Manabique, Sarstún y Chocón Machacas), 6 en Belice (Port Honduras, Cayos Zapotillos, Bacalar Chico, Hol Chan, South Water Caye, Glovers's Reef) 7 en México (Xcalak, Banco Chinchorro, Santuario del Manatí, Punta Cancún, Sian Ka'an, Isla Contoy y Yum Balam).
	2. Planes Maestros para 10-años desarrollados para 4 AMP al año 3	Planes Maestros para 3 AMPs completados; dos consulta públicas se han desarrollado para el cuarto plan; la tercera consulta se está planificando para concluir el cuarto plan.	90%	No se ha tenido avances para la consulta final en Xcalak, sin embargo se han revisado los documentos de Uso Público y Plan Financiero, que al ser aprobados por las Autoridades de PNAX, procederán a la 3ra consulta.
	3. Planes Operativos de 2-años desarrollados para 15 AMPs en el año 4.	Apoyo para desarrollar el Plan de manejo de OMOA completado. Entrenamiento a guardaparques de AMP de Belice realizado. Apoyo para el actualizar el Plan de Manejo de Sian Ka'an completado. Apoyo para Manabique completado.	90%	Indicador fue cambiado a un Programa de intercambio de guardaparques y apoyo a la implementación de Planes de Manejo. La versión ejecutiva del Plan de Manejo de Manabique fue distribuida, el apoyo para Santuario del Manatí está pendiente, por no depender de la CONANP, la coordinación y comunicación no es efectiva. Se ha ejecutado lo que se ha solicitado.
	4. 160 personas capacitadas en manejo de AMP para el año 5 (FDP)	169 personas capacitadas. En Enero del 2006 se capacitaron 17 personas en interpretación ambiental en AMP	100%	Esta actividad está siendo implementada de acuerdo a lo planificado. Los manuales ha sido distribuidos.

MBRS Terminal Evaluation
Annex 6: Performance Indicators

Componentes del Proyecto/Actividades	Indicadores de Logros a vigencia del Proyecto (diciembre del 2006)	Indicadores de Logros al 31 de Diciembre del 2006		Observaciones / Comentarios
<u>1. Áreas Marinas Protegidas</u>		Logros a la Fecha	% Logros a la Fecha	
	5. Comisiones de Parques Transfronterizos establecidas y recomendaciones para políticas transfronterizas hechas para el final del proyecto.	4 reuniones de la Comisión Transfronteriza se han realizado y 2 reuniones del Grupo de Trabajo en Políticas	100%	Primer grupo de recomendaciones para políticas transfronterizas fueron desarrolladas por el Grupo de Trabajo en Políticas, con la asistencia del Centro de Legislación Ambiental de la UICN y adoptadas en Belice, Guatemala y Honduras. Adopción en México ha progresado más lentamente que lo anticipado..
B. Fortalecimiento Institucional	6. Infraestructura y equipo proveído en AMP de las regiones transfronterizas para el final del proyecto.	Centros de Usos Múltiples han sido entregados en Bacalar Chico, Utila, Xcalak, Sapodilla Caye y Río Sarstún. Equipo fue entregado en Belice, Guatemala, Honduras & México, las reparaciones para Sarstún fueron entregadas satisfactoriamente, en Enero del 2006.	98%	El sendero de Bacalar Chico ha iniciado y se tiene la propuesta para completar el senderos para Sarstún.
	7. Equipo básico será entregado en 11 AMPs para el final del Proyecto.	Equipo ha sido entregado en Belice, Guatemala, Honduras & México, adicionalmente fue entregado a Chocón Machacas un Motor marino y está en proceso la entrega de equipos de computo para las tres áreas en Honduras.	98%	Será necesario que el Proyecto realice pequeñas inversiones adicionales en equipo para proveer unos pocos artículos críticos que han sido identificados recientemente, y que no fueron contemplados en las adquisiciones iniciales.

MBRS Terminal Evaluation
Annex 6: Performance Indicators

Componentes del Proyecto/Actividades	Objetivos	Indicadores de Logros al 31 de diciembre del 2006		Observaciones / Comentarios
<u>2. Sistema Regional de Información Ambiental y Monitoreo</u>	Aumentar el conocimiento y la difusión de información relacionada con la salud de los ecosistemas costeros y marinos en el SAM y los procesos en las cuencas que les impactan para lograr un enfoque integrado de manejo.		% Logros a la Fecha	
A. Creación e Implementación de un Sistema Regional de Información Ambiental (SRIA).				
1. Entrenamiento de entrenadores para incrementar las capacidades nacionales y la supervisión de los usuarios.	1. Consolidar la capacidad nacional en el uso del SRIA.	1. Hay al menos una persona en cada país que es capaz de dar capacitación a usuarios nuevos y supervisar la captura de datos.	60%	1 persona en Honduras y 1 en Mexico son capaces de dar capacitación y supervisión en el ingreso de datos. Había 1 persona a este nivel en Belice pero ha salido de su puesto. 1 persona en Guatemala puede hacer capacitación pero requiere de más capacitación.
2. Supervisión de la captura de datos	2. Asegurar la actualización continua de la base de datos con la información del monitoreo en el SRIA	2. Todos los datos colectados hasta diciembre de 2006 han sido capturados y están en el SRIA	60%	En Proceso
3. Mantenimiento de SRIA y del sitio WEB del SAM		3. El sitio Web se mantiene actualizado y ofrece todos los productos del proyecto SAM hasta junio de 2007.	75%	11 documentos nuevos añadidos durante el periodo de extensión. Antes de junio de 2007.
		4. El SRIA funciona adecuadamente y es accesible para los usuarios hasta junio del 2007.	75%	El SRIA ha sido funcionando y asequible por los primeros 6 meses del periodo de extensión.

MBRS Terminal Evaluation
Annex 6: Performance Indicators

Componentes del Proyecto/Actividades	Objetivos	Indicadores de Logros al 31 de diciembre del 2006	% Logros a la Fecha	Observaciones / Comentarios
	3. Integrar actividades de monitoreo de cuencas en la base de datos	5. Un Documento Conceptual y Términos de Referencia para para el módulo el monitoreo de cuencas a ser incorporado en el SRIA.	10%	El Monitoreo de Cuencas ha sido discutido. El diseño del módulo del SRIA depende totalmente del diseño de monitoreo que todavía está por definir.
	4. Aumentar procesamiento y análisis espacial de la información en el SRIA.	6. Recomendaciones en el uso de información geográfica y herramientas de SIG para apoyar el SRIA.	0%	A ser realizado en el periodo enero-junio del 2007
	5. Implementar el monitoreo socioeconómico de largo plazo en el SRIA.	7. Se incorpora un módulo socioeconómico en el SRIA	20%	Adquisición de los servicios de un programador ha empezado. En proceso
		8. 8 personas capacitados en el uso del módulo socioeconómico.	0%	A ser realizado en el periodo enero-junio del 2007
8. Generar mapas y otros productos analíticos relacionados con las actividades del SAM.	6. Apoyar actividades del SAM con productos geográficos.	7. Equipo técnico obtienen mapas temáticas de cuencas, áreas protegidas y salud Arrecifal para apoyar su trabajo.	100%	Mapas han sido producidos y proporcionados al equipo técnico, cuando según se necesite.
	7. Diseminar información geográfica al público en general y a sus socios para añadir una dimensión espacial al entendimiento del SAM.	8. Por lo menos 5 mapas diseminados al público a través del sitio Web del Proyecto relacionados con salud Arrecifal, cuencas y áreas protegidas.	100%	21 mapas han sido publicados en el sitio Web y están asequibles por Internet.
9. Coordinar con los Especialistas en Monitoreo Ambiental para producir un análisis espacio-temporal de todos los datos recopilados bajo el PMS.	8. Aumentar el entendimiento de la salud del SAM a través de análisis de tendencias temporales y patrones espaciales notados en levantamientos consecutivos de monitoreo.	9. Productos SIG preparados para inclusión en un Informe de Análisis Comprensivo a ser disponible en junio de 2007 basados en todos los datos recopilados e ingresados en el SRIA hasta diciembre de 2006.	0%	A ser realizado en el periodo enero-junio del 2007

MBRS Terminal Evaluation
Annex 6: Performance Indicators

Componentes del Proyecto/Actividades	Objetivos	Indicadores de Logros al 31 de diciembre del 2006	% Logros a la Fecha	Observaciones / Comentarios
B. Establecimiento del programa de Monitoreo Sinóptico (PMS)	1. PMS diseñado e implementado durante el segundo año del proyecto.	Se elaboró el Manual de Monitoreo Sinóptico. 150 personas han sido entrenadas en la implementación de los diferentes componentes del manual durante los programas de capacitación en los cuatro países.	100%	Se actualizará el manual del PMS en enero de 2007, con base en la experiencia adquirida durante su implementación y con la actualización de algunas técnicas y/o protocolos.
	2. Al final de la primera fase del Proyecto deberemos tener diseminar los reportes de la línea de base sobre la salud de los ecosistemas del SAM.	La colecta de los datos se realizó de acuerdo con el esquema propuesto para establecer la línea de base iniciando en mayo de 2004. A la fecha se han establecido: Arrecifes: 13 localidades con 65 sitios. Pastos Marinos; 7 localidades con 32 sitios. Manglares; 8 localidades con 12 sitios. Contaminación; 15 localidades con 18 sitios.	95%	En diciembre de 2006 se finalizó la versión en español del reporte de Línea de Base y en enero de 2007 se realizará la traducción al Ingles. Una vez finalizada la traducción y revisión del reporte, éste se pondrá en formato electrónico en el sitio Web del Proyecto. Se hará una impresión de reporte y será diseminado en papel en marzo de 2007.
	3. Durante el segundo año del Proyecto. Se hará entrega a las organizaciones implementarias, equipo de campo básico.	Se concluyó el proceso de compra de bienes para Belice, Guatemala, Honduras y México.	100%	Se encuentra en proceso de licitación el equipo menor que no estaba previamente identificado. La adquisición de equipo se llevará a cabo durante el periodo 2005-06.

