MESOAMERICAN BARRIER REEF SYSTEMS PROJECT (MBRS)

ANNUAL WORK PLAN

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1. Executive Summary

The concept for the Mesoamerican Barrier Reef System Project (MBRS) was born with the signing of the Tulum Declaration in June of 1997. Since then, and under the auspices of the Central American Commission for Environment and Development (CCAD) and the World Bank, the four MBRS countries and other interest groups throughout the region have cooperated with each other in the design and preparation of the Project, leading up to the declaration of its operation on November 30th, 2001.

To ensure the proper implementation of the Project, funds will be disbursed against an approved Yearly Work Plan. A Draft MBRS Work Plan for the second year of the Project (PY2) has been prepared by the PCU, and will be presented to the Project's Technical Working Groups (TWGs) during the second round of meetings to be held in Flores, Petén , Guatemala, on June 6 and 7, 2002. The Draft Plan describes the technical activities to be conducted under the four technical components of the Project, as well as activities related to Project Management.

During PY2, activities under the Marine Protected Areas Component will focus primarily on consolidating MPA infrastructure support, developing Master Plans and Operational Plans, continuing with the establishment of a baseline for MPA monitoring, training park staff in the development of management plans for MPAs and Community Relationships, and assuring the correct functioning of Transboundary Parks. These activities have an estimated budget of $912,385. Activities under the Regional Environmental Information System Component (REIS), will mainly comprise of activities to continue establishing a baseline for synoptic monitoring of the reef system, which includes concluding the Synoptic Monitoring Manual, and developing the Oceanographic Model, training for the use of the Monitoring Manual, acquiring physical equipment for monitoring, beginning collection of data in the field, selecting and furnishing REIS Node Agencies, developing the communication network and the functional initiation of the system. The estimated budget of this component for AP2 is $817,640.

The Sustainable Use Component of the MBRS project focuses on two sectors: Fisheries and Tourism. During AP2 the fisheries sub-component will support actions oriented to monitoring spawning aggregation sites for five selected species along the MBRS region, as well as to the acquisition of the necessary monitoring equipment.

This sub-component will also implement training in co-management techniques, and training in sustainable livelihood activities, including 'kayaking', fly fishing, recreational scuba diving, and tour guiding.

In Tourism, the Regional Fora on Marine Tourism will continue, as well as the development of Regional Environmental Certification, in association with CCAD and the MBRS countries. A Catalogue of Exemplary Practices will also be developed, and training on the Environmental Impacts of Tourism Activities will be carried out. A Pilot Program of the "Blue Flag" Campaign will be implemented in selected zones of the MBRS. The budget estimation for this component is $600,280. During PY2 the Public Awareness and Environmental Education component will invest resources to implement the Environmental Awareness Campaign developed during AP1. Resources will also be invested for curriculum development in primary and secondary schools, as well as training for the teachers of these educational levels. The translation of technical products into policies will also be accomplished under this component, which will require an estimated budget of $378,810.

Project Management will be centered on procurement, contracting, financial management and the supervision of all activities programmed for PY2. Regional coordination and efforts aimed at establishing work and cooperation alliances with other agencies and projects in the region will represent an important part of Project Administration activities. More details on this can be found in the section on Project Management on page 41. For PY2, this Project component also includes the cost of translating key documents and simultaneous translation, as well as a budget-line for contingencies. Budgetary estimations for Project Administration for the following four quarters is $729,710 and the total estimation for PY2 is $3,438,825.

The activities proposed for PY2 are consistent with the objectives and goals of the Project, and they are representative of the high level of dynamism that characterizes the MBRS Project. The budgetary estimations are approximate, and the counterpart contributions agreed by the countries will be fundamental to the successful implementation of the Project.

2. Introduction

The Mesoamerican Barrier Reef System (MBRS) includes the second longest barrier reef in the world. The MBRS is unique in the Western hemisphere on account of its size, its array of reef types, and the luxuriance of corals it contains. The outstanding ecological and cultural significance of the MBRS has resulted in its designation as a World Heritage Site.

Recognizing the importance of the MBRS to the economy of the region and to the natural and cultural heritage of its people, and conscious of the increasing threats to its overall health, the leaders of the four countries bordering the MBRS convened in Tulum, Mexico in June 1997 to pledge their commitment to protect this outstanding public resource. The Tulum Declaration called on the four littoral states of the MBRS and its partners in the region to join in developing an Action Plan for its Conservation and Sustainable Use. The Central American Commission on Environment and Development (CCAD) approached the GEF through the World Bank to request support for the development of the Plan and a strategy for its implementation. With GEF funds and technical support from the World Bank, IUCN, and WWF, CCAD convened a multi-stakeholder workshop with representatives from the four participating countries to draft an Action Plan for management of the MBRS.

The MBRS Project is the first phase of a 15-year conceptualized program, and was designed based on the regional components of the Action Plan. The activities developed in the project are representative of the priorities identified and agreed by the four countries, and they are primarily focused on the transboundary zones. These are distributed along five components in the Project: Marine Protected Areas, Regional Environmental Information System, Sustainable Use of MBRS, Public Awareness and Environmental Education, and Project Administration. The objectives and goals of the activities will support, at all moments, the formulation of national and regional policies that are necessary for the conservation and sustainable use of the MBRS, with special consideration to the well-being of the interest groups in the region.

This Annual Work Plan describes the activities to be carried out during the period between July 2002, and June 2003. Due to a delay in the Declaration of Effectiveness of the Project, and the effects this has had on its implementation, several activities identified in the 2001-2002 Implementation Period, will necessarily have to be transferred to the 2002-2003 Implementation Period for their execution.

The activities to be carried out are very much characterized by actions devoted to the consolidation of infrastructural support to MPAs, the development of an Environmental Monitoring Manual, the establishment of an Environmental Information System, the implementation of a forum on sustainable tourism, training of fishers and the implementation of an education and public awareness campaign. An important effort will be devoted to the consolidation of alliances and work cooperation with other agencies with a common interest in the MBRS area.

1. Component 1: Marine Protected Areas
Sub-component A: Planning, Management and Monitoring of Marine Protected Areas

The main objective of this component is to immediately support the improvement and protection of Marine Protected Areas (MPAs), increasing sustainability of conservation efforts, and strengthening institutional capacity of government and non-government organizations in charge of the management of MPA's, through personnel training in seminars and training workshops.

Sub-component A: Planning, Management and Monitoring of MPAs

In order to immediately improve the management and protection of MPA's, during the first year of the project, the design of a methodology to establish a baseline for the monitoring program to effectively manage MPAs was carried out. Details of the methodology were discussed at the Expert Meetings held in May 2002, of which we received concrete recommendations of the next steps to take, especially about the scope of monitoring, criteria to evaluate, selected indicators, frequency and method of monitoring.

Meetings of the Transboundary Parks Commission were held for the Northern and Southern zones of the MBRS region, utilizing existing platforms such as TRIGOH (Trinational Aliance of the Gulf of Honduras) and BEMAMCCOR (Belize-Mexico Aliance, for the Management of Common Coastal Resources), from the analysis of the results of such meetings, we will be able to determine whether we should keep them as the Transboundary Parks Commission.

