

PROJECT BRIEF

1. Identifiers

Project Number:
Project Name: Belize: Conservation and Sustainable Use of the Barrier Reef Complex
Duration: Five years
Implementing Agency: United Nations Development Programme
Executing Agency: Ministry of Agriculture and Fisheries
Requesting Country: Belize
Eligibility: CBD ratification: December, 1993
GEF Focal Area: Biodiversity
GEF Programming Framework: Coastal, Marine, and Freshwater Ecosystems

2. Summary

Belize's coastal zone contains a globally significant diversity of ecosystems and organisms, of which the most striking is the longest barrier reef in the Western Hemisphere, stretching 220 kilometers along the country's coastline. The government has demonstrated its commitment to the sustainable use and conservation of these coastal resources by, among other initiatives, passing the *Coastal Zone Management Act* that provides the institutional framework for intersectoral coordination. The proposed project builds on the achievements of the pilot phase initiative by consolidating and implementing the institutional structures, financing mechanisms, regulatory frameworks, and conservation priorities identified during the pilot phase. More specifically, it will complement the implementation of the *CZM Act* by undertaking targeted interventions for biodiversity protection. These measures include operationalizing a network of 7 marine protected areas (five of which were designated as World Heritage Sites under the aegis of the pilot phase project); integrating development planning on the cayes with marine biodiversity conservation principles; implementing pilot phase findings on a sustainable financing mechanism; addressing legal and institutional barriers to bioprospecting; and complementing widespread environmental conservation advocacy with coastal and marine biodiversity concerns.

3. Costs and Financing (Million US\$)

GEF:	-Project	USD\$ 5.355 m
	[Of which project support costs are:	USD\$ 0.181 m]
Co-financing:		USD\$ 2.015 m
	Government of Belize	USD\$ 0.754 m
	EU	USD\$ 0.661 m
	Wildlife Conservation Society	USD\$ 0.5 m
	IDB	USD\$ 0.1 m
Total Project Cost:		USD\$ 7.37 m
<i>Additional co-financing under negotiation (see footnotes 8 and 10):</i>		<i>0.260 to 0.310</i>

LIST OF ABBREVIATIONS AND ACRONYMS

BTB	Belize Tourist Board
CAC	Coastal Advisory Committees
CARICOMP	Caribbean Coastal Marine Productivity
CBD	Convention on Biological Diversity
CHPA	Central Housing and Planning Authority
CZM	Coastal Zone Management
CZMA	Coastal Zone Management Authority
DoE	Department of Environment
EIA	Environmental Impact Assessment
EU	European Union
GIS	Geographic Information System
GoB	Government of Belize
ICZM	Integrated Coastal Zone Management
IDB	Inter-American Development Bank
IUCN	International Union for the Conservation of Nature
LIC	Lands Information Center
MPA	Marine Protected Area
MPAAC	Marine Protected Area Advisory Committees
NEAP	National Environmental Action Plan
NGO	Non Government Organizations
ODA	Overseas Development Administration
PDF	Project Development Facility
PIR	Portfolio Implementation Review
STAP	Scientific and Technical Advisory Panel
TIDE	Toledo Institute for Development and Environment
UCB	University College of Belize
UNDP	United Nations Development Programme
USAID	United States Agency for International Development
WCS	Wildlife Conservation Society
WHS	World Heritage Site
WRISCS	Watershed-Reef Interconnectivity Scientific Study

1. BACKGROUND AND CONTEXT

Biodiversity context

1. Situated in the Wider Caribbean Region, Belize's coastal zone supports a wide diversity of ecosystems and organisms, many of which are gradually being degraded by developmental pressures. The coastal zone is central to economic and socio-cultural development. Over 50% of Belize's national territory is under the sea, and the variety of reef formations occurring here are unparalleled elsewhere in the Caribbean. The most striking feature is the longest barrier reef in the Western Hemisphere, stretching 220 kilometers along the country's coastline, second in size only to the Australian Great Barrier Reef. Associated with this barrier reef complex are three offshore atolls that are classic examples of atolls in the Caribbean, over 1,060 sand and mangrove cayes, seagrass beds, extensive mangroves, littoral forest, estuaries and wetlands. Many endangered species such as the West Indian Manatee, American Crocodile, sea turtles, and several threatened bird species, inhabit the coastal region.

2. The coral reef ecosystem is highly diverse in terms of taxonomic variety. The framework built by corals and algae supports a variety of sponges, sea whips, sea anemones, worms, tube worms, shrimps, crabs, lobsters, snails, clams, starfish, brittle-stars, feather stars, sea urchins, sea cucumbers, and fish. The most impressive mangrove forests in the Caribbean are found along the Central American coast.

3. Annex 7 provides further details on globally significant biodiversity of the proposed network of MPAs, five of which are World Heritage Sites. These sites have been declared World Heritage sites because of the following features: these areas are outstanding examples representing major stages of earth's history, significant on-going ecological and biological processes in the development of coastal and marine ecosystems, superlative natural phenomena and areas of exceptional beauty, and finally, habitats for threatened species of outstanding universal value from the point of view of science and conservation.

Socio-economic context

4. The total population of Belize stands at roughly 230,000 persons. Although the country has received several thousand refugees from Central America, the population density figure is still the lowest in the region (9 persons per square kilometer in 1995). Clearly, the severe demographic pressures which have caused exploitation and over-use of resources in other parts of the world are relatively muted in the Belizean context. However, population aggregation in the coastal zone suggests mounting pressures. The economy has performed well, and has been growing at an average rate of 2.7% since 1993. Much of this growth has been driven by rapid expansion of agriculture, fisheries and tourism, all of which rely heavily on natural resources.