MBRS Terminal Evaluation
Annex 6: Performance Indicators

Componentes del Proyecto/Actividades	Indicadores de Logros a vigencia del Proyecto (diciembre del 2006)	Indicadores de Logros al 30 de Junio del 2006		Observaciones / Comentarios
3. Promoción & Uso Sostenible del SAM		Logros a la Fecha	% Logros a la Fecha	
A. Promoción del Manejo de la Pesca Sostenible	1. Formulación de un borrador de estrategia regional para el manejo de los sitios de agregaciones de peces completado para el final del Proyecto, año 5.	Completado el documento técnico sobre sitios de agregaciones de peces. Completado el protocolo de monitoreo y un entrenamiento regional. Completado el monitoreo en Belice, y México. Entregado equipo en Belice, Guatemala, Honduras & México. Belice y México entregaron los reportes finales sobre los monitoreos de agregaciones. Se tienen 3 reportes de avance sobre el monitoreo de manjúa.	90%	Entrenamiento adicional fue dado para Honduras y Guatemala inició el monitoreo de "Manjúa", UNIPESCA en Guatemala adquirió compromisos de fondos de contraparte y garantía de presentar los productos esperados. Se identificaron fondos para concluir los 12 meses de monitoreo de manjúa.
	2. 168 personas capacitadas en actividades de manejo de la pesca sostenible para final del Proyecto, año 5.	Entrenamientos en monitoreo de sitios de agregaciones y co-manejo de pesquerías tanto a nivel regional como a nivel nacional. Para un gran total de 377 personas capacitadas..	100%	Adicionalmente, se realizó el Congreso Regional de Pescadores con la participación de 80 delegados que fueron capacitados y 80 delegados además, revisaron nuevos temas para ser capacitados. Fueron publicados y distribuidos 4 manuales sobre formas alternativas de vida.
B. Facilitación del Turismo Costero Marino Sostenible	3. Catalogo de prácticas ejemplares para la industria del turismo costero marino fue propuesto en el Forum será desarrollado para el año 2.	Las mejores prácticas fueron discutidas durante el forum de turismo y han sido compiladas y se publicaran en forma de Manual de Prácticas Ejemplares. Se tiene una versión final del manual y una segunda relativa a prácticas ejemplares en turismo de cruceros.	90%	El manual de prácticas ejemplares pretendía ser un documento en continua evolución; sin embargo se decidió que el Forum no debía continuar debido a que no se obtiene suficiente valor en comparación con el dinero invertido en tal actividad. Se continuará con las prácticas ejemplares recomendadas. A la fecha se cuenta con el manual de buenas prácticas para turismo de cruceros.

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Componentes del Proyecto/Actividades	Indicadores de Logros a vigencia del Proyecto (diciembre del 2006)	Indicadores de Logros al 31 de diciembre del 2005		Observaciones / Comentarios
		Logros a la Fecha	% Logros a la Fecha	
3. Promoción & Uso Sostenible del SAM				
	4. Programa de Certificación Ambiental Regional diseñado e implementado para el año 5 (FDP)	Consulta Regional en certificación fue conducida, con el Consejo Centroamericano de Turismo (CCT), las autoridades de turismo de los países del SAM y socios del Proyecto. El Proyecto fue informado de la adopción por parte de todos los países de Centro América de la Certificación de Turismo Sostenible (CST). La consultoría sobre Códigos de Conducta será en Marzo.	90%	Dado que el CST es específico para hoteles e infraestructura, el Proyecto podría hacer inversiones en certificación de otras actividades turísticas que impactan directamente los arrecifes. Sin embargo debido al costo y requerimientos institucionales que requiere un programa de certificación, fue recomendado durante la consulta que el Proyecto deberá considerar promover y desarrollar Códigos de Conducta en lugar de la certificación. Esta opción ha sido parcialmente abordada en el desarrollo de las políticas transfronterizas y en colaboración con Coral Reef Alliance los códigos de conducta se encuentran proceso. Sin embargo se tienen los códigos de conducta para turismo de cruceros completado.
B. Facilitación del Turismo Costero Marino Sostenible	5. Gira de estudio en Prácticas Ejemplares de Turismo Marino diseñado y ejecutado para los operadores de turismo recién iniciados, para el año 2.	Esta actividad está íntimamente relacionada con el manual de práctica ejemplares, dado que las prácticas ejemplares definidas en el manual deberán ser enfocadas en la gira, por ejemplo la intención es exponer a los nuevos operadores turísticos que tengan prácticas ejemplares dentro de la región y confirmar en el campo las prácticas que señala el manual.. Se han identificado cuatro sitios para realizar los programas piloto de turismo comunitario.	70%	A este nivel la actividad depende de completar el manual de prácticas ejemplares. Sin embargo explorará otras maneras de implementar la gira sin necesidad de esperar el manual de prácticas ejemplares. Esto implica la identificación de entre 4 a 6 prácticas ejemplares en la región, que puedan ser usadas como sitios de demostración para los operadores turísticos que se inician. Esta actividad se llevará a cabo en el 2006, como programas piloto de turismo sostenible comunitario

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Componentes del Proyecto/Actividades	Indicadores de Logros a vigencia del Proyecto (diciembre del 2006)	Indicadores de Logros al 31 de diciembre del 2005		Observaciones / Comentarios
3. Promoción & Uso Sostenible del SAM		Logros a la Fecha	% Logros a la Fecha	
	6. Análisis de herramientas de cumplimiento voluntario con políticas armonizadas relacionadas con los recursos del SAM, para el año 5 (FDP)	Las políticas transfronterizas desarrolladas y el manual de prácticas ejemplares en proceso proveerán los pasos iniciales para definir códigos de conducta a ser adoptados. Sin embargo, esto requerirá de asistencia de expertos para determinar la adopción voluntaria y los mecanismos de implementación..	75%	Como fue decidido en los Grupos Técnicos de Trabajo, los códigos de conducta se incluyan en el manual de prácticas ejemplares, dado que dos documentos separados no hacen mucho sentido. El Proyecto está receptivo a la idea. Las políticas transfronterizas proveen la estructura dentro de la cual los códigos de conducta y las prácticas ejemplares puedan ser adoptadas. Mecanismos para su cumplimiento e implementación deberán ser identificados. Dependiendo del progreso hecho por Coral Reef Alliance, esta actividad deberá ser revisada. Sin embargo se puede proceder con los códigos de conducta voluntarios en turismo de cruceros.
	7. Desarrollo de una Estrategia Regional de Turismo para finales del Proyecto.	TdR han sido formulados para las elaboración de la Estrategia Regional de Turismo y presentada para su aprobación..	0%	De momento la actividad depende de la validación de la estrategia de turismo formulada por CCT-SICA, quien cuenta con una estrategia a nivel regional. Así mismo los cuatro países tienen estrategias propias ya formuladas o en proceso de validación.
	8. 236 personas capacitadas en actividades de turismo sostenible incluyendo formas de vida alternativas, para el año 5 (FDP)	Capacitación en Auditorias y estudios de impacto ambiental para actividades de turismo costero fue conducida. Para los propósitos de este indicador los forums se consideran actividades de entrenamiento. El primer grupo de capacitación en formas de vida alternativas se realizó. Un total de 259 personas han sido capacitadas a la fecha.	100%	Durante el 2006 la gira de estudio de prácticas ejemplares se llevará a cabo para los operadores de turismo recién iniciados, la cual será clasificada como entrenamiento. En adición todos los entrenamientos en formas alternativas de vida serán registrados bajo este indicador..
	9. Propuesta de una política regional de cruceros.	4 trabajos de campo en cada país y cuatro consultas publicas, en los cuatro países fueron realizadas.. Se ha presentado el reporte final el cual ha sido comentado por la UCP y se está a la espera de otros comentarios. Los comentarios fueron incorporados y se tienen la versión en español y en inglés aprobada.	100%	El reporte final está aprobado y estamos en proceso de su publicación, distribución, así como programar una presentación a las autoridades de los cuatro países.

MBRS Terminal Evaluation

Annex 6: Performance Indicators

Conservación y Uso Sostenible del
Proyecto Sistema Arrecifal Mesoamericano (SAM)
Identificación del Proyecto: GE-P053349; Donación GEF No. TF027739
(Vigencia del Proyecto: 30 de noviembre del 2001 al 31 de diciembre del 2006)
Informe de Indicadores de Logros del Proyecto SAM

Componentes del Proyecto/Actividades	Indicadores de Logros a vigencia del Proyecto (diciembre del 2006)	Indicadores de Logros al 31 de diciembre del 2005		Observaciones / Comentarios
4. Concientización Pública y Educación Ambiental		Logros a la Fecha	% Logros a la Fecha	
A. Desarrollo de una Campaña de Concientización Ambiental	1. En el año 2 del Proyecto se desarrollará una Campaña de Estrategia de Concientización Publica.	Han sido conducidas he implementadas 17 de las actividades de la Estrategia de Concientización. A) Se esta monitoreando la reducción de desechos sólidos en por lo menos 6 franjas de playa B) Cuatro medios de comunicación mantienen interés permanente en las actividades del SAM.	100%	El primer programa radial infantil ha sido establecido en coordinación con TIDE, el primer programa de temáticas del SAM fue en Octubre 2005. Dos programas mas serán establecidos en Honduras y México a inicios del 2006. Se ha firmado un contrato con Canal 5 en Belice para la promoción del SAM, se establecerán tres contratos mas en Honduras, México y Guatemala para junio del 2006. Se han preparado cuatro artículos de prensa para periódicos y revistas. Adicionalmente se prepararon 10 mensajes cortos para recibos de pagos en los países del SAM.
B. Educación Formal e Informal	2. Durante la vigencia del Proyecto se capacitarán a 160 maestros, líderes comunitarios, y empresarios sobre los conceptos del SAM.	860 maestros de primaria y secundaria capacitados en los conceptos del SAM. Elaboración de un documento de sugerencias para mejorar la Guía, incluyendo aspectos del manejo de cuencas.	100%	Belice y Honduras han producido un nuevo CD de la curricular nacional vigente, donde ambos países han incluido los conceptos y temáticas del SAM como parte de las materias oficiales. Hoy, maestros capacitados en los conceptos del SAM México es parte del proceso de entrenamiento (140 maestros han sido entrenados a la fecha) La unidad de coordinación del SAM a preparado una herramienta para monitorear el uso de la guía y mejorarla.
	3. Durante la vigencia del Proyecto será distribuido en la región del SAM, 10,000 copias de material para capacitación, folletos, afiches, calcomanías, etc.	Mas de 13,000 copias entre Boletines, manuales, afiches, carpetas, reglas, calcomanías y folletos han sido distribuidos en la región del SAM	100%	Una nueva serie de materiales con los conceptos del SAM serán distribuidos en junio del 2006
C. Implementación del Plan de Desarrollo y Participación para Comunidades Indígenas	4. Asegurar la participación de gente indígena y mujeres in las actividades del SAM.	A la fecha 382 personas de las 1224 personas involucradas con las actividades del SAM son indígena, y 316 son mujeres. 4 organizaciones incrementan su capacidad de manejo a través de su participación en actividades del SAM.	31% indígenas 26% mujeres	Los números representan la participación en los Comités Nacionales Arrecifales, Grupos Técnicos de Trabajo, Comisiones Transfronterizas y Cursos de Capacitación.