In order to provide continuity to previous actions, within the 2002 – 2003 Annual Work Plan, the following specific activities will be carried out:

1. Publication of Methodology for Baseline Determination:

After finalizing the process of designing the methodology for establishing a baseline, said methodology will be published and disseminated across the countries in the region, so that it can subsequently be used in monitoring programs to determine the management effectiveness of MPAs.

2. Baseline Determination and Monitoring:

Once the design of the methodology for a baseline is in place, the establishment of the baseline will be initiated, and the monitoring program for MPA effectiveness will be established using appropriate indicators to allow the personnel of the MPAs to periodically monitor the state of their respective MPAs.

It is important to stress that according to the information emanated from the Technical Working Groups, there are existing baselines for the different MPAs in the four countries of the MBRS, therefore, the analysis that is currently being used and those that will be used in the future must take this fact into account in the process and in their recommendations and final products.

The latter will require the identification and procurement of specialized technical assistance, including the utilization of local technical assistance in each of the countries of the MBRS region. For this to take place it is necessary to prepare the corresponding Terms of Reference, followed by the selection process and formalization of the necessary contracts. This will be followed by the supervision of the activity, guaranteeing the highest quality of products possible.

3. Development of Master Management Plans:

This subcomponent will provide support for the development of 10 year Master Management Plans for four MPAs of the MBRS region: Corozal Bay, Gladden Spit, Xcalak and Omoa Baracoa. Specific financial strategies will be developed for said management plans, with existing and potential alternatives for income generation that may include the identification of local and international financing sources.

Consistent with the recommendations of the Technical Working Groups, three of the selected MPAs already have 5 year Management Plans, therefore, the efforts will be guided toward expanding such management plans to 10 years, the realization of public consultations and other activities to strengthen the management of the MPAs, such as exchange programs for park guards, equipment and other specific needs.

Funds will be provided in this activity, to contract expert technical assistance, participatory workshops, as well as to prepare, publish and disseminate such Master Management Plans. The process requires the preparation of Terms or Reference, as well as conducting the selection process, formalizing the corresponding contracts, and carrying out the supervision of the products.

4. Development of Operational Plans:

Two-year Operational Plans will be developed for the 15 MPAs of the MBRS region that have long-term management plans. In the Operational Plans, specific budgets for the activities identified in the Master Management Plans will be detailed.

Within the Technical Working Groups it was identified that the majority of the MPAs elaborate their own annual work plans, as part of the prerequisites to approve the budget for the following year. In this case, a concrete recommendation of the Technical Working Groups is the re-orientation of the available funds for the effective execution of the operative plans, participatory workshops, preparation of such plans and other pertinent activities to fulfill the objectives of the plan.

The reorientation of funds previously identified for Operational Plans will result in the elimination of the technical assistance that had been contemplated under this activity.

5. Infrastructural Support for MPAs:

During this year, this activity will support the purchase of equipment and basic infrastructure that is necessary in four transboundary MPAs, to facilitate the process of planning, strengthening administrative capacity, and allowing the personnel of the areas to implement the measures defined in the Operational Plans. The areas defined include Xcalak, Bacalar Chico, Sarstún and Utila-Turtle Harbor, each of which will be furnished with boats, outboard motors, diving equipment, buoys, a park keeper station, a visitors' center, signs and trails, etc.

During the Steering Committee Meeting held prior to the meeting of the Technical Working Groups, a proposal was approved that a common design should be developed for the Visitors Centers in the four selected transboundary MPAs. For this purpose the professional services of an architect will be contracted to design the plans for the building. The design of the structure should function as a Visitors Center and as a Park Keepers Station, instead of being two different designs.

The professional services of a Works Supervisor will also be contracted to follow up on the construction of the centers for the four parks.

The 15 MPAs will be supplied with basic computing equipment, including hardware and software, communication equipment (portable radios, base radios, batteries and chargers), Global Positioning Systems (GPS) units, and basic office furniture (desks, chairs, bookcases

and filing cabinets). In the Technical Working Group Meetings, representatives from the selected transboundary MPAs, prepared a list of equipment, according to the current needs of their respective MPAs.

6. Transboundary Park Commissions:

This is a follow-up to the achievements accomplished during the first year, when two transboundary commissions were established. One for the MBRS Northern Transboundary Area (Bay of Chetumal), and the MBRS Southern Transboundary Area (Gulf of Honduras). Funds will be made available for an annual meeting for each commission, and concrete recommendations are expected in terms of political cooperation, protection and management, including management plans and shared patrolling, management of migratory and endangered species, observance of existing international laws, fisheries and sustainable development.

Instead of creating new commissions, the MBRS Regional Steering Committee recommended the use of the existing transboundary organizations, BEMAMCCOR and TRIGOH, for the Northern and Southern zones, respectively. The Project has had a first meeting with TRIGOH and the achievements of said meeting will be utilized to determine exactly how the concept of Transboundary Commissions will evolve.

Sub-component B: Institutional Strengthening

In order to strengthen institutional capacity of government and non-government organizations that are accountable for MPA management, training of personnel via seminars and workshops will be conducted.

During the first year a workshop on mechanisms of revenue generation and financial strategies for Protected Areas was carried out in conjunction with WWF, MBC, PROARCA/APM and TNC, in place of the training on the elaboration of Management Plans that was originally planned. This change was recommended by the Regional Steering Committee.

With the purpose of following up on the institutional strengthening, in year two the following specific activities will be carried out:

1. Training in the Development of Management Plans:

To meet the expressed need of updated management plans for the MPAs, this activity will provide the necessary funds to have an international consultant review the existing information on elaborating management plans in the MBRS region, and train representatives of the 15 MPAs. Ideally, the course will be directed to MPA personnel, management personnel, universities and non-governmental organizations involved in the co-management of MPAs.

Likewise, a manual will be produced that will be used for training, which will also be published and disseminated in the MBRS countries. This activity will entail the development of Terms of Reference, as well as conducting the selection process, formalizing the corresponding contracts, and carrying out the necessary supervision to ensure the delivery of the expected products.

2. Training in MPA Management Principles:

This training is aimed at medium level and para-professional personnel at the management agencies and partners of MPAs, with the purpose of improving scientific-technical knowledge on the best management principles, and therefore being able to efficiently carry out the management plans for their respective MPAs. Necessary funds will be provided to hire expert technical assistance for the collection and analysis of exemplary management principles applicable to MPAs. A training manual and the implementation of the corresponding training will also be conducted. The manual will be subsequently published and disseminated across the countries of the region.

3. Training in Community Relationships:

A fundamental aspect in the success of the management and protection of MPAs is conflict resolution and involvement of communities that surround and impact resources in such areas. In this respect the current activity is focused on training mid-level personnel and MPA supervisors, as well as community leaders, partner non-government organizations, and representatives from municipalities.

In this case, funds will be made available in order to contract a regional consultant with experience in participative community relationships, to achieve ownership of protection interests and MPA management. This consultant must be acquainted with the particular features of the communities in the 15 MPAs in the MBRS region in order to conduct the training.

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4. Component 2: Regional Environmental Monitoring and Information System
Sub-component A: Creation and Implementation of a Distributed Regional Information System (REIS)

Background

The primary task of this sub-component is to design and implement an electronic information system, which will manage, and make accessible to the project's clients, the information relevant to the management of the MBRS and related ecosystems and to the human communities that depend on it for their livelihood. The work of this sub-component, therefore, is intricately tied to the processes and results of the other project components and specifically to the Synoptic Monitoring Program. These other components would determine the overall scope and data processing methods for the information to be managed by the REIS.