Legislative and Institutional context

5. Belize has demonstrated strong legal commitment to the conservation of coastal and marine biodiversity at both the international and national levels. It ratified the MARPOL in 1995, the Convention on Biological Diversity in December 1993, the World Heritage Convention in 1990, and CITES in 1976, amongst others. At the national level

there is a whole gamut of legislation that has a bearing on coastal and marine resources. The most important of these are: the Forest Act, Forests (Protection of Mangroves) Regulations, the National Parks Act, the Environmental Protection Act, the Protected Areas Conservation Trust Act, Wildlife Protection Act and the Fisheries Act (this has recently been extensively revised and strengthened, but has yet to be passed and gazetted). Of prime significance to this project is the Coastal Zone Management Act that took effect on May 8, 1998¹. This Act mandates the creation of a special body, the Coastal Zone Management Authority and a supporting technical Institute to coordinate and manage all the different sectors active in the coastal zone.

6. Belize provides a sterling example of a developing country with progressive legislation that mandates the reinvesting of returns from natural resource use back into creating, building and sustaining natural capital, a process that is in the interest of the international community. For example, the CZM Act mandates the use of divers and sportfishing fees to support the CZM Authority and technical Institute and, as is the case in Hol Chan Marine Reserve, 80% of park entrance fees are reinvested in the upkeep and maintenance of the park. This model of reinvesting 80% of park entrance fees will be implemented within the network of marine protected areas operationalized by the project (see paragraph 38).

2. BASELINE COURSE OF ACTION

7. The Belize Barrier Reef complex (including cayes, atolls, and the swampy coast) and the associated marine flora and fauna are susceptible to increasing degradation from economic activities². Many of the threats to coastal and marine biodiversity are common to other parts of the Caribbean, and are briefly listed below.

- a) Poorly controlled exploitation of coastal and offshore natural resources.
- b) Offshore dredging and land reclamation operations.
- c) Coastline development.
- d) Industrial effluents.
- e) Agricultural run-off (e.g., pesticides, fertilizers, sediment).

8. The Independent Evaluation of the pilot phase project, while recognizing the achievements in institutional structuring, legislative review, designation of Marine Reserves, data and information gathering for decision making, and consensus building across all sectors of Belizean society, recommends continued efforts and support to the development of integrated coastal zone management (ICZM). The government will be building on the achievements thus far and furthering the process of mainstreaming ICZM into national development. It will also be undertaking some actions directed at marine biodiversity conservation. Government efforts in relation to ICZM have been included within the system boundary because activities that take place in the coastal

¹ The CZM Act was first approved by Cabinet. It then went through 3 sittings of the House of Representatives, was then approved by the Senate, after which it was signed by the Governor General (on the 16th April 1998). It was published in the government gazette of the 25th April 1998, as No. 5 of 1998. The Act is now law, as the Minister of Agriculture and Fisheries signed the Statutory Instrument stating that the Act should come into force on the 8th May, 1998.

² Annex 4 provides a detailed description of the proximate threats to the different habitats and threatened and vulnerable marine fauna. It also identifies the underlying causes and required actions to address these problems.

zone have a bearing on the ecological integrity of the highly diverse and globally significant barrier reef complex. The activities described below are concomitant with national priorities, and highlight the need for additional measures targeted to conservation of the barrier reef complex.

Coastal zone planning and management

(Baseline costs US\$ 1,225,945: see paragraph 60).

9. As such, integrated coastal zone management is an essential component of Belize's environmental and biodiversity conservation strategy, as identified in the NEAP (prepared in 1996 with funding from the World Bank) and the Biodiversity Strategy and Action Plan (in preparation with support from UNDP-GEF). National political commitment for integrated coastal zone management has been demonstrated by the approval of the CZM Act legally establishing a CZM Authority and supporting Technical Institute. The Authority includes Permanent Secretaries of the Ministries of Agriculture and Fisheries, Natural Resources, Tourism and Environment, and Economic Development, as well as the President of the University College of Belize, and representatives from the NGO community and the private sector. The Authority thus provides an overarching body able to ensure the effective coordination of activities and legislation in all sectors. The CZM Technical Institute will provide required technical assistance and information to line ministries based on applied research and data analysis thereby enabling informed decision-making. Responsibilities will be clearly outlined for the different decision making bodies through explicit terms of reference that will be agreed by all parties.

10. The political support and institutional foundation for the conservation and sustainable use of coastal and marine biodiversity are firmly in place. With these elements, Belize has completed many of the essential actions called for by Steps 1 and 2 (respectively, identification and assessment and preparation of a plan or programme) of the coastal management cycle described by GESAMP (GESAMP, 1996). These two stages commonly take between 3.5 - 6.5 years depending on the degree of information available, the history of stakeholder participation and the complexity of socio-economic and environmental conditions of the region. The third phase consists of the formal adoption of the CZM Plan and involves passage of legislation or official endorsement and funding for implementation of selected priority actions.