1

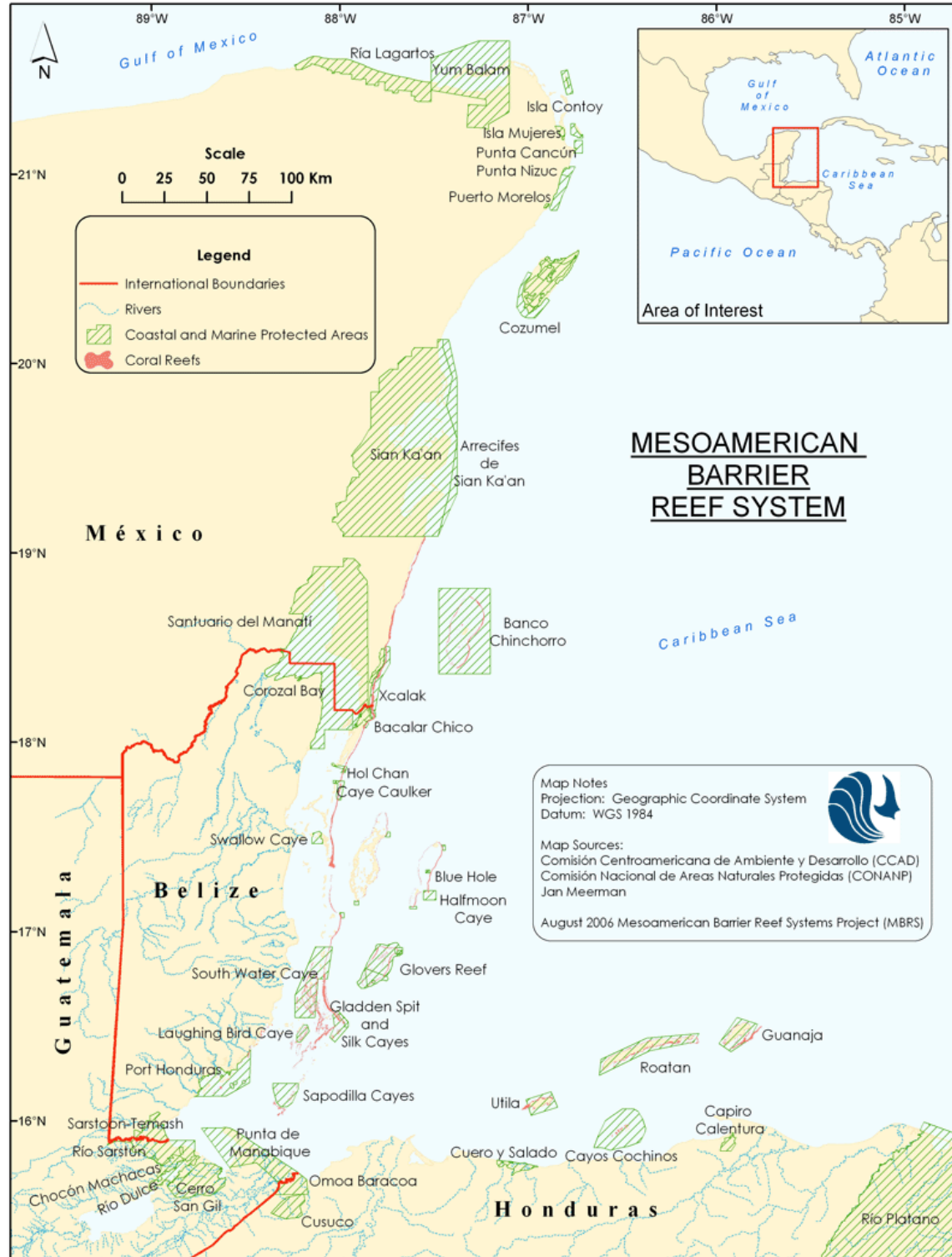
MBRS Terminal Evaluation
Annex 6: Performance Indicators

Conservación y Uso Sostenible del
Proyecto Sistema Arrecifal Mesoamericano (SAM)
Identificación del Proyecto: GE-P053349; Donación GEF No. TF027739
(Vigencia del Proyecto: 30 de noviembre del 2001 al 31 de diciembre del 2006)
Informe de Indicadores de Logros del Proyecto SAM

Componentes del Proyecto/Actividades	Indicadores de Logros a vigencia del Proyecto (diciembre 2006)	Indicadores de Logros al 30 de junio del 2005		Observaciones/Comentarios
		Logros a la Fecha	% Logros a la Fecha	
	3. Serie de políticas por lo menos en tres áreas críticas compartidas de los recursos de manejo del SAM (e.g., pesquerías, turismo, ejecución de AMP, normas de calidad de agua, protocolos EIA, etc.) armonizados al fin del Proyecto.	Se está dando seguimiento en esta etapa por medio de las Comisiones Transfronterizas; se ha presentado la primera serie de recomendaciones para políticas han sido adoptadas en Belice, Guatemala y Honduras por medio de la CCAD	60%	Se elaboró Políticas transfronterizas y fueron adoptadas por la CCAD. Queda pendiente la adopción de las políticas en México. En el futuro vamos a explorar otras políticas adicionales. Se pondrá más atención para que se adopte la política en México y seguido por la definición de políticas específicas derivadas de las nuevas políticas producidas con el fin de definir mecanismos para su implementación. Donde sea posible exploraremos oportunidades de armonización de legislación. Se suspenderá las reuniones de la Comisión Transfronteriza Belice-México, pendiente ha la adopción de las políticas en México.
B. CCAD efectivamente integra los intereses ambientales y regionales en la agenda económica del SICA.	4. CCAD repentinamente compromete a los ministerios de finanzas y otros sectores representados bajo el SICA in diálogos de desarrollo.	Se llevaron a cabo reuniones multi-sectoriales y organizados por la CCAD.	50%	Todas las reuniones sostenidas han sido con los Ministerios de Agricultura, Salud y Turismo.
	5. Intereses ambientales regionales están reflejados en la agenda económica del SICA.	Esta reflejado en PARCA y en los Planes Operativos Anuales de la CCAD	80%	Este tema está apropiadamente abordada. Todas las actividades del Proyecto SAM están incluidas en el Plan Operativo Anual de la CCAD

Acrónimos: AMP = Áreas Marinas Protegidas; SRIA = Sistema Regional de Información Ambiental; POA = Plan Operativo Anual; SICA = Sistema de la Integración Centroamericana; CCAD = Comisión Centroamericana de Ambiente y Desarrollo; PARCA = Programa Ambiental de Centroamérica; TDRs = Términos de Referencia

MBRS Terminal Evaluation
Annex 7: MBRS MAP



Evaluation of Component 1.
Marine Protected Areas (US\$5.0 million)

Component Rating: Satisfactory-Highly Satisfactory

Sub-component A –
Planning, Management, and Monitoring of Marine Protected Areas (MPAs) (\$4.45 million)

Marine Protected Areas (MPAs) played a significant role in MBRS Project by protecting important areas of recognized biodiversity significance from over use, degradation and destruction. Additionally the project built new constituencies for conservation around MPAs through educational efforts and promoted new opportunities for livelihoods that are compatible with conservation objectives, principally through tourism.

The MBRS successfully completed the operational and management planning activities envisioned in the PAD and assisted other areas and NGOs with their planning activities by providing expertise, model plans and guidance. These activities have strengthened the institutional and operational aspects of the MPAs involved while providing models for other MPAs worldwide. Sustainability will be increased to the extent that management and operations are adequately funded and the plans and planning processes developed during the project should improve the opportunities for future funding by demonstrating institutional strength. The infrastructure and equipment provided has elevated the status and functionality of the MPAs qualitatively, in most cases increasing the likelihood of long-term operational success. The MBRS Project specific accomplishments are as follows.

1. Upgrading existing operational plans (11 MPAs) or drafting new master management plans where none exist (4 MPAs)

The project was successful in upgrading the operational plans and assisting with new master plans as programmed. The project also produced a “Training Manual On Design And Development of Management Plans For Marine Protected Areas” that can be used throughout the region for new areas or for updating existing plans as necessary and carried out trainings for management plan development, increasing MPA planning capacity throughout the MBRS.

2. Establishment of data baselines and monitoring programs to assess MPA effectiveness (15 MPAs)

Developing a system to measure management effectiveness proved to be a challenging undertaking. All good planning is data driven and this activity sought to establish data necessary for a clear understanding of the strengths and weaknesses of MPAs within the MBRS.

The MBRS Project expended considerable time and effort reviewing existing systems for measuring effectiveness and created a new hybrid system for use in MPAs, described in MBRS Technical Document No. 5, “Recommendations for Monitoring Management Effectiveness in Marine Protected Areas” (available in English and Spanish). The Project developed a suite of 11 biophysical and 8 socio-economic measures as well as an application methodology for measuring management effectiveness. This is an explicit commitment to the adaptive management model

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that seeks to achieve area objectives by responding to local conditions and changes in those conditions (based upon carefully chosen indicators) as measured by agreed-upon measurements (standards). Identifying the relevant indicators and then agreeing to standards has always presented a great challenge for PA managers and planners. This was equally true for the MBRS team. Extensive review of many effective management models led to the creation of a survey instrument that was distributed to the target MPAs (Reserva Biosfera Banco Chinchorro, Arrecifés de Xcalac Reserve, Santuario del Manati, Corazol Bay Wildlife Sanctuary, Bacalar Chico Marine Reserve and National Park, South Water Caye Marine Reserve, Glovers Reef Marine Reserve, Gladden Spit, Sapodilla Cayes Marine Reserve, Port Honduras-Deep River Forest Reserve, Sarstoon-Temash National Park, Rio Sarstón Proposed National Park, Punta de Manabique Proposed Special Protection Area, Omoa-Baracoa Proposed Marine Reserve, Turtle Harbor Wildlife Refuge and Marine Reserve).

The document produced, and the process of developing a model for measuring effectiveness in MPAs, are major accomplishments and represent significant project outcomes. However, they do not necessarily translate to improved management effectiveness in the target MPAs and, as noted in the document, neither the process proposed nor the measurement of effectiveness was full achieved. It was only possible to make general assessments about the effectiveness of specific areas and the state of MPAs in the region. Important information was gathered but at an expense and effort that may not have been effective. The questions as to who should be responsible for measuring effectiveness, at what cost and in what manner require further investigation. The project did provide important insights and practical advice about measuring management effectiveness for MPAs and terrestrial PAs. The report recognizes the high cost of measuring effectiveness relative to scarce resources and staffing, “Given the average staffing level of 3.9 persons in each of the 13 MPAs for which we have data (range of 0 to 7), and the reports on their current responsibilities and funding (Section 4), it is clear that the human resources are not in place to undertake even the basic monitoring protocol, much less the full suite of 43 metrics recommended to be monitored. The managers are too busy managing to evaluate their management effectiveness!” (p. 46) and suggests that establishing effectiveness must be a long-term process that will involve greater cooperation of a variety of governmental agencies, the private sector, NGOs and other conservationists.