During its first year, the MBRS Project developed terms of reference for its initial tasks and contracted consultants to assist in the execution of these tasks. Consequently, the process of determining the environmental and management effectiveness monitoring requirements commenced in the last quarter of the first year and is now in progress. In parallel, the design of the regional data communications network and the Regional Environmental Information System (REIS), principal tasks in this sub-component, began in May 2002 during the first project year. The Project also held its first round of Expert Meetings to obtain the inputs of scientists and technicians whose expert contributions helped to tailor the work of the Project.

During the second project year, the MBRS Technical Team, with the contributions of various consultancies, will continue these activities for the design and implementation of an environmental information system distributed across a regional network. The specific tasks envisioned for the second year are described below.

Technical Working Group (TWG) Meetings

The active participation of the Technical Working Groups (TWG) is essential for the successful establishment of the REIS and the regional data communications network. Since the Project does not have personnel located in each country, it depends on the contributions of the members of the TWG to provide current information on the particular situation of each country. Moreover, the TWG will help to guide the development of the REIS and the regional network. In order to facilitate their participation in this process, the TWG members will be invited to the training workshops on the use of the REIS.

The Project's Technical Team will meet, near the end of the second year, with counterparts from the four participating countries to review the status of the REIS, focusing on its usefulness to each country and taking into account any new events, which may impact its function. Moreover, any issues that have arisen during the year regarding the performance of the node agencies and the regional network, the sharing of data, and the counterpart contributions of each country, will be discussed. Finally, the TWG will assist the Project in developing its Annual Work Plan for the third year of the Project.

Establishment of a Metadatabase

Central Database.

The database to manage data collected under the monitoring and marine protected areas management programs will be designed during the first quarter. Additionally, the programming of certain modules, identified as priorities, will begin. This first implementation phase should be completed during the second quarter. It is expected, therefore, that by the end of the second quarter, the first modules will already be in use, for data entry and the output of some preliminary products and reports. Keeping in mind that the Project is approaching the implementation of the REIS modularly, Terms of Reference for the second implementation phase of the REIS will be drafted during the third and final quarters of year two.

Node Agencies

It is intended that the REIS be a distributed database with a minimum of one node located in selected agencies in the four countries, all connected via the Internet. To be a node, an agency must comply with certain criteria and commit itself to contributing certain resources. The general profile of an acceptable node agency is one that can demonstrate organizational and financial stability, one that has experience operating the environmental information systems and/or GIS, and one that has the financial resources to maintain the systems throughout the life of the project. Candidate agencies have been proposed by the Technical Working Group for Environmental Information System and the National Barrier Reef Committees, through the National Coordinators. The next steps are to invite the candidates to submit proposals to be node agencies based on the terms of reference established by the TWG. A selection committee, comprised of the National Coordinators and the Information Systems Specialist of the MBRS Project, will select, from amongst the candidates, those which best comply with the criteria, using a methodology developed by the ISS and the TWG.

The candidate with the highest score for each country will be chosen as the node agency. This selection process will be completed in the first quarter of the second year of the project.

The design of a regional data communications network with nodes in each participating MBRS country began in the final quarter of year one. This task will continue into the second project year. Based on the network design, the Project will purchase hardware and software for the node agencies with the aim of installing them during the second quarter, along with the REIS application. Additionally, the Project will provide the necessary training to personnel from the node agencies to enable them to use and manage the database and the regional network. It is expected that these actions will be executed during the first and second quarters of year two.

Since the existing budget for the establishment of the regional network is not sufficient in relation to the current costs, the Project will seek complementary funds to obtain the desired capacity for the regional network and to pay for the cost of installing and maintaining dedicated telephone lines.

Information Dissemination

The information processed and the reports produced by the Project will be accessible on the MBRS website. Technical reports produced by counterparts and other agencies involved in the management of natural resources could also be made accessible via the website, provided that data sharing agreements can be made. During the first project year, the website was established, providing descriptive Project information, news, consultancy offerings, and a document library.

The scope of the website will grow considerably in the second year, with expansion of the document library and the addition of new information catalogs including descriptions of marine protected areas in the MBRS region, key players in conservation and management of the MBRS, as well as scientific and geographic data in the form of maps and reports, based on existing information in the region. Most significantly, the website will offer authorized users access to the REIS.

As an additional strategy for the effective dissemination of information to the public, the MBRS Project will make its information searchable by other regional and international networks such as SIAM and IABIN.

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Component 2: Regional Monitoring and Environmental Information System
Sub-component B: Establishing an MBRS Synoptic Monitoring Program

The main objective of the **MBRS Synoptic Monitoring Program (SMP)** sub-component is to establish a regional and issue-specific program that will generate reliable information, in order to form a solid baseline for data management and decision support to aid in the conservation and sustainable use of the MBRS. It is therefore important that the design of the SMP is flexible enough so as to accommodate future development and/or data acquisition. Ideally, the SMP should be a comprehensive program covering as many biological, physical-chemical and ecological parameters as possible. However, due to time and budget limitations, it is likely that only those monitoring activities with a high level of priority will be carried out. Reports produced by the SMP will be available through the MBRS Project website.

Regional Issues Influencing the SMP

The area of the project is a mosaic of inter-connected marine-coastal ecosystems. Most of the processes and ecological connections between the reefs, mangroves, seagrass beds and other coastal ecosystems are greatly influenced by currents, which account for dispersion of nutrients and reproductive products across the ecosystems. These currents are also responsible for transporting pollutants and wastes that affect the quality of water of the surroundings. Despite this, little is known about the oceanographic patterns and water quality regimes in the region, or their influence on the processes and ecosystems in the MBRS region. It is also necessary to obtain data on the complex reproductive patterns, larval dispersion and recruitment of key groups of species.

It is therefore important to generate information on the region's oceanographic current regimes, and their influence on the status and processes of the coral reefs and other critical ecosystems in the MBRS region. It is hoped that data on reproduction, larval dispersion and recruitment of corals, fish and other important reef components will be collected in order to further our understanding of ecological linkages between reefs, the diverse marine environments, and the processes that influence reef integrity.

Focus of the SMP

The main objective in the SMP design of the SMP is to support management activities in the MRBS, and it will focus on those anthropogenic activities that are causing serious concern on the long-term health of the reef and its associated coastal ecosystems. Such activities represent complex cultural and socio-economic issues that will need to be addressed if the long-term

sustainability of the MBRS region as a whole is to be ensured. However, it is recognized that such issues are beyond the scope of the present project.

The immediate objective of the SMP is, therefore, to provide high quality information for the improved management of the reef system. As such, it will aim to have a parallel ecological and anthropogenic emphasis. To this purpose, the SMP will be designed to incorporate the most important characteristics of the Mesoamerican Region, and will have as a high priority, to standardize methodology and data analyses for their rapid incorporation into national strategies.

Development of the SMP

The consolidation of the development of the SMP will be proactively pursued during the Period 2002-2003, in accordance to the suggestions from the Experts Meeting in Cancun, Mexico, in May 2002 and from the Technical Working Group in Flores, Guatemala, in June 2002. Efforts will continue to secure the commitment of the agencies that will carry out monitoring; the selection of the monitoring teams in the four countries, and the establishment of synergies and strategic partnerships.