11. In the baseline, resources will also be devoted to data collection and monitoring, which are essential inputs for informed decision-making on coastal zone management. Monitoring will take place at discrete sites along the reef by Coral Caye Conservation and University College of Belize, and also at CARICOMP³ sites. These efforts need to be complemented with a comprehensive network of monitoring sites that in particular includes strategically located "hot spot" areas. There is no centralized, well-advertised coastal zone database that provides access to all interested parties, apart from the *Cayes*

³ Monitoring the productivity (and not health) of coral reef, seagrass, and mangrove ecosystems.

database and the *Inventory of Coastal Resources and Uses* produced by the pilot-phase project. There is, hence, an urgent need for better access to and exchange of data.

12. In terms of GIS mapping of these data the Lands Information Center (LIC) has some capacity and will be devoting resources to mapping. LIC's focus, however, is primarily on terrestrial data. In terms of research, the Wildlife Conservation Society and the Smithsonian Institution are working on comprehensive scientific analyses whose valuable results would also benefit from greater availability for planning application and decision-making.

Marine protected areas

(Baseline costs US\$ 2,625,125: see paragraph 60).

13. Belize has a fairly extensive network of designated and proposed marine protected areas. The responsibility for managing existing MPAs is largely vested with the Department of Fisheries (within the Ministry of Agriculture and Fisheries). Given the financial, technical and human resource capacities of the Ministry, it will primarily be focusing efforts on the management of the Hol Chan Marine Reserve. At Hol Chan, 80% of revenues remain within the protected area for management and operations, a model that is proving to be sustainable. Belize Audubon Society will be managing two of the seven World Heritage Sites (Half Moon Caye and Blue Hole). For the effective conservation of the remaining sites that constitute a representative network of MPAs, additional resources will be needed for the high initial costs of putting in place effective management and operations. Management plans need to be revised and updated so that new information is used to adapt the management strategy as necessary.

14. Recognizing the many useful ecological services provided by mangroves (habitat for threatened species, pollutant and sediment filters, shoreline protection) the government has appointed a national mangroves manager (within the Forest Department) to coordinate protection and permitting of mangrove use nation-wide (mainland and cayes). The government has also prepared a national mangrove protection plan.

15. In order to protect the reefs from anchor damage, the pilot-phase project and the Department of Fisheries initiated a network of mooring buoy installations. More recently, this program has been strengthened by the Belize Tourist Board (BTB) and Department of Fisheries is undertaking a more comprehensive program that has been financed through fines collected from cruise ship damage. While this is an important initial investment, more effort needs to be directed to installing buoys. The upkeep and maintenance of marine buoys is equally important if they are to protect against accidental anchor damage, and this will not be addressed in the baseline.

Caye development plans

(Baseline costs US\$ 557,035: see paragraph 60).

16. The pilot-phase project (1995) prepared a Cayes Development Policy. This Policy was developed out of a need to put in place some control over the development of cayes⁴ as caye residing communities have a direct impact on the health of the ecosystem (such as the impact of inappropriate treatment and disposal of sewage). Currently, overall caye policies do not explicitly look at integrating conservation concerns for marine biodiversity with Caye Development Plans. There is a need to design and implement caye development guidelines that integrate biodiversity conservation concerns.

17. Non-biodegradable solid waste, particularly waste that originates from cayes, is a growing concern for the health of the reef system (plastics and heavy metals are very harmful to the reef) and on the nesting and foraging sites of threatened and vulnerable marine species. The Department of Environment will be embarking on a program to address the appropriate disposal of solid wastes. Under this program, supported by the IDB, best-practice methods for solid waste disposal will be developed. Although this program is national in scope, it will be looking at Cayes as a special case and plans to use Caye Caulker as a demonstration.

Sustainable financing mechanism

(Baseline costs US\$ 503,671: see paragraph 60).

18. The policy environment in Belize is very conducive to the use of economic instruments to promote biodiversity conservation. In particular, the government established a Protected Areas Conservation Trust in 1996 to enable the sustainable stewardship of Belize's natural resources. Revenues come from a departure tax on tourists and 20% of all park entrance fees. PACT provides grants to protected areas (terrestrial and marine), community-based organizations located within buffers of protected areas, and important archaeological sites. Based on past trends, only 25% of PACT grant allocations go towards marine protected areas. During the pilot phase a detailed study on sustainable financing mechanisms (Panayotou and others, 1995) identified several other economic instruments. These findings will be implemented under the GEF Alternative and targeted to cover recurrent costs of both, MPAs and coastal zone planning and management.

Education, awareness and information dissemination

(Baseline costs US\$ 128, 375: see paragraph 60).

19. Environmental education at the primary and secondary school level was established as part of school curricula as far back as the early 1990s. Several NGOs have been involved in this effort, including BAS, Belize Center of Environmental Studies and the Belize Zoo. University College of Belize has recently formed a Science Department and has a program in Natural Resources Management with a marine component. It also has a degree in Education with a marine biology component.

20. Public awareness of environmental issues in Belize is high, partly due to the strong campaigning and advocacy programs of the pilot-phase project (through seminars and "conservation weeks"), NGOs and other agencies. These efforts must continue, as it is important to continuously raise awareness among successive age groups. While these

⁴ The cayes are adjacent to the barrier reef complex.

programs have raised the level of awareness about environmental issues in general, coastal zone management and the interlinkages between actions in far-flung regions and the marine resource base are still relatively poorly understood. It is also important to target these activities to a specific audience namely, government officials, legislators, youth, new immigrants, and coastal developers. A particular weakness of the baseline is the lack of attention to dissemination and exchange of expertise and experience in CZM between countries of the region. Other Caribbean and South American nations face many of the same problems in their coastal zones and are grappling with similar issues.

Coastal watershed management

(Baseline costs US\$ 3,270,000: see paragraph 60).