It is important to emphasize that the entire concept of measuring management effectiveness is unsettled among conservation scientists and practitioners. To say that we *should* measure effectiveness implies that we *can* and this may not be possible due to the complexity of biotic and cultural variables that influence natural systems. Equally important is the effectiveness of measuring management effectiveness. As pointed out in the MBRS report even the most basic efforts may not be merited within the constraints of extremely limited resources. It may be much wiser to dedicate such resources to measuring the effectiveness of particular management actions and using those results in the adaptive management framework. For example, if poaching protected species on reefs is a major problem it may be worth measuring the effectiveness of enforcement vs. education to determine which action merits resources or greater emphasis. These simpler, more directly practical and measurable indicators may be of greater benefit to conservation efforts in the long term. The project team recognizes both the difficulties involved in measuring effectiveness and the need to do so within the framework of adaptive management and is working to resolve these difficulties so as to improve measures of effectiveness but, more importantly, to improve the protected areas themselves.

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While not fully meeting original project objectives, the activities carried out in this subcomponent did contribute greatly to the understanding of MPAs in the MBRS and produce important practical insights into measuring effectiveness in MPAs that can be used world-wide. The report and recommendations can help guide the process and further efforts in other areas as well as prioritize future investments.

3. *Provision of basic equipment, construction of guard houses and small visitor centers in 5 transboundary MPAs*

The construction of five multi-function buildings that serve as administration, visitor and community centers as well as lodging for park personnel and researchers is one of the largest investments of the project. Major investments were made in Bacalar Chico (Belize), Xcalak (Mexico), Sapodilla Cayes (Belize), Rio Sarstún (Guatemala), and the Turtle Harbor Wildlife Refuge and Marine Reserve (Honduras). See Annex 13 for photos of the 5 visitor centers built under the project.

The facilities were developed in consultation with local managers and user groups with planning, design and construction supervised by MBRS personnel. During the planning process it was decided that one basic design would be chosen and modified as necessary for specific sites. This approach was intended to save design costs and standardize construction details. Facilities included a multi-use room, offices, dormitories, bathrooms and food preparation areas. Additionally, an interpretative trail was built in most areas so that visitors could understand and experience the terrestrial environment. The project also supplied significant amounts of furnishings, equipment such as computers, boats, scuba gear and communication equipment. In all cases the management presence, capacity and effectiveness were greatly augmented and strengthened by these investments.

Infrastructure legitimized the MPA presence and has been a major factor in securing grants, partners, and co-financing. There is strengthened governmental support for interpretation, educational and enforcement activities as well as operational and maintenance funding.

All infrastructure produces some local impacts. The degree, extent and severity of these impacts are of special concern in PAs. To address this concern the PAD sought “To mitigate these risks, environmental management guidelines for construction of minor civil works associated with MPA infrastructure will be prepared by the Natural Resources Management Specialist within the Regional PCU, and applied prior to the contracting of civil works. These guidelines will be incorporated into the design specifications for the civil works. Their execution will be supervised by MPA management staff and compliance monitored by the PCU.” The PAD itself puts forth a series of very basic guidelines for design and low impact infrastructure development.

Unfortunately, these guidelines were never fully developed or implemented and no special training was given to MBRS PIU staff to oversee civil works nor were contractors given any more than basic orientation about best practices for building in PAs. The guidelines that were included in the building contracts were so general that they did not provide any meaningful guidance. Such guidelines and training would have increased the capacity for construction management.

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Site examinations and interviews with staff at all of the MPAs that received infrastructure indicated that the infrastructure was very helpful in maintaining management presence, improving morale and providing the base for implementing management plans. This was exactly what the PAD had envisioned. It is notable that each MPA utilizes its facility differently. In Bacalar Chico the public area is devoted to interpretation and has a strong tourism/education/visitor orientation. At Xcalak the public area is more devoted to community involvement and public awareness, as is suited for this site since it is located in the community. The center at Rio Sarstún provides a base of operations for the managing NGO, a hub for patrolling and housing for staff, volunteers and university researchers. In Sapodilla Cayes MPA the facility is jointly utilized by the Belize Fisheries and TASTE NGO that co-manage the site. The Sapodilla Cayes facility is still awaiting educational and interpretative materials.

At Utila, the Project provided a multi-use center based on the uniform design used in the other sites. At present only a small part of the center is being used by the Bay Island Conservation Association (BICA), the NGO in charge of the PA. The rest of the building is being used temporarily as classroom facilities by the local school until May, 2007. Ostensibly this one-time use will help build good community relations between the local community and BICA. However, caution must be exercised so that this type of activity does not become a precedent. The relationship of the use of the facility and the conservation objectives of the Project are tenuous at best. There are also some obvious maintenance and operational capacity issues at the site as well. At present the current area manager is only one full-time BICA staff on site to manage the building and the PA. The manager indicated that additional staff would be forthcoming and that maintenance issues would be addressed after the school activities were terminated.

The project also supplied some basic equipment for monitoring and a boat for patrolling to BICA. However, the trail system envisioned in the Project Document was never built and other basic equipment such as a much-needed laptop computer and other office equipment has not been provided. Additionally, little in the way of environmental educational materials or training materials have been provided to the site. In Honduras, as well as several other areas, materials, equipment, educational materials and other project benefits often did not make it to the target destinations but were diverted by the agencies responsible for distribution.

In spite of these shortcomings, the BICA manager indicated that the MBRS Project has taken conservation to a new level on Utila. The building provided by the project has created a new presence for the NGO, garnered considerable community respect, helped secure additional government assistance for patrolling and enforcement and catalyzed new funding for management activities. It is too early at the present time to evaluate long-term sustainability of the investment; however, indications are that future conservation activities will have a much greater probability of success as a direct result of the investments made.

As is the case in most building endeavors, both the process and final product could have been improved, resulting in a more efficient development process and a more functional final product. All facilities were modified or remodeled in some way after construction. The location of the new facility at Bacalar Chico is open to some debate. A decision was made to locate the facility near existing infrastructure on the property owned by the MPA on the landward side of the caye.

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These considerations have merit; however, most of the visitor movement and traffic is on the other side of the caye and this will negatively impact visitation levels to the site by tourists. Additionally, in order to carry out SAP monitoring MPA personnel must travel approximately 45 minutes by boat, a costly and time consuming endeavor. Also, at Bacalar Chico there is no secure storage area for equipment resulting in equipment being stored inside the main public area. Small details like this should have been addressed during construction and final approval.

No major structural shortcomings were noted during site visits but some construction defects were noted at all sites and, in most cases, these problems have been addressed. This is a good indication of management demonstrating ownership of the centers. However, it is unclear who is paying for these measures and if there is any warranty coverage. Typically a one year warranty period that would address such defects is part of any construction contract however, in this case the warranty appears to be for six months. The MPAs received no instruction as to building operation procedures, existing warranties, the need for maintenance on septic, solar and energy systems, etc. This type of information contributes greatly to sustainability, reduced operating costs, timely management and eliminates paying for remedial measures that should be covered under warranty.

Trail development at both areas was included in project activities and trails were initiated at the sites. However, no trail management training or equipment for trail maintenance has been provided and the trails themselves were developed to minimal standards. At all of the sites visited, personnel indicated that they received no instructions or training to operate and maintain the trails. These trails represent important investments and maintenance will be key to their long term sustainability. All future infrastructure developments should include an operations manual and minimal maintenance training and orientation.

Sub-component B - Institutional Strengthening of MPAs (\$.550 million)

1. Marine Park and Tourism Resource Development Program.

As envisioned in the PAD, the Project successfully carried out a “series of regional training courses and workshops for protected area directors, technical staff, rangers, and key collaborators from local and national government agencies, collaborating NGOs, and local communities, ...” One of the most significant outputs was a series of bilingual manuals that will serve far beyond the life of the Project for many aspects of MPA management. The Project, by undertaking these activities also developed significant training and facilitation capacity for management planning, community involvement, income generation and financial planning.

Examples include courses held early in the project in MPA Management Plan Development for directors and administrators of MPAs, park management staff, governmental organizations, NGOs and universities involved in management and co-management of MPAs within the MBRS region. The training course covered zoning, environmental education, tourism, research, monitoring, park protection and patrolling, and financial strategies, among others. A bilingual manual “Training Manual on Design and Development of Management Plans for Marine Protected Areas” was published and distributed throughout the region.

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A Training Workshop on Income Generation for Protected Areas was held in Puerto Barrios, Izabal, Guatemala in 2002. The workshop was a joint effort between the MBRS Project, PROARCA/APM, the Mesoamerican Biological Corridor, WWF-Central America, and the Nature Conservancy. Financial strategies were proposed for several MPAs as a direct result of the workshop.

In order to promote greater regional MPA effectiveness, both a Southern and Northern Trans-boundary Park Commissions were established. Commission meetings produced recommendations on fisheries, tourism and Marine Protected Areas (MPA's) which were then used to formulate regional policies.

2. Training Library Development.

The Project developed a wealth of training materials, technical manuals, environmental educational materials and other books, pamphlets, curricula and co-management strategies to aid MPAs carry out their activities. This body of material is one of the most important contributions of the project and will serve the intended MPAs as well as the global conservation community. The original objective was to have a standardized training library in each MPA headquarters and ranger stations throughout the region. While the material does exist and most is available on the Internet, not one of the MPAs visited had the library as described in the PAD. This is unfortunate as the material could be quite helpful to managers, rangers, community members and other MPA partners. Most of the MPAs visited do not have Internet access so the on-line versions are of little use to them. Additionally, it would be quite costly and beyond the means of the areas to reproduce the materials.

Component outputs:

- management and/or operational plans for 15 target areas;
- significant equipment provided to regional protected areas for monitoring, operations, environmental education and tourism management;
- major infrastructure investments at 5 protected areas;
- more than 15 high quality manuals and guides on MPA management techniques, training, community conservation and involvement and alternative livelihoods;
- trainings for rangers, fishers, community members and NGOs

Component outcomes:

- greatly increased capacity at national, regional and local levels for marine conservation;
- new constituencies to support conservation in the MBRS region;
- greater NGO capacity and recognition locally and regionally;
- major contributions to the protected area literature on the themes of MPA management, community involvement and trans-boundary cooperation;
- greatly improved morale and respect among rangers, managers and others involved in MBRS conservation initiatives;
- assistance with Belize National Protected Areas System Plan;
- regional cooperation between protected areas;
- improved baseline data on protected area effectiveness.

Sustainability.

Sustainability will be increased to the extent that management and operations are adequately funded and the plans and planning processes developed during the project should improve the opportunities for future funding by demonstrating institutional strength. Importantly, the infrastructure and equipment provided has elevated the status and functionality of the MPAs qualitatively, in some cases making the difference between long-term success or failure for the areas. Several areas have leveraged their new status to attract new donor, volunteer, and research partners.