At present, the geographic focus of the SMP includes 23 monitoring sites: the 15 priority marine areas, and 8 strategic sites that include the two transboundary areas of the MBRS Project (Table 1). During the first semester, the main activity will be to harmonize the monitoring methodology for the region in order to establish comparisons between the monitoring sites, distributed along the project area of the MBRS. Table 2 shows possible methodologies to be used at the MBRS. An important part of the SMP is training monitoring personnel in aspects of methodology, collection and evaluation of data. Efforts to establish partnerships between different government and non-government organizations in the region will continue to foster the exchange of knowledge and experiences. Table 3 shows the possible SMP executing agencies. Work will continue to secure the best habitat maps for the MBRS region in order to incorporate the results of the SMP.

Implementation of the SMP

One of the greatest challenges during this Project Year will be the consolidation of the node agencies and the selection of personnel that will be responsible for monitoring activities. As of the first quarter, the aim will be to consolidate the regional node and the node agencies, which will be thematic, and will need to have experienced personnel in monitoring activities, have a high level of technical capacity, and act as leaders in their own countries. Personnel selected in

such node agencies will be responsible for training personnel in other agencies or countries, and for supervising monitoring activities in their countries, or in the region. Training is expected to take place during the second and third trimesters. Table 4 shows the advances so far regarding the consolidation of the node agencies per country, highlighting the role that they may play in the SMP. It is intended to formalize institutional commitments through Memoranda of Understanding between the MBRS Project and the relevant agencies. The MBRS Project Coordinating Unit will serve as the regional node to facilitate the coordination and implementation of the SMP.

During the first and second quarters, the potential external agencies that might participate in the SMP, either through exchanges of experiences or by providing equipment and/or materials, will also be consolidated. The process of forming partnerships and synergies between national and foreign projects and organizations with similar interests will continue.

Also during the first semester monitoring equipment will be acquired, and training of the monitoring personnel will begin, utilizing the regional methodology. During the second semester some preliminary data analysis and result interpretation will begin.

There is a proposal for the SMP to have Monitoring Coordinators to assist the MBRS Environmental Monitoring Specialist with the supervision of the Monitoring Personnel in the field.

Preliminary Terms of Reference for the Monitoring Coordinators would be:

- Marine ecologist / biologist – BSc Minimum
- With technical capacity and experience in monitoring
- Knowledge of interactions between ecosystems that will be indicative of alterations in community structure
- Knowledge of evaluation and monitoring systems in coral reef and associated ecosystems
- Responsible for relevant analyses (with external support)
- Will report to the Environmental Monitoring Specialist of the MBRS Project PCU

Preliminary Terms of Reference for the Monitoring Personnel would be:

- Certified diver – Diving Basic level
- Academic level: Secondary or equivalent
- Knowledge of the region and of the monitoring area in particular
- Minimum age 18 years
- Will report to the Monitoring Coordinator

Work will continue to consolidate details on sample and data storage, including further aspects on sample and data security and integrity, distribution of responsibilities, data input and analyses.

It is proposed that the supervision of the monitoring teams by the PCU be carried out as follows: a) quarterly visits per country during the first year; b) three visits per country per year during the second year; c) two visits per year per country during the third year; d) such arrangement would need to be flexible according to the needs in each country.

Monitoring Frequency

The need to perform monthly samplings during one year, in the two transboundary areas will be verified during the first quarter. Likewise, there will be more clarity about the monitoring needs along the MBRS.

Technical Working Groups

The consolidation of activities to achieve the establishment of the SMP depends on the continuous and active participation of the Technical Working Groups (TWG) and the Project Coordinating Unit. The TWG for Monitoring will play an important role in completing the details on the agencies that will carry out the necessary monitoring, equipment and training to ensure the success of the SMP, and its long-term sustainability.

Baseline Determination

The results of the Experts Meeting on Monitoring will be consolidated, and the recommendations from the national and international consultancies in the three main thematic areas of the SMP: coral reef ecology, marine pollution, and physical oceanography/models will be incorporated.

Regarding coral reef ecology, the corresponding monitoring module will be completed during the first quarter, discussions will continue with a small group of experts, to further define the groups to be monitored, equipment to be used, and possible indicators, prioritizing parameters, activities, and human and financial resources.

In respect to marine pollution, the development of the corresponding monitoring module, field visits, and evaluation of capacities of the countries in the area will continue. It is evident that existing information in the region is scarce, particularly for Honduras and Guatemala. Therefore, efforts will continue to locate and incorporate information included in the gray literature, internal technical reports, and other institutional documents containing relevant information. There is also a need to identify certified laboratories in the region that could carry out the necessary analyses.

Regarding the physical oceanography and models, an important achievement was made by securing the services of a group of oceanographers for the development of a nested model for the MBRS. Such nested model contains a 3-D model (up to 30 vertical layers) at a larger scale, which will cover the area of the West Caribbean Sea, and a second higher resolution bi-dimensional model that will include the shallow zone of the reef lagoon. This model will give us information, among other aspects, on the patterns of currents, interconnectivity between reefs, larvae, eggs and adult transport within and outside the region, as well as pollutant dispersion. The MBRS oceanographic model will allow the processing of useful information for the management of the MBRS resources. For example, it will be possible to model the dispersion of agrochemical or hydrocarbon discharges in several parts of the region, and with the simulations in the model, it is anticipated that it will be possible to visualize the potential effects and destination of pollutants. It is expected that the MBRS model will be used as a management tool by key agencies in the region. The development of the MBRS oceanographic model will take 12 months, but it is expected that preliminary simulations may be carried out before this period.

Information Dissemination

Work will continue on the preparation of a Baseline Determination Report, the preliminary design of the SMP and the monitoring manual. The manual will include the latest concepts and knowledge on protocols and methodologies for several taxonomic groups and parameters, and will be presented as an aid for future monitoring activities in the region.

Equipment and other Materials Necessary for the SMP

There are several activities that have been identified as necessary for the best functioning of the SMP on the long term. Similarly, to support the appropriate development of the oceanographic model, it is considered necessary to obtain four additional current meters to total eight, to cover the simultaneous collection of data in the MBRS region more efficiently. In addition, it is considered fundamental to obtain good quality maps of the entire region. Ideally, digital images should be obtained to facilitate the reproduction of maps, the incorporation of digital information, establishing links with databases, and for general use in the GIS in the future.

Due to budgetary limitations, efforts by the office of the Regional Coordinator are underway to secure financial support via CCAD for the additional current meters and maps that are needed.