21. As outlined in Annex 6 several of the long-term threats to the reef originate in coastal watersheds. While satellite images of the sediment plume entering coastal waters indicate that this is not a problem of immediate concern, these issues must be addressed over the long-term. The government will be devoting resources to the management of coastal watersheds as part of its own sustainable development goals. The Ministry of Agriculture and Fisheries, with assistance from USAID, has provided training courses on integrated pest management. The Department of Agriculture is also working closely with farmers, community-based organizations and growers' associations to encourage self-regulation with regard to environmental protection and sustainable agriculture. Many farmers are introducing mucuna cover crops to reduce erosion and bubble-house technology for vegetable production that eliminates pesticide use, while increasing quantity and quality of production. In addition, permanent hillside agriculture is being promoted, using model farms, aimed at replacing shifting cultivation and the slash-and-burn milpa system.

22. The Forest Department, with assistance from UK-ODA, has identified land that is best kept under forests for the better protection of watersheds, catchment areas, drainage basins and steep hill slopes for the prevention of erosion, control of run-off, regulation of stream-flow, and stabilization of micro-climate. These lands are categorized as "protection" forest. There are currently 17 such reserves covering 21% of the country.

23. In the baseline, an EU-funded study will be looking specifically at the impact of changing landuse practices on the coastal zone in the Southern region of Belize. This study, by tracking sediment loads and agrochemicals that adhere to sediment, will provide essential information for the local management of land and coastal resources and could have wider application in other parts of the country.

24. The Department of Environment is playing an active role in regulating industrial pollution originating in coastal watersheds. Through its effluent standards and EIA process they can regulate industrial development that result in hazardous and industrial waste. In addition, through the special planning mechanisms of the Lands Department, namely the Special Development Areas and the CHPA (Central Housing and Planning Authority), siting is being regulated, for example by ensuring location away from particularly vulnerable watercourses.

3. RATIONALE AND OBJECTIVES (ALTERNATIVE STRATEGY)

25. The GEF Alternative builds on the achievements of the pilot phase project by consolidating, operationalizing and implementing the institutional structures, financing mechanisms, regulatory frameworks, and conservation priorities identified during the pilot phase. As a result of the Pilot Phase project, Belize has successfully completed steps 1 and 2 of an accepted planning cycle for coastal zone management⁵ referred to as

⁵ Phase 1 is the Identification and Assessment phase. Phase 2 involves scientific research to understand the region, formulation of specific objectives, policies, guidelines, and priority actions. These 2 phases combined can take between 3.5 to 6.5 years. Phase 3 marks a shift in focus from the technical issues to the political process that results in the formal adoption of the CZM Plan through legislation.

the *assessment, planning, and identification stage*, and as such possesses the required information, institutional framework and political support necessary to initiate the next steps in a CZM planning cycle. The final evaluation of the Pilot Phase project placed Belize at the critical juncture, or transition phase, between planning and implementation, namely the beginning of phase 3. This phase is far more operational in nature and typically involves: the passing of legislation, the operationalization of institutional coordinating structures, the establishment of mechanisms for stakeholder participation, the implementation of financing schemes for self-sustaining conservation, and the design of a policy framework to effectively guide and mainstream conservation values into coastal development planning.

26. The pilot phase project was designed to initiate a long-term process aimed at overcoming key barriers to effective management and conservation of globally significant coastal and marine biodiversity. Barriers included: **(a)** absence of an effective institutional framework to coordinate the mandates and programmes of the different agencies and institutions with management responsibilities over coastal resources; **(b)** conflicting or overlapping policies and regulatory frameworks; **(c)** insufficient scientific data and information for effective policy and decision making; **(d)** absence of economic analyses regarding the value of biodiversity resources to national development, as well as appropriate economic instruments and financial mechanisms to sustain conservation; and **(e)** inadequate public awareness regarding the benefits, goods and services derived from the sustainable management of biodiversity resources.

27. The achievements of the pilot phase project are best described under the four broad headings listed below:

(i) Institutional foundation and legal framework

- Establishment of a *Coastal Zone Management Authority (CZMA)* - comprised of the Permanent Secretaries of the Ministries of Economic Development, Agriculture and Fisheries, Tourism and Environment, and Natural Resources, as well as representatives of the private sector, NGOs and academia - to ensure effective intersectoral coordination and facilitate mainstreaming of biodiversity conservation issues into productive sector activity and policy development.
- Creation, as part of the CZMA, of a *Technical Institute*, to provide reliable scientific data and information to CZMA members for decision making, appraisal of potential benefits or impacts from investments and economic activities, design of programmes and projects to mitigate negative environmental impacts, and the integration of conservation principles into sectoral activity.
- Development of policies and guidelines governing coastal development, including aquaculture, caye development, dredging, cruise ship activity, diving operations, oil spill contingency planning, and fisheries management.

(ii) Scientific data for baseline assessments and monitoring

- Establishment of a data center with information on species distribution, an inventory of critical habitats and high-vulnerability areas, reports on changes and trends identified as causing degradation of the coastal system, detailed studies and recommendations on appropriate management and protection

measures for endangered species, such as crocodiles and manatees, and use of remote sensing and GIS to map baseline data.

- Introduction of water quality and coral reef monitoring programs through networks and partnerships with government agencies, NGOs and other Universities (covering 28 critical sites along the reef).
- Provision of information - such as the role of marine reserves in enhancing fisheries production, and on populations of endangered species such as manatees and crocodiles - essential to the ecological-economic zoning of the coast, and to the design of preliminary MPA/reserve management plans.
- Provision of information instrumental to the negotiation and nomination of seven World Heritage Sites along the Belizean barrier reef complex in 1996.