Lessons learned:

- determining management effectiveness is difficult, costly and time consuming;
- models for determining management effectiveness developed for terrestrial PAs many not function for MPAs;
- infrastructure and equipment investments not only build management capacity but also build institutional recognition that facilitates funding efforts;
- “one size fits all” design approaches for visitor centers may not be the best option in the diverse sites where MPAs exist;
- greater capacity to manage infrastructure investments is needed when they are a significant part of PA projects; inclusion of someone with infrastructure experience would save time, money and produce a better final product;
- quality infrastructure development can facilitate “buy in” to protected areas by area personnel, locals, NGOs and ministries.

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Annex 9: Component 2 - Environmental and Monitoring Information System

**Evaluation of Component 2 –
Creation and Implementation of a Regional Environmental & Monitoring Information System
(US\$4.4 million; GEF funding US\$ 2.67)**

Component Rating: Highly Satisfactory

This component had two sub-components:

- A Regional Environmental Information System (REIS); and
- A Synoptic Monitoring Program (SMP).

The main objective of this component was to develop a specific synoptic monitoring program to generate information on the region's reefs and other critical ecosystems, including information on water quality and oceanographic regimes. The sub-component was designed to feed into a Regional Environmental Information System, a web-based framework designed to guide the collection, processing, distribution and utilization of bio-physical and socio-economic data. The goal of the REIS sub-component was to advance the understanding of ecological linkages between reefs and other marine environments, and processes which influence reef integrity. The overall component was designed to allow broad access to policy makers, scientists, technicians, and the public.

This component was originally allocated \$US 4.4 million (GEF financing US\$ 2.67 million). By December 2006, 86% of this total had been disbursed. A large portion of the funding went to national and international consultants to help design the SMP and the REIS. The component also funded a large amount of equipment for monitoring, including boats and engines at various monitoring sites. The amount of funding seemed to be sufficient to accomplish the intended objectives and goals of the sub-component. The Project Appraisal Document identified substantial parallel co-financing from WWF, the Government of Canada and University of Miami for investigators working in the region to expand the scope of the research. Some parallel co-financing was secured, in particular from the Natural Science and Engineering research Council of Canada's Collaborative Research Opportunities program and Discovery program, University of Windsor, and National Geographic Society. No parallel financing was forthcoming from the University of Miami for WWF for monitoring.

Sub-Component A - Regional Environmental Information System.

Highly Satisfactory

The Regional Environmental Information System (REIS) was designed to consolidate and analyze data collected from various disparate sources, including the SMP. The goal of the REIS was to provide one easily accessible database for the MBRS region. The REIS was launched in February 2004, with the *Regional Training of Trainers in the Use of the REIS*. The user manual for the REIS, *User Manual for the Regional Environmental Information System Volume 1-3*, was produced in June 2005 and disseminated widely thereafter.

Process:

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The database was designed by national and international experts as part of several consultancies. It was designed to be stored on a powerful computer with an easy web-based interface. The philosophy was to have an efficient, normalized database that allowed simple data entry and access, and was easy to maintain and modify as needs change.

Design: The design of the REIS database was based on a consultative process. The structure is well thought out, easy to understand and is a good example of the high standard of project products. There is extensive documentation to explain how to enter data, especially for common tables (e.g. site, survey, transect and person table). The database is grouped into several different data groups representative of the groups monitored by the SMP, and the protected area monitoring program. Attention has been paid to accommodate two languages, different names for the same species across the region and different categories of species threat (levels of endangerment) across the region. The oversight of not initially designing the database to be spatially explicit in a GIS format possibly delayed the release of some of the spatial information relevant to the region. The addition of GIS functionality in 2005-2006, greatly enhanced the future of the database and its power to focus monitoring and management activities.

The website interface of the REIS serves as the gateway to all the MBRS documents and reports. It is an easy to use website, in two languages with exceptional transparency in terms of documentation. This is itself a landmark for a large conservation project. The one oversight in the database is the integration of socio-economic variables. There are already good data on socio-economic indicators from the monitoring of management effectiveness (see MPA section) and from data collected for the Healthy Reef initiative.

Implementation: The implementation of the REIS appears to be well underway. The first analytical maps were produced by the PCU in September 2006. The maps show key health indicators such as seagrass biomass, disease coverage, presence of nutrients, and provide a snapshot of the situation across the region. It is hoped the PCU will continue to generate analytical results in the form of database reports and biostatistical analyses and provide status reports on the health of the MBRS region to decision-makers and on-the-ground managers.

Outputs:

- REIS designed and fully operational
- Web-based interface for data providers and users
- GIS-based dataset
- Public access to database
- Baseline and summary maps in JPEG format for 13 sites
- The Project has trained a total of 98 biologists to-date in the use of the REIS database
- Web-based, CD and printed format of all published material.

Documents:

User Manual for the Regional Environmental Information System Volume 1-3 - June 2005
Database Design Documentation – August 2005

Outcomes:

- First regional, public database on marine protected area information.

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- Essential tool to fill in information gaps needed for sound decision-making on natural resources.
- Greatly improved capacity to disseminate regional patterns and results.
- Regional coordination of scientists and biologists.
- Greatly improved transparency of data through public access to data
- First steps to integrate data from the socio-economic monitoring program under Component 4 (Public Awareness and Environmental Education) with REIS.

Sub-Component A - Synoptic Monitoring Program.

Highly Satisfactory

The Synoptic Monitoring program (SMP) was developed as a regional, multi-level methodology to monitor changes in ecosystem health. It was designed to be comprehensive in terms of data collection, time frames (short- medium-and long-term) and geographic coverage. The design of the methodology and database fields was initiated at a meeting of technical experts in 2001 and the final methodology published in a handbook entitled: *Manual Methods for the MBRS Synoptic Monitoring Program* in April 2003.

Process: For a decade prior to the MBRS project, several attempts were made to establish a regional monitoring program. Each country, and in some cases individual sites, adopted different methodologies. When the project was designed, the goal was to streamline existing methodologies, agree upon and adopt a region-wide program. The process for developing the methodology appears to have been very consultative and included national experts from all four countries, international scientists and field biologists with extensive knowledge of both the region and key methodologies. A Technical Working Group (TWG) and specialized regional consultancies complemented the experts meetings. The final methodology reflects the collective experience of the experts and the collaboration of the four countries.

Design: The methodology assimilates most of the best practices in comprehensive coral reef monitoring worldwide, and is tailored to meet the specific needs for monitoring the health of the reef in the four countries involved. Some of the specific needs of the MBRS include:

- a. the inclusion of coral reefs, mangroves and seagrass beds in the monitoring program;
- b. identification of land and marine sources of marine pollution; and
- c. an understanding of the physical oceanography, including ocean circulation and gyres.

Each of these specific needs is addressed in separate monitoring methodologies. The methodologies are well laid out with specific time-frames attached to the intervals for sampling (categories 1-3 and a rapid assessment method for specific disturbances). Four types of data are collected at each site (site description, meta data, physical data and specific parameters) and the time window (season) for each is well described. At each monitoring site, several locations are included which contain different ecosystems as to maximize the information collected. This stratification is very strategic and cost efficient and is based on best practice sampling methodologies.

Clear rules and protocols were established for data collection, processing and validation and these should be held up as exemplary practices. This included safety and processing instructions. In addition, the

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project produced a well organized data entry system in two languages, with established protocols for entering data for species that may have different names across the region. This is a key accomplishment in itself.

The equipment required to carry out each sampling was well described and well thought through. It included very inexpensive equipment for the most part (pollution assessment the exception) and was low-tech enough to allow divers with little experience in sampling to assist with the monitoring. Lastly, the methodology covered both *static* and *dynamic* measures of reef and ecosystem health.

Implementation: The methodology was developed to be implemented by SMP Monitoring Teams, consisting largely of a mixture of members from the MBRS Support Agencies (SA) (government, NGOs and fishers) in the four countries. A Monitoring Coordinator (MC) in each country had the responsibility for supervising each monitoring team. The MC then liaised with PCU to update and verify data. The PCU managed and maintained the database and created summary base maps.

The first summary of results, taken as the baseline for all future monitoring episodes, was published in October 2006 in *Linea Base del Estado del Sistema Arrecifal Mesoamericano*. The report summarizes sites monitored and baseline data for each area of interest. The results for coral reefs are comprehensive and clearly presented, while results for seagrass and mangroves are fairly sparse. Results for water contamination and water quality are preliminary and not as robust in terms of temporal and spatial sampling. The lack of seagrass and mangrove data is most notable in Belize, where only one site has been monitored. This seems to be due to a lack of expertise in-country. The analyses of the data to date are in the form of summary tables, graphs and maps, all are easy to interpret and are available or soon to be available on the MBRS web site. A full analysis of the SMP data is expected by early March 2007 and it is expected that this document will be summarized in an executive summary format for decision-makers.

The original methodology called for 25 sites to be included, 17 of these marine protected areas, 6 of these strategic sites and 2 transboundary sites. In 2006, 49 sites were included, 13 of which received comprehensive assessments. Results for 2004 and 2005 are posted on the MBRS website. Data for 2006 were released internally to users and will be made public in early 2007. One more SMP monitoring regime will be included under Phase I.

Certain deviations from the original monitoring plans were necessary due to unforeseen circumstances. The most important was the delay in monitoring several sites in Mexico due to efforts to restore several reefs after Hurricane Wilma in 2005. For at least one site, Cozumel, pre- and post-hurricane data were collected and these are being used in study to understand the impacts of the hurricane. The restoration efforts methodologies, pioneered in large by the CONANP-SMP team, were groundbreaking themselves and produced impressive results with a survival rate of over 80% for restored coral. In the case of Belize, no expertise was available to monitor mangroves and seagrasses after the only in-country experts left to go overseas. This has meant that no monitoring of mangroves or seagrasses has been carried out in Belize.

Lastly, part of the SMP was to monitor oceanographic currents and gyres. This was supposed to happen after a baseline 3-D model was established. A consultant was hired to produce the model and all efforts were made to make it relevant to the monitoring program, however the consultant failed to produce an adequate product and the component was never fully established.

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One of the SMP components that was not addressed was the Rapid Assessment Methodology. In the case of the aftermath of Hurricane Wilma and several bleaching incidents along the Belize coast, no rapid assessments were carried out to measure the immediate impact of the damage.

Overall Comments

- The Synoptic Monitoring Program would not have been achieved without the partnerships established with the Supporting Agencies, including government agencies, NGOs, fishers, and private partners.
- The SMP enabled synergies between disparate groups monitoring different sections of the MBRS and supported the harmonization and standardization of a monitoring methodology, which in itself a huge accomplishment.
- The methods are simple and well laid out and are accessible to a large number of people in the region.
- More data collection is needed for seagrasses and mangroves, water quality and contamination as capacity is built and effective partnerships for analysis are established.
- The challenge will be to analyze the results on a regular basis and disseminate the information for it to be useful for effective adaptive management and decision-making.