Tabla 1. Synoptic Monitoring Program of the Mesoamerican Barrier Reef System Project
Selected Sites for the SMP and List of Potential Monitoring Parameters

Parameters / Sites	Physico-Chemical	Water Quality	Mangrove	Pollution	Currents	Fish	Corals	Other Invertebrates	Algae and Seagrass	Birds	Aquatic Mammals	Reptiles
Santuario del Manatí	*	*	*	*	*					*	*	*
Banco Chinchorro	*	*	*	?	*	*	*	*	*	*		*
Arrecife de Xcalak	*	*	*	*	*	*	*	*	*	?	?	*
Bacalar Chico	*	*	*	*	*	*	*	*	*	?	?	
Corozal Bay	*	*	*	*	*					*	*	
South Water Caye	*	*	*	*		*	*	*	*	?		
Glover's Reef	*	*	*	?		*	*	*	*	*	*	
Gladden Spit	*	*		*	*	**	*	*	*			
Sapodilla Caye	*	*		*	*	*	*	*	*			
Port Honduras	*	*	*	*	*	*	*	*	*	*	*	
Sarstoon-Temash	*	*	*	*	*	*			*	*	*	
Río Sarstún	*	*	*	*	*	*			*	*	*	
Punta de Manabique	*	*	*	*	*	*			*	*	*	
Omoa-Baracoa	*	*	*	*	*	*	*	*	*	*	*	*
Turtle Harbor	*	*	*	*	*	*	*	*	*	*		*
Belize River	*	**	*	**	**	*		*	*	*	*	*
Hol Chan	*	*	*	*	*	*	*	*	*			
Caye Caulker	*	*	*	*	*	*	*	*	*			
Río Dulce	*	*	*	*	*				*	*	*	
Bahía Santo Tomás	*	*	*	*	*					*	*	
Puerto Cortés	*	*	*	**	*							
Tela	*	*	*	**	*							
La Ceiba	*	*	*	**	*							

* = Suggested parameter

** = Parameter of particular importance

? = Importance unknown

Tabla 2. Synoptic Monitoring Program of the Mesoamerican Barrier Reef System Project
Potential Methodology for Use in the SMP

Water Quality	Mangrove	Pollution	Currents	Fish (adults and recruitment)	Corals (adults and recruitment)	Other Invertebrates	Algae and Seagrass	Birds	Aquatic Mammals	Reptiles
*	**Primary production**	**Bacteriology**	**Consultancy Oceanography**	**Adults**	**Adults**	**Lobster, Conch, Sponges, Starfish, Octocorals, Sea cucumbers, Poliquetes**	**Algae**	**Coastal and marine**	**Manatee, others**	**Crocodile, sea turtles, etc.**
			Methods	**Methods**	**Methods**	**Methods**	**Methods**	**Methods**	**Methods**	**Methods**
CARICOM	GCRMN	Pesticides	Current meters: 2 per TA	Transects	**Adults**	Transects	Quadrants	Contact point	Aerial surveys	Night surveillance
	Consultant	Fertilizers	Floating drogues	Depth	Quadrants			Transects	Aquatic monitoring	Nest counts/search
	Exp/Country	Hydrocarbons		Random sampling/Depth	Line transects	**Indicators**	**Indicators**	Nets	Transmissor	Nesting sites
		Heavy metals		Video	Manta Tow	No. of individuals	% algal type			
				Fixed (Fisheries Component)	Fixed transects	Sizes	Cover	**Indicators**	**Indicators**	**Indicators**
				Bonshack method	**Recruitment**		Height	Richness	Location	Population structure and size
					Quadrants (juvenile corals)	**Connectivity between reefs**		Abundance	No. of young	Reproductive success
				Indicators	Traps (plates)	Population genetics	**Seagrass**	Presence / absence	No. of individuals	No. of individuals
				Abundance			**Methods**	Nesting rate	No. of dead individuals	Hatching rate
				Richness	**Indicators**	**Existing Monitoring**	Quadrants			
				Density	Live tissue cover	Coral Reef Monitoring Manual for the	Transects	**Existing Methods**	**Existing Methods**	
				Biomass	Size	Caribbean & Western Atlantic	Fixed Quadrants	RAMSAR		
				Fecundity	Recent mortality			Wetland Network	Stranded Marine Mammal Network	
				Recruitment	Old mortality		**Indicators**		SSC/UICN	
				Fixed transects/ juvenile fish	Height		Size			
				Traps (placton nets, smorfs, light traps)	Density		Density			
							Biomasa			

				Indicators	**Juvenile corals**		Production			
				Abundance	Density					
				Richness	Richness					
				Fecundity						
				Biomass	**Connectivity between reefs**					
				Trophic structure	Population genetics					
				Commercially important species						
				Commercially important families	**Existing monitoring**					
				Sizes	(same as fish)					
				Connectivity between reefs						
				Population genetics						
				Existing monitoring						
				CARICOM						
				GCRMN						
				AGRRA						
				REEF CHECK						
				REEF KEEPER						
				REEF						
* = Standard parameters established by global networks										
TA = Transboundary Area										

Table 3. Synoptic Monitoring Program of the Mesoamerican Barrier Reef System Project
Potential Executing Agencies for the SMP by Country

HONDURAS NODE	GUATEMALA NODE	BELIZE NODE	MEXICO NODE	EXTERNAL NODES
UNAH*	**Shell**	**CZMA&I***	SEMARNAT	NASA
PROLANSATE	**Ministry of Energy and Mining**	**Fishereries Department**	Mexican Army	NOAA
BICA	**Empornac**	UB	**CONANP***	U Miami
FUCSA	**UNICPESCA**	DOE	**ECOSUR***	U Florida
FHRPF	CONAP*	Collabon	UQROO*	Texas A&M
PMAIB*	CECON	NGOs	**UNAM**	Cornell
RIMS	CEMA	TIDE	**ASK***	U Lousiana
City Council of Puerto Cortés/UGA	**FUNDARY**	BAS	SEDUMA	U Windsor
CESCO	**FUNDAECO/COSTAS***	Green Reef	CET MAR	TNC
DIGEPESCA	**INAB***	**Public Health**	AMAC	Environmental Defence
DIBIO	**BASE NAVAL**	Forest Department	CAN	JICA
Ministry of Health	**Ministry of Health**	**LIC***	SAGARPA	IRS
ENP	**City Council**	*Smithsonian - Belize*	CAPA	CARICOMP
IGN*	*U. de San Carlos - CQF*	***Friends of Nature (?)***	**CINVESTAV***	AGRRA
ESNACIFOR*	*Ministry of the Environment*		**CICESE**	*WWF*
UNITEC*			*CONABIO*	*Smithsonian - Panama*
AFE-COHDEFOR*				*CIMAR - C Rica*
Navy				*U. Nac de Costa Rica*
SERNA				*U. de Panama*
				CPACC
				IOCARIBE
				NCORE
				TNC–MPA Bleaching Project (2002-2012)
				US Coral Reef Task Force – International Working Group
				World Bank Coral Reef Targeted Research GEF (2002-2007)
				Integrated Global Observing Strategy (IGOS) Coral sub-theme (UNEP & NOAA)

Bold = potential executing agencies
* = Agencies with GIS. This does not apply to external agencies.
Italics = Agencies added at the Expert Meeting, May 2002, Cancún, México.