(iii) Financial sustainability

- Identification of user fees such as (divers and sport fishing fees, marine dredging royalty, pesticide charge, product-charge on non-biodegradable goods) for coastal zone management.
- Analyses of the potential economic benefits associated with the maintenance of coastal biodiversity, including effect of marine protected areas on commercial yields.
- Detailed, costed options for various revenue generating alternatives to support an integrated coastal and marine resource management program.

(iv) Public awareness and participation.

- Increased public participation in the planning process through workshops and the formation of community advisory groups.
- Enhanced public awareness through environmental education programs primarily in partnership with NGOs, CBOs and academic institutions.
- Increased understanding and awareness of the intrinsic and economic value of coastal and marine biodiversity and the management of coastal resources.

28. The final evaluation of the pilot phase project produced the following recommendations:

1. *Strengthening CZM Policies, Plans and Implementing Arrangements* through:
 - (a) Definition of the Operational Roles and Procedures within the CZM Authority.
 - (b) A Demonstration Project in Participatory Management
 - (c) Definition of the CZM Plan as a National CZM Policy Framework.
 - (d) Adoption of a Financing Scheme for the Sustained Implementation of the Program.
2. *Generation of Knowledge in Support of Management* through:
 - (a) Baselines against which to monitor progress in an implementation phase
 - (b) Periodic self-assessments of progress towards effective management
 - (c) Periodic State-of-the-Coast Reports
3. *Building Constituencies for the CZM Program* through:
 - (a) Strategically Targeted Awareness Building
 - (b) Training for conservation and monitoring of coastal and marine biodiversity

29. The proposed GEF alternative builds on the achievements of the pilot phase project, and has taken into account key lessons learned and recommendations for a consolidation and implementation phase identified by the final evaluation of the pilot-phase project (see Annex 9). It will finalize the development of a *Coastal Zone Policy Framework*, a broad-based consultative process that is in the long-term interest of Belize and is therefore financed through government and EU co-financing. GEF resources will be targeted to direct actions for securing global conservation benefits⁶. Specifically, the Alternative will implement pilot-phase findings on global conservation priorities, sustainable revenue generating sources to cover recurrent costs and more targeted awareness-raising activities.

30. In line with guidance from the first COP, the GEF alternative will “promote the conservation and sustainable use of biological diversity of coastal and marine resources under threat”. As recommended by the COP, it will encourage “the use of integrated marine and coastal area management as the most suitable framework for addressing human impacts on marine and coastal biodiversity and for promoting conservation and sustainable use of this biodiversity” (GEF, Operational Program 2, Page 2-1).

31. Belize has an existing network of protected areas that includes seven recently declared World Heritage Sites⁷. Most of the existing network lacks adequate management and enforcement to ensure the conservation of marine biodiversity, and the project will address this crucial gap by strengthening the management, enforcement and technical capacities of government agencies responsible for marine protected areas. It will also extend the network to two new sites, one being Turneffe Atoll, a critical nesting site for the American crocodile. The second site, Caye Caulker, is facing mounting development pressures and will provide a good demonstration of how development on the cayes requires integration with protected areas. The table below lists marine protected areas in Belize indicating the project sites in italics (also, see map in Annex 7). Five of the seven project sites have been identified as international priorities by the World Heritage Convention and two as national priorities (See “A Global Representative System of Marine Protected Areas” prepared jointly by the Great Barrier Reef Authority, the World Bank, and IUCN).

⁶ While a major portion of the barrier reef complex lies within Belizean waters, it does extend into the territories of Mexico, Honduras and Guatemala. Regional action to address some of the pressures on the reef should therefore be part of a long-term conservation strategy. The World Bank is developing such a regional plan of action through PDF A funding that will address issues such as a regional coordination mechanism, harmonization of laws and regulations within the region, etc. A PDF B is currently under preparation and discussions with the formulation team will continue on how to maximize complementarities between the two initiatives. This project will provide a sound model that can be adapted and implemented by the other countries participating in the regional project.

⁷ World Heritage Sites must satisfy the following criteria:

Outstanding examples representing major stages of earth's history, including the record of life, significant on-going geological processes in the development of landforms, or significant geomorphic or physiographic features; or outstanding examples representing significant on-going ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of plants and animals; or contain superlative natural phenomena or areas of exceptional natural beauty & aesthetic importance; or contain the most important and significant natural habitats for in-situ conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation.

Table 1. Project Sites and how they fit in to the network of MPAs

1.	<i>Sapodilla Cayes (World Heritage Site)</i>
2.	<i>Laughing Bird (World Heritage Site)</i>
3.	<i>South Water Caye (World Heritage Site)</i>
4.	<i>Glover's Reef (World Heritage Site)</i>
5.	<i>Turneffe Atoll (to be designated; important crocodile nesting site)</i>
6.	<i>Caye Caulker (to be designated; high development pressures)</i>
7.	<i>Bacalar Chico (World Heritage Site)</i>
8.	Port Honduras (proposed, with plans being developed by an NGO named TIDE)
9.	Half Moon Caye (World Heritage Site; managed by BAS)
10.	Blue Hole (World Heritage Site, BAS is in the process of planning)
11.	Hol Chan (existing, relatively well-managed by Department of Fisheries)