Sub-component Outputs:

- SMP designed and under implementation
- Monitoring of 49 sites to date
- Comprehensive baseline data for 13 sites across region
- Results analyzed for 13 sites
- Basic field equipment provided to Support Agencies
- Training of monitoring personnel in Support Agencies

Workshops:

Technical Working Group –August 2001, June 2002

Expert Meeting – May 2002

Training course – November 2002

Monitoring Program- March 2005

Documents:

Manual Methods for the MBRS Synoptic Monitoring Program - April 2003

Linea Base del Estado del Sistema Arrecifal Mesoamericano - October 2006

Measuring Coral Reef Ecosystem Health – September 2006

Sub-component Outcomes:

- Increased capacity at national, regional and local levels for monitoring ecosystem health.
- Harmonized monitoring methodologies across the MBRS region.
- Increased Support Agency capacity to identify important indicators for coral reefs, mangroves and seagrass beds, sources of marine pollution; and ocean circulation and gyres patterns.
- Improved baseline and temporal data on key ecosystem indicators.
- Improved regional and inter-agency cooperation.

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- Inclusion of baseline results in Belize's "State of the Reef" report
- Clear local ownership of the methodology.

Sustainability:

The REIS database is a 'clearing house' for marine protected area data across the region. There has been substantial buy-in from SAs that has accrued during the project. The system has the potential to be an important resource for management and future assessments and actions. It is well designed and comprehensive and with minimal financial support could deliver one of the project's biggest long-term successes. However, at near project end, there are no arrangements in place to sustain the REIS if a second phase of project funding is not forthcoming. This includes no arrangements for a permanent institution to house and maintain the database, and no arrangements to continue the website that now provides an interface to data users. Additionally, users of the REIS will require continued assistance over the next few years to ensure data quality and entry into the system. Since there is a high turnover of trained monitors, training needs will have to be addressed in the near to medium term. Part of this burden can be shifted to SAs over time, however this may be a gradual process. Lastly, the long term sustainability and usefulness of the REIS will also rely on the uptake of data and clear strategies for data transmission to decision-makers and on-the-ground managers.

The SMP trained a large number of people in the SMP methodology. This is an important outcome for long-term sustainability, as it has built capacity in the countries. It also reflects the high turn over of staff at several sites, especially those off-shore. The sustainability of the program will rely largely on the Support Agencies maintaining the standards they have adopted. This may be difficult in Honduras and Guatemala where there are fewer opportunities to partner with marine-based NGOs and private partners. The local, regional and global benefits of the SMP are emerging as results demonstrate the variability along the reef. These benefits will increase if more data are collected.

The SAs have relied upon the MBRS project to provide them with equipment, fuel (and boats in some cases) and to store, manage and consolidate data. The long term sustainability of the SMP is questionable without another large contribution from either a follow-on project or another donor. Sites that are particularly at risk are primarily the transnational ones that receive little or no support from other funding sources. In the absence of a Phase II project, monitoring of all reef variables is at risk of being severely decreased or discontinued in all sites in Guatemala, Utila and Puerto Cortez in Honduras. Monitoring mangrove and seagrass variables is at risk in all sites in Belize and in many sites in Guatemala and Honduras. Most importantly, the monitoring components that require a large amount of funding and analysis, water pollution and water quality, will most likely be seriously threatened. To date, Mexico is the only country that has benefited from a long-term financial strategy to assist with monitoring. The GoM has already committed a significant amount of funding from its reef tax to the SMP program and recognizes the cost effectiveness of monitoring in the wake of increasing threats including hurricanes and tourism impact. The collapse of the monitoring program would undermine progress to date to acquire a regional perspective of threats and recovery of the reef, and would hamper efforts to target specific management actions to assist species and habitats facing serious threats, including the Nassau grouper and critical mangroves and seagrass beds.

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Lessons Learned:

- A clear contingency plan to maintain and house data in the absence of long term funding must accompany any program that gathers a large amount of data across multi-national region. Ownership and responsibility for dissemination must be established prior to the completion of any project.
- Where it has been deemed that several different variables are critical to understanding threats and patterns of decline or recovery, data collection efforts should ensure that whenever possible, uniform effort is expended to collect data that are harder and more expensive to acquire such as water quality and contamination.
- For projects that potentially collect a large amount of data, there needs to be a clear purpose for the data and a seamless mechanism to transmit results to decision-makers and on-the-ground managers.
- In regions where unanticipated events can occur rapidly, such as hurricanes or coral bleaching, there needs to be a local capacity (including emergency funding) built up during the project to respond to these events and carry out a rapid assessment of the situation.

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Annex 10: Component 3 – Promoting Sustainable Use of the MBRS

Evaluation of Component 3
Promoting Sustainable Use of the MBRS
(US\$1.9 million; GEF funding US\$ 1.63 million)

Component Rating: Moderately Satisfactory

Considerable efforts were expended in this component with mixed results. Good regional synergies were realized in both areas with new trans-boundary cooperation in the area of policy proposals and general guidelines. Trainings involving fishers, community members, NGOs, PA management and other stakeholders built considerable capacity. In addition, a considerable amount of new training materials were developed and distributed.

Sub-component A - Promotion of Sustainable Fisheries Management

This sub-component sought to address some of the causes of over-fishing by supporting:

- a. monitoring and management of spawning aggregation sites (SPAGS);
- b. improving institutional capacity in sustainable fisheries management;
- c. promoting alternative livelihood systems; and
- d. supporting dialogue aimed at developing a Regional Fisheries Policy.

Monitoring and management of spawning aggregation sites

Working with local fishers, researchers, and MPA personnel the project identified spawning aggregation sites and established monitoring protocols for those areas. A training course entitled "Training in the Monitoring of Reef Fish Aggregation Sites" was held in 2002 at the Glover's Reef Marine Reserve in Belize. Protocols included species identification, site determination, estimation of capture rate and population density, and data collection and analysis, among others. The Green Reef Environmental Institute and The Nature Conservancy provided technical support. A similar training was held in 2004 for fishers from Honduras.

A consultant was hired in 2004 to help produce a reef fish spawning aggregation monitoring protocol. The protocol was developed from several wider consultations with experts in the field and the input of the PCU amongst others. The resulting document "Spawning Aggregation Sites in the MBRS Region: Recommendations for monitoring and management" was adopted by the project in July 2004.

Monitoring has continued throughout the project and the data collected are included in the Project's web-based database.

Improving institutional capacity in sustainable fisheries management.

This activity was designed to implement regional cooperation to promote sustainable fisheries. A central objective was harmonizing fisheries policy throughout the four participating countries, based upon sound scientific principals and supported by data and research collected by the MBRS Project. To this end, the Project created a Policy Working Group (PWG) consisting of legal advisors from the Departments of Environment and Natural Resources from the

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participating countries. The PWG met with a broad range of regional stakeholders from government, NGOs, local fishers, MPA managers and staff. This group worked closely with the IUCN Environmental Law Program. In 2003 a draft document entitled “Sustainable Development Policy on Fisheries Resources, Tourism and Transboundary Marine Protected Areas in the MBRS”, was produced and submitted to the Council of the CCAD for endorsement. The policy guidelines were endorsed by the CCAD and became the basis for new regional standards and regulations. This was a major achievement of the project and is an excellent example of cooperation between the four countries throughout this project.

In 2004, the MBRS Project fostered the "1st Ministerial Meeting for Cooperation in the Gulf of Honduras" that resulted in groundbreaking regional accords between Honduras and Guatemala to regulate sustainable fishing in the Gulf of Honduras. In the same year, the MBRS Project began the process of regional policy harmonization among Belize, Honduras, and Guatemala with the consolidation of the Southern Transboundary Commission in 2002. The agreements reached address the physical planning, conservation and development of heavily used tourist areas in the MBRS region. This includes the promotion of Marine Protected Areas that contribute to the stabilization and protection of the coastal landscapes and maintain the marine coastal water quality. The harmonization of policies related to the use and dimensions of gillnets, the use of mooring buoys, dive equipment, carrying capacity, anchoring and legal aspects for service providers was also achieved by the ministers.

Also in 2004 the Project, in conjunction with the ICRAN-MAR Project and the Comisión de Áreas Protegidas de Yucatán (CONANP), sponsored the First Mesoamerican Fishermen Congress in order to bring together policy makers and fishers and gain “buy-in” for sustainable fisheries policy. The Congress was highly successful in promoting dialogue, creating formal and informal channels of communication and securing stakeholder input on sustainable use of the MBRS region.

Promoting Alternative Livelihoods

A key conservation strategy centered on training of fishers and others in alternative livelihoods in an attempt to reduce reef pressures and to mitigate lost income in from limiting use or closing of designated fishing areas in MPAs. Additional objectives of such trainings included achieving broader stakeholder participation and creating new constituencies for MPAs and “strengthen the involvement of civil society in conservation efforts” (PAD, p. 8). The PAD specifically calls for, “training fishers in kayaking, catch and release fly-fishing, SCUBA and recreational water sports and tour guide operations associated with Marine Protected Areas and other tourist destinations.” Training activities were to be supplemented by the provision of equipment such as fishing rods, kayaks, etc. so that those trained could put their new skills into practice. Equipment was to be stored and managed by local NGOs and rented or made available to locals who had been trained but did not yet have their own equipment. In 2004, trainings including natural history tour guiding, kayaking, snorkeling, sports diving and fly-fishing were carried out with 54 participants from Belize, Mexico, Guatemala and Honduras.

This activity met with limited success and proved more difficult to implement than expected at Project start-up. This is very much in line with similar GEF/WB conservation projects that

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contain development components. Although there was widespread community support for project activities logistics and post-training adaptation of alternative livelihoods were obstacles in many areas. It was often difficult to locate and get fishers to completely commit to courses.

The equipment rental/supply scheme was never fully realized as well because of logistic and management issues. While some NGOs are utilizing the equipment in their tourism programs, there is no clear indication that those trained under the program have open access to the equipment to promote their own livelihoods.

Successful implementation was hampered by a lack of understanding of the employment and economic landscape throughout the area. No studies were made prior to trainings to determine the actual needs and desires of communities relating to suitable alternatives. The Project provided training only for tourism related activities that, in many cases, were simply not a good fit with the local cultural conditions. The trainings were short, usually one-two weeks, and provided only the most basic instruction necessary to carry out the new skills. There was little or no information about how to attract clients, run a business, treat clients in the field, etc. which are fundamental to the sustainability of any business, especially one that is so service oriented. In most cases locals simply did not have the business wherewithal to establish themselves in the new livelihoods without continued support and follow-up. Such support and follow-up never occurred within the context of the project. Additionally, there has been no tracking of those trained to follow their progress and use of the trainings of follow-up support activities to help the few who may have adopted the new livelihoods.