Table 4. Synoptic Monitoring Program of the Mesoamerican Barrier Reef System Project					
Potential Node Agencies per Country					
COUNTRY	**INSTITUTION**	**CONTACT**	**ECOLOGY**	**POLLUTION**	**OCEANOGRAPHY**
MEXICO	CICESE	JULIO SHEINBAUM			E
	SEMAR	GILDARDO ALARCON			D
	ICMyL	ADOLFO GRACIA	D	ED	D
	CNA				D
	METEOROLOGIA				D
	CONANP	DAVID GUTIERREZ	ED		L
	ECOSUR	BENJAMIN MORALES	ED	ED	
	UQROO	HECTOR GAMBOA	D		
	Amigos de Sian Ka'an	ROSA MARIA LORETO	ED		
	SEDUMA				
	CETMAR				
	AMAC				
	SAGARPA				
	CAPA				
	CINVESTAV	GERARDO GOLD	D	ED	
	CONABIO				
BELIZE	OFICINA METEOROLOGICA	CARLOS FULLER			E
	LIC	DOREEN FAIRWEATHER	D		D
	CZMA&I	JANET GIBSON	ED		E
	FISHERIES DEPARTAMENT	JAMES AZUETA	ED		
	UB	EDEN GARCIA	ED		
	DOE	JORGE FRANCO , ISMAEL FABRO	D	D	
	COLLABON				
	NGOS				
	TIDE	WILL MAHEIA	D		
	BAS				
	GREEN REEF				
	PUBLIC HEALTH				
	FOREST DEPARTAMENT				
	SMITHSONIAN				
	FRIENDS OF NATURE				

GUATEMALA	**UNIPESCA**	ROSALINA VILLEDA	E	ED	E
	CONAP	FERNANDO CASTRO	ED	E	E
	U DE SAN CARLOS CEMA	GLENDA RICO	E	E	E
	FUNDARY	JEAN LUC BETOULLE	E	E	E
	INSIVUMEH				D
	FUNDAECO	MARCO VINICIO CEREZO	E		
	BASE NAVAL	COMANDANTE ECHEVERRIA	D	D	
	SHELL		D	D	
	MINISTRY OF ENERGY			D	
	AND MINING				
	EMPORNAC				
	CECON		L	L	L
	INAB				
	MINISTERIO DE SALUD				
	CITY CONSUL				
	U DE SAN CARLOS FCQF	FRANCISCO PEREZ SABINO		E	
	MINISTERIO DE AMBIENTE				
HONDURAS	PROLANSATE	RAFAEL SAMBULA	L	L	L
	METEOROLOGIA				D
	UNIVERSIDAD AUTONOMA	MIRNA MARIN	E	E	ED
	BICA	IRMA BRADY	E	E	E
	FUCSA				
	FHRPF				
	PMAIB	ENOC BURGOS BENNETT	D	D	D
	RIMS				
	MUNICIPALIDAD DE	JULISA ZAPATA	L	L	L
	PUERTO CORTES UGA				
	CESCO	JULIO MERIDA		ED	
	DIGEPESCA				
	DIBIO	SIXTO QUEZADA	EL	EL	EL
	MINISTERIO DE SALUD				
	ENP		L	L	L
	IGN		D	D	D
	ESNACIFOR		D	D	D
	UNITEC		ED	ED	ED
	AFE COHDEFOR		EL	EL	EL
	FUERZA NAVAL		D	D	D
	FUND. NOMBRE DE DIOS		EL	EL	EL
	FUN. CAYOS COCHINOS		EL	EL	EL
	SMITHSONIAN		D	D	D
Bold = Agencies that have confirmed their participation as counterparts					
E = Executing agency, D = Data provider, L = Logistic support					

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5. Component 3: Promotion of Sustainable Use of the Mesoamerican Reef System
Sub-component A: Promotion of Sustainable Fisheries Management

The objective of this component is to support the introduction of new political structures and management tools that may increase institutional capacity, dissemination of key information, and creation of the necessary incentives for users and interested parties in search of patterns in the sustainable use of MBRS resources.

Sub-component A: Promotion of Sustainable Fisheries Management:
This sub-component is oriented to some of the main causes of over-fishing, through support in the following specific activities:

1. Fisheries Monitoring:
This activity constitutes a follow up to the determination and mapping of spawning aggregation sites, carried out during the first year, with the objective of monitoring the status of these sites, during the following three years. However, during the Technical Working Group Meetings it was agreed that this activity should be reoriented towards the development of a Site Management Plan for the MBRS region.

To achieve this objective, it will be necessary to concentrate all efforts in monitoring the sites used by multiple species, in place of the sites used by only one specie. Monitoring will be carried out for a period of 12 consecutive months, instead of three months per year, for three years. The information collected during this new proposal can be used to develop a Fisheries Site Management Plan for the MBRS region.

It is important to stress that, according to the recommendations made by the Technical Working Groups, a 6 day theoretical-practical training on monitoring methodologies will be carried out in Belize to train personnel from the other three countries.

During the monitoring to be conducted, visual censuses will be performed using underwater videos in order to estimate changes in size, species composition and social behavior of aggregations. Exact geographical location and physical extension of aggregations will also be monitored using Global Positioning Systems. This activity will support the acquisition of basic equipment that is necessary for such monitoring (cameras, GPS units, nets, scales, microscopes, diving equipment, boats, etc.).

2. Sustainable Fisheries Management:

Evaluation of socio-economic interrelations between fishing and other user groups will be conducted in the coastal zone of the MBRS region, to identify positive relationships, as well as conflicts. This evaluation will recommend guidelines to strengthen positive relationships as well as measures for conflict resolution.

Additionally, there will be regional and national training for fishers, government officers, and members of non-government organizations, oriented towards the co-management of marine-coastal resources. The co-management topic will generate the work base to involve interested parties and users in the management of resources, promoting exchange of professionals and training in specific topics, with the purpose of educating technicians that may work in the management of fisheries within the MBRS. This will provide trained technicians for the region, faster than it would be possible to get them through long-term graduate programs.

3. Promotion of Sustainable Livelihood Activities:

This activity will support the training of fishers in alternative economic activities, in two of the priority trans-boundary areas of the MBRS region. Training will enable fishers to diversify from extractive fishing into more sustainable income generation practices.

Diversification of activities include, but are not limited to: kayaking, recreative fishing, tour guiding, diving instructors, etc. Funds will be made available to conduct training, as well as for the purchasing of equipment such as kayaks, recreative fishing gear, diving equipment and snorkels, training texts, etc.

5. Component 3: Promotion of sustainable use of the Mesoamerican Reef System
Sub-component B: Facilitation of Marine and Coastal Sustainable Tourism

The objective of this component is to provide and disseminate examples that demonstrate how to minimize adverse impacts of tourism, and strengthen those effects that benefit marine and coastal resources and habitat, as well as the human communities located close to tourism destinations. Those actions shall be consolidated through the statement of policy guidelines and models of practical improvements for sustainable marine and coastal tourism, in the four MBRS nations, through the following specific actions:

1. Regional Forum on Marine and Coastal Tourism:

This activity constitutes a follow-up to the establishment of the forum that is in the process of being implemented, and will provide funds to carry out an annual forum and training to prepare stakeholders in tourism best practices.

The fora are expected to produce concrete recommendations that will facilitate the formulation of tourism policies to support the directors of MPAs in their protection tasks, as well as agreement between the tourism industry and non-government organizations in the evaluation of environmental impacts, tourist carrying capacity, inspection and development of consensus in priority actions, and regional strategies for best practices.

2. Certification Program for Environmentally Sustainable Tourism:

This activity is a follow-up to the consultation carried out last year on adaptability mechanisms of the Certification Program for Environmentally Sustainable Tourism (CST), designed in Costa Rica and agreed as a model by the tourism ministers of Central America. It is important to emphasize that the CST was officially approved by the countries in the region, and it focuses on the hotel sector. The implementation of the CST is dependent on the private sector.