32. The development goal of the project is to secure the conservation of options and existence values embodied in the second longest barrier reef system in the world. The project purpose (see Annex 2 for Project Planning Matrix) is to provide decision-makers and relevant stakeholders with the analytical, management, and technical capacities, decision-making and planning tools, and financial mechanisms and economic instruments for the long-term conservation of coastal and marine biodiversity. This will be achieved through the following components:

4. COMPONENTS AND EXPECTED RESULTS

Component 1: Consolidated capacity to effectively integrate biodiversity conservation concerns into a Coastal Zone Policy Framework. (Total: 2,215,750; Government: 250,000; EU: 461,200; GEF: 1,404,550)

33. The approach to addressing threats to coastal and marine resources over the *long-term* is an overarching Integrated Coastal Zone Management Plan, with detailed regional development plans that divide the coastal zone into more manageable regions. The independent evaluation of the pilot phase project concluded that production of a detailed ICZM Plan for the entire Belizean coastal/marine area was unrealistic and impractical given current institutional capacities, pressures on resources and the large size of the resource base relative to the first two factors. As such, the evaluation team strongly recommended that a more step-wise approach be taken commensurate with the projected growth in institutional and technical capacities and the management issues to be addressed.

34. Congruent with these recommendations, the project proposed here will prepare and seek enactment by legislature of a national *Coastal Zone Policy Framework* which: **(a)** addresses a coastal region defined to include the territorial sea, the Cayes, the reef and a section of the mainland coast or specific activities or resources on the mainland, to be determined; **(b)** is organized by management issue rather than by administrative or management unit; and **(c)** is structured around economic-ecological zoning which divides the coastal region by categories and intensities of use. The *Framework* will permit the implementation of specific plans and policies prepared during the pilot phase and guide future investments in the coastal zone.

35. Preparation of this *Policy Framework*, including broad stakeholder consultations as stipulated in the CZM Act (Outputs 1.1 to 1.5), *will be effected through co-financing from the government and EU*. In this regard, the project will establish Coastal Advisory Committees (CAC) whose recommendations will be fed to the CZMA to ensure that proposed plans are feasible and practical in the local context (see Annex 8). Capacity within the CZM Authority and the CACs needs to be created to effectively undertake these key steps in coordination with all sectors and stakeholders.

36. As recommended by the Final Evaluation there is a need for strengthening and generating knowledge in support of management. GEF will finance activities related to capacity strengthening for monitoring, data collection and analysis relating to the health of the reef at strategically located hot spots (as recommended by the final evaluation) and within the MPA network. Capacity building for research, monitoring, data collection and analysis will assist in adapting management plans of the network of MPAs and will also guide and facilitate decision making by the CZMA on aspects relevant to conservation of the globally significant Belizean barrier reef complex.

Outputs:

- 1.1 *Coastal Zone Policy Framework*, with the characteristics outlined in paragraph 35 above, and based on the priority recommendations included in the State of the Coastal Zone Report.
- 1.2 Stakeholder support of the Policy Framework through consultations (government agencies, NGOs, members of coastal communities) during the planning phase and prior to formal endorsement of the *Coastal Zone Policy Framework*.
- 1.3 Coastal Advisory Committees (CACs) established, representing government agencies, NGOs, private sector and local communities in five selected regions of the coast and cayes, where development pressures are greatest.
- 1.4 Development guidelines designed for each of the five regions in consultation with the Coastal Advisory Committees.
- 1.5 Coastal Advisory Committees trained in leadership skills, planning, conflict resolution and consensus building through workshops and study tours at national and regional levels.
- 1.6 Reef Monitoring Programme, including training in biodiversity monitoring techniques, data collection, and analysis (i.e., conversion of data into trends and indicators). Sites to be monitored encompass MPAs and others strategically located in “hot spot” areas. Training will be targeted at staff of the Technical Institute, MPAs and the Department of Fisheries. Monitoring and basic research will be carried out on key endangered flagship species (manatees, crocodiles, sea turtles), including commercially important species such as the Nassau grouper.
- 1.7 Greater Technical Institute capacity for data management. The data centre will be expanded by linking it to other databases, such as those of the Smithsonian and the Fisheries Department. Annual *State-of-the-Coast Report* will be prepared based on

analyses of monitoring data and information⁸.

Component 2: The Belize Barrier Reef Marine Protected Area Network is established and fully functional. (Total: 2,954,500; EU: 200,000; GEF: 2,754,500)

37. The Belize Barrier Reef System is Central America's first marine World Heritage Site, an achievement supported by the pilot-phase project. Within this Barrier Reef system there are a number of existing and proposed protected areas. These areas constitute a representative system of Belize's rich coastal and marine biodiversity. The responsibility for managing marine protected areas lies largely with the Ministry of Agriculture and Fisheries (Department of Fisheries). The proposed project will strengthen the management of these areas by updating and revising existing management plans and designing new plans for proposed areas. Management Plans will include a *zoning scheme* essential for enforcement and reducing conflicts between different user groups. Management plans will also include recommendations from the National Mangroves Protection Plan. The current zoning scheme includes the following elements, subject to modification as appropriate:

- a) *Preservation Zone* will be a no-entry and no-take zone designed to maintain particularly fragile habitat or areas important to the survival of threatened and rare species.
- b) *Conservation Zone I* with no extractive uses allowed, and only non-extractive recreational uses such as diving permitted.
- c) *Conservation Zone II* will allow limited extraction particularly by those traditionally using that area, sport fishing on a catch-and-release basis, commercial, recreational, and sportfishing during the open season, with control over fishing gear. Non-extractive recreational activities will be allowed.
- d) *General Use Zone* will allow fishing, tourism and other established activities, to be continued in a sustainable manner under a stringent monitoring scheme. This zone usually comprises all remaining parts of the MPA once zones a, b, c, and e, have been identified.
- e) *Special Management Area* will be zoned for education, interpretive facilities, research and appreciation by the public, fishing camps and such.