In hindsight it is clear that without some sort of governmental regulation that either limits or prohibits unsustainable target activities the opportunity to pursue such activities will always be present. Those who leave an unsustainable livelihood to pursue new a livelihood, utilizing their newly acquired skills, will likely be replaced by another member of the unemployment pool engaging in the unsustainable activity. For every fisher who abandoned fishing there will be many more moving into the vacated openings. Interviews with former fishermen at Sapodilla Cayes MPA revealed that they abandoned fishing because the fish supply had become so depleted that it was no longer profitable; however, they said that Guatemalan fisherman regularly came to the area and are fishing the same areas they abandoned. The fishermen who changed their livelihoods were in favor of no-take zones, stricter regulation and tighter management and said that these actions must accompany any effort to convert fisherman to other livelihoods.

The evaluation team also found that few left fishing to pursue their new careers full time; rather, many continued to fish when the opportunities arose, often more efficiently with new equipment that their new livelihoods afforded them. Personnel from the NGO Green Reef who provided training for diving, sport fishing, nature guiding and kayaking said that most of those trained still engaged in fishing, especially during the profitable conch and lobster seasons. In Belize a license is necessary for tour guiding and that was not included in the tour guiding trainings, a notable shortcoming. Green Reef also indicated that their trainees were predominately men and more women should have been involved.

Many aspects of the Alternative Livelihood activities were developed by an external consultant with minimal local consultation. In many cases training and equipment for the designated

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Annex 10: Component 3 – Promoting Sustainable Use of the MBRS

alternatives were costly and complex. Little emphasis was given to the broader livelihood context in which alternatives could be implemented. There was little recognition that a livelihood is more than just a job and that the entire cultural context must be addressed if such endeavors are to be sustainable. Livelihoods and employment involve a complex social context that provides necessary skills beyond those necessary for particular tasks. For example, a fisher grows up with an understanding of the sea, the seasonality of fishing, marketing, and associated work patterns. He/she has a network of social contacts for help and support. This is equally true for building trades and lodging and restaurant workers in the tourism sector. The promotion of alternative requires extensive support such as employment contacts, basic understanding of business matters, client and time management skills, follow-up coaching and a clear picture as to how the enterprise functions. Unfortunately none of these issues were adequately addressed in the project design that proved to be overly ambitious and naive in its expectations.

On the positive side, there is some evidence that some fishers trained passed on their newly gained skills to others. Also, since the project employed local trainers whenever possible, usually by working through local NGOs, considerable new training capacity has been developed with high quality manuals and materials to support future efforts. In Guatemala one of the local fisher groups trained under the project has shown considerable initiative, including obtaining grants to purchase equipment for tourism activities, building trails and creating new ecotourism opportunities for both tourists and the community.

Many of the trainings did build local constituencies and the fishermen would like to see more of these types of activities carried out in a more comprehensive manner. Although not all equipment could be used as envisioned in the PAD it has benefited the areas through use in educational and monitoring activities. If ecotourism is to take root on the Mesoamerican Barrier Reef and be a viable alternative to traditional high-impact tourism then it will be necessary to develop capacity and demonstrate opportunities. To a limited degree, the project did succeed in this area, in spite of the fact that it is unclear to what extent real alternative livelihoods were established and pursued by those trained.

Supporting dialogue aimed at developing a Regional Fisheries Policy

This activity is described in *Improving institutional capacity in sustainable fisheries management* above and centered on a series of workshops involving stakeholders as described.

Sub-component B - Facilitation of Sustainable Coastal and Marine Tourism

The Project recognized the potential for significant negative impacts from tourism and the need to promote sustainable use of the resource base. The PAD envisioned developing, “best practice and regional environmental certification programs for sustainable tourism development.” (p. 2, PAD). This balance is also recognized in the promotion of tourism as a source of potential income from ecotourism, “Project would promote region-wide adoption of best practice in sustainable marine tourism through disseminating codes of conduct, providing training and resources for their application and establishing regional environmental certification systems. This, coupled with opportunities for coastal communities to engage in small and medium

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Annex 10: Component 3 – Promoting Sustainable Use of the MBRS

enterprise and alternative livelihood schemes linked to ecotourism, should lead to higher incomes, sustainable economic growth and reduction in rural poverty–CAS goals in all four countries.” (p. 3, PAD)

The MBRS Sustainable Tourism Forum was one of the major accomplishments of this subcomponent. The undertaking included an operational manual to guide Forum activities that laid out a clear analysis of the current state of affairs, an analysis of options, limitations and opportunities, a strategy to secure desired outcomes. The first Forum was held in Belize in 2002 and produced a wealth of information, initiatives, and analysis ([Design and Implementation of the MBRS Sustainable Tourism Forum. March 2003.](#) A second forum was held in San Pedro Sula in 2003 and the Handbook was reviewed once again. Also, bilingual versions of the “Training Manual on Environmental Impact Evaluations and Environmental Auditing of Coastal Marine Tourism Operations and Infrastructure,” were reviewed. These materials are important outputs of this component and represent a contribution to the MPA knowledge base that has world-wide applications.

The “Handbook - Standard Guide for the Assessment of Environmental Impact Studies of Tourist Projects comprised in the Mesoamerican Barrier Reef System Zone” is also a major output. The 97 page handbook lays out a clear analysis of the institutional, social, legal and environmental landscape in the MBRS region relating to the regulation of tourism development and activities and provides guidance for regional and local policy as well as site specific activities. The handbook was written with extensive consultation from both private and governmental sector input as well as a workshop of MBRS members’ delegates. This document has the potential to guide not only tourism development, but also to provide direction for next steps in regulating and controlling urban, industrial and agricultural development if the document is kept “alive” and updated in a timely fashion.

At the time of the Mid-Term Review this component was the least complete and the original idea of Regional Certification Standards had been replaced by Codes of Conduct for Sustainable Tourism. The 2003 Technical and Financial Progress Report attributed this lack of progress to, “A lack of appropriation of tourism in the area by the countries and problems of a disagreement in relation to the approach has led to a lack of important achievements in the sub-component of tourism.” This problem plagued the project throughout implementation and, in spite of many successes in the area of Sustainable Tourism; the project was never able to completely resolve these difficulties and several original component objectives such as Certification and Regional Regulation of Tourism were not fully achieved.

Interviews with others working in the area on tourism, revealed a level of discontent with the MBRS Project’s unwillingness to work cooperatively on certain initiatives, especially tourism regulation. Several individuals indicated that the PCU was sometimes incommunicative, failing to respond to emails or phone calls, and when they did participate in project development they sought to dominate or control the process rather than work in unison. While clashes of personalities are common when project units from various institutions must work together, one of the objectives of the MBRS project was to build greater cooperation between conservation institutions. It should be noted that the exercise termed “Building Synergies in the Mesoamerican Reef Region: An Analysis of Conservation Investments to Strengthen Collaboration and

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Partnerships — Phase I” was not initiated until late in the project (October, 2005) and it is clearly stated in the document that, “Due to time and logistical limitations, key national and local organizations in the four countries sharing the MBRS are not yet included in the analysis.” The project may have been more productive and sustainable in this area if those synergies occurred earlier in the project so as to take advantage of the plethora of organizations working on reef conservation, avoiding duplication and building good will for future actions.

In hindsight this component was overly ambitious and could have comprised an entire project in and of itself. The main thrust of the MBRS Project was monitoring and establishing base-line data, biodiversity conservation and MPA management. These fields tend to be scientifically oriented and the bulk of the PCU had technical training in these areas. Tourism development and management tend to be more socially and policy oriented and the PCU personnel may have struggled to grasp a good handhold when dealing with the complexity of this component. Funds were reallocated at times to other components when it became obvious that implementation of some of the original project activities was either unfeasible or would be unproductive. These reallocations seem to be justified and the alternative investments may assist future projects.

Component outputs:

- regional fisheries policy, regulations and standards on lobster, queen conch and snapper;
- regional regulations and standards on gill net use;
- regional tourism forums that raised the profile of conservation and the environment in regional tourism;
- “Training Manual on Environmental Impact Evaluations and Environmental Auditing of Coastal Marine Tourism Operations and Infrastructure”
- four training manuals (themes: business management and tour guiding) that contribute to sustainable tourism;
- a series of cruise ship policy and regulations that is expected to be submitted to the appropriate legislative bodies in the near future.
- training of over 300 individuals on various aspects of sustainable tourism development and practices; and
- new cruise ship policy proposal for each country.

Component outcomes:

- groundbreaking regional cooperation on sustainable use of the MBRS;
- policy dialogue between the four participating countries;
- new space for dialogue between fishers and policy makers opened;
- elevated profile of the importance of conservation of the Reef; and
- new level of cooperation between governmental and regional agencies to promote sustainable tourism.

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Annex 10: Component 3 – Promoting Sustainable Use of the MBRS

Sustainability:

The outputs from this component are sustainable if regional buy-in continues, and is translated in turn into national regulations and policies that are enforced at the local level. Policy and regulations that have been enacted under the project are likely to become more relevant, especially in light of diminishing fish populations and the increase of tourism impacts, because these have a direct impact on economic performance and public welfare. The documents created, especially training manuals, policy statements and diagnostic tools will endure and make a significant contribution if used by those promoting sustainable use of the MBRS. One area of concern will be leadership to promote dialogue and cooperation after the MBRS Project terminates. Ideally, those trained, especially MPA managers and agency personnel will fill this role.

Lessons learned:

- Policy harmonization is complex, demanding and requires significant time and resources to succeed.
- A thorough understanding of labor and product markets, unemployment levels and skills capacity is necessary for alternative livelihoods programs to be sustainable.
- Potential alternative livelihoods must be assessed early in project design.
- Alternative livelihood promotion will succeed only in conjunction with constraints on unsustainable livelihood activities.
- Alternative livelihoods are not likely to succeed in areas of high unemployment where those trained are readily replaced by others in the targeted activity.
- Those who receive alternative livelihood training often use their new skills to supplement their incomes, rather than substitute former unsustainable activities with more sustainable alternatives.
- For tourism standards and regulation to succeed at the policy level, tourism ministries must be involved in policy creation.
- Tourism management, as contemplated in the original project design, was overly ambitious for this project.
- The tourism sector will need to be formally brought in to Conservation and Sustainable Development planning for the MBRS region—possibly with the help of CCAD and the Regional Steering Group mandated under the Tulum +8 Declaration
- Involvement of the private sector will be essential to tourism management but will prove difficult as the private sector tends to be off-site, have little incentive to alter tourism practices and often possesses considerable political access.