The MBRS Project will promote the existence of the CST Program using the diverse media that are available.

The Technical Working Groups recommended the elaboration of a Regional Tourism Development Plan. This is a multi-sectoral and complex topic and was not identified as a priority activity in the design of the Project.

It is important to emphasize that the recommendation for a Tourism Site Development Plans although important, should be dealt with at the national level, due to its geographic and country-specific nature.

This year we will be contracting the services of an international expert as well as national experts to determine what tourism coastal marine operations can be certified and the mechanisms on certification that should be used for specific activities such as diving, anchoring, sport fishing, marine activity and other aquatic sports.

In addition, the feasibility of initiating a pilot program with the characteristics of Blue Flag, designed by the United Nations Environment Program (UNEP) will be explored.

3. Training in Environmental Impact Assessment:

The need to evaluate the environmental impacts of tourism infrastructure and operations justify the need for this activity, which will be supported by expert technical assistance in the training of MPA directors and government authorities responsible for authorizing tourism infrastructure development and operations.

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6. Component 4. Public Awareness and Environmental Education

I. Objective

Over time, decision makers in the countries and the region acknowledge the fundamental role of public awareness in determining national priorities, establishing the bases to regional environmental policies, and building the necessary population support to catalyze changes that are inherent to development and natural events. Based on the process of creating public awareness for the conservation of the MBRS, and the fact that environmental education is not mandatory in some of the project member countries, the Awareness and Environmental Education Component seeks to increase the knowledge of the population on the value of the MBRS, and foster understanding of the impact of development on this unique resource.

Thus, the following activities will be conducted through the awareness campaign:

- Increase awareness, particularly among youths, on the marine/coastal environment subjects.
- Active participation of people in environmental activities.
- Promote specific environmental topics such as cleaning public places, appropriate use of consumer products that affect the environment, labels with coastal ecology and recycling information.
- All activities resulting from the four components of the project (Protected Areas, environmental Monitoring, Sustainable Use and Environmental Awareness) will be promoted through information campaigns.
- Focus efforts of the Ministries of the Environment on the promotion of awareness among all sectors of the community, giving special emphasis to the target population identified during the first working group meeting (service providers, fishermen, tourists, key decision makers, industrial sector, domestic sector and maritime transportation).

Likewise, the Formal and Informal Education Sub-component will:

- Influence the education curriculum of the MBRS member countries, promoting the adoption of an environmental subject curricula with a marine coastal approach, specific for elementary and secondary levels.
- Supporting the Regional Communication Strategy along with CCAD and the MBC, through training in public relations to the four MBRS focal points, and making information of the project continuously available to them, as a source of information.

II. Public Awareness Sub-component

Several initiatives have been proposed in terms of promoting sustainable fisheries and tourism, and cleanliness in public places, especially the coast, beaches, and near by roads. Hence, to support these national and regional efforts, the main activities during the year will focus on several central projects in which the target audiences will be able to participate.

1. A regional campaign for promotion of appropriate fishing.

2. A regional campaign on appropriate use of polluting products.

3. Establishing publicity advertisements in strategic sites of the region, giving priority to ports, borders, transportation terminals, airports, highways and/or important roads.

These campaigns will be achieved through the implementation of an image bank that will be fed by the countries through the National Coordinators, and the elaboration and diffusion of radio and television spots, radio programs, booklets, stickers, brochures and posters, specially designed for this purpose. Potential contacts with networks, groups, and strategic community partners identified in the Regional Public Awareness Strategy (Fishing cooperative societies, municipalities, trusts, students environmental associations, tourism associations, NGO's and other proactive groups) will be used for diffusion, dissemination of information, and follow up of some specific actions such as campaign monitoring. All elements contemplated for the campaigns will be adapted to popular language in order to be easily understood, and in some cases they will be in Ketchi and Garifuna languages. In regards to publicity advertisements, the Project will be responsible for its elaboration and installation in coordination with the National Coordinators, who will be responsible to liaise with the competent authorities to obtain the corresponding permits. Their maintenance will be the responsibility of the countries themselves.

Without hindering the objective of the sub-component, which is to build public awareness of the high value of coastal resources and the impact of development on them, the following objectives shall also be pursued:

1. Contribute to the establishment of economical, political, ecological, spacial and cultural sustainability of coastal villages in the medium to long term, that will result in:

A. Strengthening the harmonic co-existence between populations and their environment (Particularly ethnic communities).
B. Decreasing the impact of inappropriate use of fishing resources, pollutants, and tourism.
C. Promoting the establishment of local campaigns on the topics being promoted by the MBRS.
D. Promoting the conscious participation in resolving environmental problems.
E. Encouraging the maintenance of basic sanitary conditions in public and private places.
F. Promoting measures for alternative generation of income for the population using practical ideas.
G. Promoting the practice and valuation of popular traditional knowledge.

Some parameters to be taken into consideration will be the origin of populations, characteristics of migratory flow, gender considerations, influential technological models, profitability of productive activities, environmental vulnerability, fishing conflicts, community services and facilities, participation levels, and traditional knowledge. The most appropriate indicators are:

In the mid term:

1) Decrease in the number of closed seasons violations, as well as a reduction in negative extraction uses during the open season.
2) Increase in the percentage of new parties involved in environmental issues.
3) Decrease in the number of household pollution incidence due to aerosols, heavy detergents, and lack of sanitation.
4) Increase in the number of new activities based on MBRS campaigns (particularly among students, groups of women, and NGO's).
5) Increase in the number of consultations from interested parties in Project activities.

In the long term:

1) Strengthen local markets with the presence of high commercial value fishing products.
2) Improve quality of services and facilities in communities.
3) Decrease incidence of coral species death due to marine pollution
4) Increase number of women involved in alternative income generation projects.
5) Sites with landscape beauty and cultural value.

These projects will be accompanied by a large information campaign, encouraging local authorities to become accountable for the compliance with environmental standards, regulations, and legal dispositions.

The campaign is expected to go beyond the borders of the Mesoamerican region through information pamphlets and bulletins addressed to the international community, in order to promote discussion of the topic at the international level.

III. Formal and Informal Education Sub-Component

Education is a mandatory requirement to build a world with food security, reduce poverty, and promote sustainable management of natural resources. Though the education authorities address teaching subjects under a holistic approach, priority is given to elementary education. Their attention is directed to widen access to instruction and improve school attendance in the rural zones.

Parallel to the awareness campaign process, environmental subjects will be incorporated in to educational curricula, with criteria and contents related to coastal marine management, to be taught in elementary and secondary levels at the educational systems in the region.

This includes training teachers on the development and application of basic guides, as well as elaboration and distribution of elementary and secondary school packages, in order to achieve comprehensive education of children, youths and adults, through the preparation of environmental teaching programs that meet the needs of marine coastal development, and the participation demands of the interested parties at the national, regional and global levels.

The process will include:

1. Involving focal points in close coordination with key people from national reef committees to establish dialogue and initial discussion spaces with the education authorities of each country. Expectations, links, and responsibility to carry out activities in each country will be established here.
2. Making use of other similar initiatives such as the Mesoamerican Biological Corridor and the universities in order to establish the necessary synergies for the presentation of a sole comprehensive curriculum.
3. Searching and evaluating regional and international capacities to achieve curricula that may adapt to the education systems in the region.