38. Successful protected areas operations and enforcement of management plans is closely linked to on-site availability of staff, equipment and adequate funding levels. The proposed project will provide essential equipment, basic infrastructure and, most importantly, strengthen the quality and quantity of rangers and managers. Formal and informal training in special skills such as visitor management, surveillance and monitoring techniques, conflict resolution, data collection and monitoring will be imparted. The project will plan and establish a network of voluntary wardens, strategic patrol bases, and develop and carry out logistical plans for patrols in consultation with coastal communities and law enforcement agencies. Based on the successful example of Hol Chan Marine Reserve, the recurrent costs of protected areas management will be met through the norm of retaining 80% of entrance fees. The initial inflows of park

⁸ Technical capacity building for the application of remote sensing and digital photography for coastal zone management is under negotiation with the IDB (US\$ 60,000). Since this is under negotiation it is not reflected in the total project cost.

entrance fees for years 3, 4, and 5 of the project are estimated at US\$420,000. While these substantial government resources have not been counted explicitly as co-financing, they do reflect government commitment and ability to cover recurrent costs after project life.

39. In addition, the project will assist in establishing a *Marine Protected Areas Advisory Committee*⁹ (MPAAC) for each marine protected area (see Annex 8). These groups will be modeled on the successful stakeholder advisory group near the Bacalar Chico site, and will consist of representatives of local communities. The principal goal of management plans and multiple-use regimes is to reduce conflicts between different uses of coastal resources while maintaining their value over the long-term. Stakeholder involvement in the planning and implementation stage, through the stakeholder advisory groups, will ensure that sound and effective management alternatives are selected.

Outputs:

- 2.1 MPAACs established as a means of channelling community inputs into the development and implementation of MPA management plans.
- 2.2 Revised management plans under implementation for existing marine protected areas (including demarcation of boundaries). Boundaries of current MPAs may need to be adjusted to include critical habitats or areas that are important in the maintenance of ecological processes.
- 2.3 New management plans developed and under implementation for additional sites.
- 2.4 MPA Network equipped with essential instruments (boats, dive and communications equipment) and basic infrastructure facilities (visitor centre, warden quarters).
- 2.5 MPA staff recruited and trained.
- 2.6 Network of voluntary wardens established.
- 2.7 Logistical plans developed and under implementation for patrols with the active involvement of other relevant agencies (maritime wing, police).
- 2.8 Annual “state of the MPA” reports for extensive dissemination.

Component 3: Caye development plans are integrated with marine biodiversity conservation concerns through a demonstration project. (Total: 317,500; GEF: 317,500)

40. Developmental pressures on marine biodiversity from villages based on cayes are most pronounced in the case of Caye Caulker. This caye has a village of approximately 800 persons within one mile of the reef system. Given the physical proximity, activities of the local population are having a direct impact on the health of the reefs. These pressures are most apparent here and are likely to arise in several of the other sites. Caye Caulker highlights the need to integrate development planning on cayes with

⁹ In certain regions along the coast, membership of the CACs and MPAACs may warrant merging the two into one.

conservation within the proposed Caye Caulker marine protected area. The MPAAC in Caye Caulker will be encouraged to pursue a co-management approach for the reserve along with Fisheries and Forestry Department authorities to ensure appropriate integration.

41. One of the most critical issues on the cayes is that of shoreline erosion and the attendant threat to coral reefs from heavy sediment loads in marine waters. Shoreline erosion is being exacerbated by poor control of new constructions (buildings, piers, and seawalls). This component will ensure that land-use planning and development guidelines for the Cayes take into full account the sensitivity of the fragile coral ecosystem to uncontrolled developments.

42. High sediment loads are also the direct result of poorly conducted dredging and sand-mining operations. While the Geology and Petroleum Unit in the Ministry of Energy and Telecommunications has preliminary guidelines (provided by the pilot-phase project) for dredging equipment, methods, timing, reconditioning of sites, and environmental monitoring and compliance, it could benefit from the strengthening of its capacity to fully develop and apply these guidelines, through targeted training of relevant staff within the Geology and Petroleum Unit and the Lands Department.

43. Inappropriate and inadequate methods for solid waste and sewage disposal generated by the caye community are increasing the nutrient levels of marine waters and having a direct impact on the coral reef ecosystem. Discussion of waste management issues on the cayes will raise awareness among stakeholders and decision makers about the impact of sewage and solid waste on the health of the reef system, thus acting as a catalyst for incorporation of these issues into the planning process¹⁰.

44. The lessons learned and best practices identified during this process of integrating caye development plans with marine biodiversity concerns will be shared with key officials around the country within the time frame of the project. This will ensure the application of similar approaches on other cayes that are increasingly facing the same development pressures such as Saint George's and Ambergris Cayes, and the Placencia Peninsula.