MBRS Terminal Evaluation
Annex 11: Component 4. Awareness and Environmental Education

Evaluation of Component 4. Public Awareness & Environmental Education (US\$1.5 million)

Sub-component A. Development of an Environmental Awareness Campaign

Sub-component B. Formal and Informal Education

Component Rating: Highly Satisfactory

This component created and fostered constituencies for sustainable reef use by working with public and private sectors to increase recognition of the importance of the MBRS to the tourism and fishing industries as well as all those who benefit from the environmental services the reef provides. The MBRS Project website is particularly notable as a high-quality source of educational materials, scientific data, training and management manuals and Project information.

The Project mounted a full-scale environmental awareness campaign that included:

- a Data Base and Information Clearinghouse that located and catalogued relevant materials and made them accessible through the project website;
- generation and dissemination of new printed and audio-visual materials;
- seminars with media and project members to disseminate and promote the material.

The formal and informal education subcomponent activities included:

- production and dissemination of educational materials to schools, local agencies, NGOs and others in a position to utilize the materials;
- curricula development;
- teacher training workshops;
- student competitions, exhibitions and fairs;
- programs that sought to actively involve all levels of the region in consciousness raising activities concerning the importance of the MBRS.

It is difficult to access the real, on-the-ground effects of this component without extensive research of user populations using polling, testing and survey methodologies but it appears that this is one of the most successful components of the project. Conversations and interviews, both formal and informal, indicate a clear increase of awareness of the importance of the reef by a variety of interests. This is due, at least in part, to the early start of component activities and the creativity of delivering the information. One ministry official responsible for environmental policy said that the project had greatly raised his awareness of the importance of reef conservation and that he was now acting with a new sense of urgency to promote conservation and sustainable use. He went on to say that his associates were now labeling him as “green” whereas he had formally not been known as a promoter of conservation. A leader in the development of school curricula in Belize said that the MBRS Project not only helped revamp the entire natural history curricula regarding the environment but that it also brought a dynamic new methodology for curricula development that was now being used country-wide. Informal interviews revealed a high level of awareness of the importance of the reef and MBRS Project activities at all sites visited by the evaluation team. It should be noted that curricula uptake has been slower in Guatemala and Honduras where national curricula review is more complicated. It is expected that the MBRS developed curricula will be integrated into the schools as new curricula reviews are undertaken.

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Annex 11: Component 4. Awareness and Environmental Education

Component outputs:

- prepared and distributed more than 550 “Environmental Eco-tips” containing practical advice for preventing pollution of coastal marine ecosystems;
- at least 1000 posters and 1200 brochures on cultures in the MBRS were distributed in English, Spanish and Garifuna;
- production of the Regional Strategy for Environmental Awareness and the Manual of Graphic Standards for the institutional logo;
- provided materials and support to other components of the project such as graphics, socio-cultural data, etc. and assisted in communication and outreach;
- training for press chiefs in environmental ministries;
- publicity spots on appropriate fishing techniques for radio;
- numerous t-shirts, posters and other promotional material to “brand” the MBRS activities;
- preparation and production of teachers’ guides;
- regional teachers workshops to promote environmental awareness in teaching activities and demonstrate products available through the project;
- training of teachers as trainers for promoting MBRS developed materials;
- local and regional TV and radio spots to promote the MBRS and environmental awareness;
- national Journalists Workshop to promote activities in Belize and Guatemala;
- national Teacher Workshops in Omoa and Utila in Honduras, Puerto Barrios in Guatemala, and 5 local workshops in Punta Gorda, Sarteneja, South Water Caye, Belize City and Dangriga in Belize; two local workshops in Puerto Cortes and Cuyamel in Honduras; 657 teachers trained.
- five local teacher workshops in Mexico; 514 teachers trained.
- innovative program to put conservation messages in utility bills;

Component outcomes:

- greatly elevated the profile of the MBRS at local, national, regional and institutional levels;
- created new constituencies for MBRS conservation in institutions (government ministries and educational institutions);
- new methods for curricula generation for public education;
- wider distribution of MBRS materials;

Sustainability: The activities and outputs from this component are highly sustainable. The curricula, when adopted in regional school systems, will provide enduring benefits by educating primary and secondary students in the importance of their natural resources. The documents and training materials produced will also serve educational and interpretation activities not only in the MBRS region but in marine environments world-wide.

Lessons learned:

- carefully targeted environmental education campaigns can be highly effective in garnering project support;
- educational institutions are open to the idea of new curricula but slow to incorporate such materials and require much effort to negotiate the institutional hurdles;
- environmental awareness campaigns are especially challenging when more than one country or culture is involved as cultural, linguistic and local variations require different approaches, increasing costs and efforts.

MBRS Terminal Evaluation
Annex 12: Joint Investments and Synergies with the MBRS Project

Joint Investments and Synergies with the MBRS Project

This list of joint investments was prepared by the MBRS's PCU.

Regional-Level

- a. An updated **Mesoamerican Barrier Reef Action Plan** in conjunction with the Summit Foundation, WWF-USA, TNC, Environmental Defense, CI, NOAA and IUCN. The Action Plan was a result of the Tulum + 8 initiative and resulted in a list of priority actions for the Mesoamerican Reef (MAR) region.
- b. **An Analysis of Conservation Investments to Strengthen Collaboration and Partnerships** in conjunction with WWF-USA, World Bank, TNC and the Summit Foundation (shared investment). This analysis included a much wider group of international institutions working in the MBRS region and focused on four types of collaboration occurring for conservation investments on the MAR.
- c. **Healthy Mesoamerican Reef Initiative** along with WWF-USA, the Summit Foundation and the World Bank. This initiative focused on developing benchmarks for measuring the health of the MAR from an ecological, social and economic perspective. The initiative resulted in a joint publication entitled: *Measuring coral reef ecosystem health: integrating societal dimensions* the first of its kind for coral reef ecosystems.
- d. **MBRS Institutional video** developed with MarViva Foundation (shared investment).
- e. **Development of transboundary norms and policies** in conjunction with IUCN Law Center. The normalization of transboundary norms and policies was one of the most important project outcomes for the promotion of sustainable fisheries management sub-component (shared investment).
- f. **Baseline assessment of nine transboundary MBRS watersheds** in conjunction with Tufts University, USA and NOAA (shared investment).
- g. **Regional workshops for the formulation and adoption of transboundary norms and policies** jointly funded by the U.S. State Department. These workshops helped bring policy makers from all four countries together to try and harmonize norms and policies.
- h. **Supplement funding to the Synoptic Monitoring Program** to assist with the program from the Summit Foundation (\$75,000). The SMP benefited from additional funding to carry out its operations.
- i. **First Mesoamerican Fishermen Congress** jointly funded and implemented with ICRAN-MAR and WWF-USA. This congress was pivotal in securing local buy-in from fishermen in all four countries. It was the first time fishermen were able to communicate to each other in a large group setting the benefits of protecting fish stocks.

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Annex 12: Joint Investments and Synergies with the MBRS Project

- j. **Development of protocol and laboratory analysis of marine pollution** with Centro de Investigacion y de Estudios Avanzados del Instituto Politecnico Nacional (CINVESTAV) (shared investment).
- k. **Regional workshop for the development of harmonized protocols for monitoring MBRS watersheds** jointly funded and implemented with Proyecto de Manejo Ambiental para Islas de la Bahia (PMAIB).
- l. **Regional training workshop for SMP** jointly funded and implemented by PMAIB to increase the SMP training of experts the Bay of Islands, Honduras.
- m. **Garifuna radio shows** in collaboration **with the** Inter American Development Bank (shared investment).
- n. **Training of journalists** in collaboration with the Mesoamerican Biological Corridor Program.
- o. **Administration of ICRAN-MAR Project** on behalf UNEP/USAID/UNF.
- p. **Interdisciplinary research program to complement the MBRS monitoring program through ECONAR (Ecological CONNECTIONS Among Reefs)** implemented through the University of Windsor, Canada, and the Coral Reef Targeted Research & Capacity Building for Management (CRTR) GEF project.
- q. **State of the Reef Report** in conjunction with the Healthy Reefs for Healthy People projected funded by the Summit Foundation. The State of the Reef report would use the baseline data and subsequent years data from the MBRS project to report on the state of the reef.
- r. **Managing transnational watersheds in the MBRS** joint proposal for the development and implementation of integrated management interventions in the MBRS regions with IUCN (Mesoamerica). This joint proposal is being put forward as the basis for Phase II of the MBRS project.
- s. **Supplementary monitoring data collection for the SMP in the Southern Cayes of Belize** in conjunction with Boston University and Earthwatch. Researchers from Boston University and Earthwatch are carrying out extensive monitoring of the southern cayes of Belize. It is anticipated that results will be incorporated into the MBRS's monitoring program and results from the wider monitoring will be used to assist with management in the Sapodilla Cayes.

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Annex 12: Joint Investments and Synergies with the MBRS Project

Local Level

At the local level, most of the investments by the MBRS project resulted in leveraging or attracting additional funding to the site. There are several sites that already received funding outside the project from non-government sources, however some initiatives were established after sites received support from the project. These are not necessary direct co-financing, but can be seen as synergies and leveraged activities. The most notable include:

- a. **Monitoring and management assistance at Bacalar Chico** from Peace Corps volunteers. Bacalar Chico has secured a Peace Corps volunteer to assist the park manager with various tasks.
- b. **Research Station on Hunting Caye** to be funded by the Oak Foundation for the University of Belize and Earthwatch. The management of the park will hopefully benefit from on-site scientist and a wet and dry lab.
- c. Support for Utila from an IDB project to support the protected area.

MBRS Terminal Evaluation
Annex 13: Photos of Visitor Centers



Multi-use facility at Bacalar Chico, Belize.



Multi-use facility at Arrecifés de Xcalac Reserve, Mexico.

MBRS Terminal Evaluation
Annex 13: Photos of Visitor Centers



Community and training room at Arrecifés de Xcalac is used for community conservation efforts and trainings for monitoring, sustainable use and other management activities.



Multi-use facility at Turtle Harbor Marine Reserve, Utila, Honduras. This center is currently being used part time by the local school district

MBRS Terminal Evaluation
Annex 13: Photos of Visitor Centers



Students at the Turtle Harbor multi-use center.



Maintenance and clean-up issues at Turtle Harbor Marine Reserve. The manager indicated that such issues will be addressed in the near future when new funding allows for additional staff and support.

MBRS Terminal Evaluation
Annex 13: Photos of Visitor Centers



Multi-use center at Sapodilla Cayes Marine Reserve, Belize.



This tower supports the solar panels and some batteries. The tower appears to be constructed to support the water tanks (below) but is being used for the solar panels and some batteries used for the radios. The set-up is of questionable durability and the entire layout is faulty. The wind turbine (behind tower, not visible in photo) is also not functioning properly. This situation is illustrative of the need for training in infrastructure operation and maintenance. Managers indicated they received no information about the solar or wind energy generation or, perhaps more importantly, maintenance of key components such as batteries and inverters.