The most appropriate indicators will be:

- Percentage of environmental subjects appropriate to marine coastal matters.
- Percentage of schools covered by curricular packages.
- Number of teachers trained in the development of didactic guides.
- Number of students involved in local marine coastal management activities.

Additionally, this sub-component will insert the socioeconomic indicators in the training programs of the other components of the project, in terms of alternative income generation, management plan formulation and formulation of other plans, particularly concerning development plans for ethnic communities participation.

IV. Publications

The most feasible and appropriate means will be used to support the campaign, increase the awareness, and introduce environmental and social sustainability criteria: posters, brochures, stickers and technical scientific research.

V. Policy Harmonization

A regional expert of the IUCN Environmental Law Center will be contracted with the purpose of translating the technical products of the Project into policies.

VI. Communication

Knowledge and information are essential factors for people to take advantage of the opportunities and challenges produced by socio-environmental, economical and technological changes, especially those contributing to increasing productivity, food security and means of life of the population. However, to be useful, knowledge and education must be effectively communicated to people. Communication for development proposed by the MBRS through the Environmental Education Sub-Component, includes various means and different approaches, such as popular diffusion means and traditional social groups, community radio broadcasters for community development, videos and multimedia modules to train priority groups, and the Internet to link researchers, educators, extensionists, and community action groups.

This approach pursues the use of communication processes and means, aimed to help the rural population exchange experiences, find common bases for cooperation, actively participate in marine coastal development and negotiation activities, assuring a well informed decision making.

The process will include:

1. Establishing an economic fund to cover expenditures related to newspaper publications and radio and television spaces of the Project.
2. Training ministerial press staff and/or local communicators. Additionally, technical assistance will be offered in communication policy elaboration, methodology, audiovisuals, and suitable messages.

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7. Project Management

The implementation of the MBRS project actually started in November 30, 2001, with the signing of the GEF Grant Agreement and its ratification. Since then the Project has been involved in an intense contracting and consultation program, according to the stipulations of the Work Plan approved for the July 2001 to July 2002 period. It is impossible to implement a year of activities in just seven months, which results in the need to transfer some activities from PY1 to PY2. Likewise, several activities that were initiated in PY1 are still under execution, and will therefore need to be carried over into PY2.

The draft Work Plan for the July 2002 - July 2003 period elaborated by the PCU describes a series of critical activities that will be necessary to follow up the activities initiated in PY2, as well as the introduction of new topics, consistent with the global and specific objectives of the Project. The current Work Plan also intends to respond to the changes in the reality of the MBRS region in the best possible way. Besides providing technical validation to the activities proposed in the draft, the TWGs will have a key role in ensuring that the Work Plan reflects institutional, human realities of the different priority geographical areas of the MBRS region. The success in the implementation of the Work Plan will depend on the consolidation of the counterpart commitments from the four countries involved.

In addition to validating the Work Plan, the TWGs will have the difficult task of concretizing the recommendations for the execution of the activities of the Project, clearly defining the existing and available counterpart contributions in the MBRS countries. TWGs will meet once during PY2; in June 2003 to develop the Work Plan for the 2003-2004 period.

During the 2003-2004 period, the Project will also have specialized technical support through experts in the MBRS countries, as well as experts from different parts of the world. Though no experts meeting on environmental monitoring will be carried out in PY2, the Project will have the support of technical inputs via e-mails, as well as through specialized services to be contracted. The best efforts will be made to maximize the use of specialists from within the MBRS region. The contribution of experts is necessary to maintain the highest technical level in the activities being carried out by the Project, particularly in establishing baselines for environmental monitoring and the monitoring of MPA effectiveness.

The *Technical Advisory Committee* (TAC) will have a key role in the contribution of technical support. Even though it does not have a specific budget within the Project, and though it only exists virtually, this Committee plays an important role in the Project Management. The TAC will provide impartial input on technical matters, according to experiences acquired in different parts of the world. Inputs from the TAC will be requested for all components of the Project. Expert Meetings carried out during PY1 were essentially physical representations of the TAC, where the existing level of interest and support to the MBRS Project was demonstrated. It is fundamental to maintain this level of ownership for the activities in the MBRS region.

Consistent with the need to ensure regional participation from all interest groups, the Project will be supported by the *Consultative Group* (CG), which is actually a forum of "donors", where it will be possible to compare Regional Work Agendas, in an effort to identify synergies, overlapping, and gaps in the regional actions focused at the MBRS. This is useful to avoid duplication of effort, and to be able to optimize the use of human and financial resources available in the region. During the Second Ordinary Meeting of the Regional Steering Committee (RSC), CCAD presented a proposal for the establishment of a single *CCAD Institutional Consultative Group,* instead of a group for each project that exists within CCAD's framework. Each Project will have separate sessions during the meetings for of this single CG. Matters specific to projects will be discussed in these separate sessions. The first meeting of CCAD's Institutional Consultative Group will be programmed for August 2002. The CG will meet at least once during PY2, and participants will be expected to cover their participation expenses. The MBRS project will have to participate in all preparation and execution aspects of this meeting to ensure that the Project receives appropriate attention.

The **Regional Steering Committee** (RSC) will meet at least three times during PY2, and the Project will cover all expenses related to said meetings. During the first seven months of execution of the Project, a high level of dynamism has become evident in the MBRS region, which presents important challenges for the RSC. Circumstances in the countries are under a continuous process of change, resulting in the need for the RSC to adopt highly dynamic decision-making mechanisms. These decisions will of course have immediate effects on the implementation of the Project's activities, cost implications and changes in the execution periods of some activities. It is fundamental to include an item for "contingency" so that the PCU can respond and follow-up on the incidents that could arise as a result of this dynamism. This item has been included in the budget for 2002-2003.

During the Second Regular Session of the RSC, the need of a mechanism for translation of technical products into policies, to facilitate their adoption by the countries was identified. It was agreed to contract the services of the Environmental Law Center at UICN to carry out those translations, and the corresponding costs have been included in the budget for the 2002-2003 period. It is assumed that with the contracting of UICN, the Policy Working Group will meet only once a year. Translation of key documents from Spanish into English and contracting simultaneous translation services for the regional meetings of the Project have also been included in the budget for the 2002-2003 period.

The PCU is the nucleus of the MBRS Project and it is responsible for the implementation of the Project daily activities. Communication and coordination costs between the four MBRS countries, CCAD, UNDP, and the World Bank, as well as with other partners in the region are high, and thus, they represent an important part of the budget. This situation is multiplied by logistic costs related to the preparation and execution of regional meetings. Undoubtedly, the need to establish alliances with other organizations and Projects in the region will result in an increase of regional coordination costs as well. The cost of annual auditing has also been included in the budget.

UNDP will continue supporting the Project in specific aspects of procurement and disbursement. The role of UNDP will be key during the 2002-2003 period, particularly in the procurement and distribution of goods to the four countries, and in the supervision of works. The Work Plan represents the highest volume of goods to be procured throughout the life of the Project. These services will be remunerated at a rate of 3.2% of funds disbursed by UNDP on behalf of the MBRS Project.