Outputs:

- 3.1 Integrate development planning and control on the Cayes with management plans for the MPAs through guidelines and policies on shoreline development, waste and sewage disposal, and water use that are attuned to human settlements in close proximity to reefs.
- 3.2 Training in control of shoreline erosion and "good practice" guidelines for dredging that were prepared under the pilot phase.
- 3.3 Awareness-raising materials produced and disseminated to key government officials regarding the impact of development on the reefs (e.g. from sewage and

¹⁰ A planning and feasibility study for options on sewage treatment, disposal and water quality maintenance at Caye Caulker is under negotiation with the IDB as cofinancing. This activity will complement the zoning guidelines prepared as Output 3.1. The estimated amount is US\$ 200,000 to 250,000, and since this is under negotiation it has not been reflected in the total project cost.

solid waste).

- 3.4 Awareness and training workshops implemented with local officials from around the country regarding Caye Caulker “good practice” demonstrations.

Component 4: Sustainable financing mechanism for marine biodiversity conservation is established. (Total: 746,671; Government-substitutional co-financing from PACT: 503,671; GEF: 243,000)

45. Belize has made significant progress in establishing a policy environment suited to using economic instruments for conservation financing. In particular, 80% of user fees charged for entry into protected areas is reinvested towards upkeep and management of these areas with the remainder channeled to the recently established Protected Areas Conservation Trust (PACT) - an autonomous body that has been specifically established as a fund for conservation and management of Belize’s natural and cultural resources. PACT also receives additional revenues from a departure tax on tourists. The pilot phase sustainable financing study identified several other revenue sources for meeting recurrent costs of CZM and MPAs. These include diving and sportfishing fees, marine dredging royalties, pesticide charge, and donations through, for example, a “Friends of Marine Protected Areas” program. The study estimates revenues from diving and sportfishing fees alone at US\$ 1 million annually.

46. By designing a sub-account or “window” of an existing trust fund¹¹ (PACT), the project will implement pilot phase financing studies for sustaining the Coastal Zone Management Authority, Institute, and the network of marine protected areas. Resources from this sub-account will also be used to assist communities in identifying alternative livelihoods, as needed, with the aim of facilitating adherence to the special zoning regulations in the marine protected areas. Also, as a result of the GEF Alternative, the capacity of MPAs to effectively apply and use grants will improve thereby increasing the share of PACT grants allocated to MPAs. Currently, only 25% of PACT resources go to marine protected areas, and 75% to terrestrial. With the establishment of the barrier reef Marine Protected Area Network, this distribution is expected to result in a 50/50 allocation between terrestrial and marine protected areas. This increased amount is reflected as substitutional co-financing from the government.

Outputs:

- 4.1 Appropriate levels of user fees (based on pilot phase findings) determined and a streamlined system in place for collecting user fees and managing funds.
- 4.2 Comprehensive fund-raising strategy to complement revenue sources developed and under implementation.
- 4.3 Eligibility criteria and requirements articulated for accessing resources from the fund.

¹¹ While the project will not be establishing a new trust fund, it is important to note that the draft Trust Fund Evaluation study identifies 10 conditions for creating a trust fund and Belize meets all of these. The Evaluation also identifies 9 conditions for successful trust fund operations and these will be taken on board during the design of the sub-account and its operations.

- 4.4 Awareness-raising programme in place and operational aimed at building a constituency supportive of biodiversity conservation within the dive industry.
- 4.5 Barrier Reef sub-account designed, capitalised and operational, with established governance process.
- 4.6 Assessment of the use of sub-account resources to design sustainable alternative livelihoods for communities adopting biodiversity-friendly practices consistent with the zoning scheme.
- 4.7 Annual reports on the sub-account's activities to maintain transparency and build awareness.

Component 5: Legal and regulatory capacities for facilitating bioprospecting agreements are in place. (Total: 57,000; GEF: 57,000)

47. As new and emerging threats to marine and coastal biodiversity intensify there is a concurrent need to search for innovative and creative ways of valuing and conserving marine biodiversity. One such avenue is bioprospecting where local communities and the private sector can collaborate to further conservation objectives. The project's efforts to develop a fully functioning and effective marine protected area network with local communities participating in governance through MPAACs can clearly support bioprospecting.

48. Belize has several features conducive to exploring bioprospecting, however there are barriers in terms of gaps in existing legislation, ministerial responsibilities regarding marine biodiversity, coordination of roles, and national technical capacity. The Department of Fisheries has been approached by the private sector several times but in the absence of legal and financial instruments to ensure the equitable sharing of benefits the country has not been able to explore this further. This component will develop the supportive legal and institutional framework that addresses these gaps and facilitates equitable sharing of benefits through bioprospecting agreements.

Outputs:

- 5.1 Assessment of the legal framework regarding bioprospecting issues in Belize including constitutional, international and local laws.
- 5.2 Analysis of deficiencies in the present legal framework to support effective and equitable sharing of benefits from bioprospecting and draft legal amendments as necessary.
- 5.3 Recommendations for appropriate institutional arrangements for oversight and regulation of bioprospecting partnerships based on experience in other countries, as well as recommendations for the role of local communities and rules pertaining to prior informed consent.
- 5.4 Report on critical issues to be reflected in an equitable bioprospecting agreement/contract, and recommendations for design of agreements based on experience in other countries (for example, involvement of local communities and scientific institutions in gathering and processing of samples to develop skills in-country).

- 5.5 Recommendations for mechanisms whereby profits on the sale of samples and royalties on the commercialization of products are channeled to the conservation and sustainable use of coastal and marine resources, potentially through the Barrier Reef sub-account.

Component 6: Training, awareness-raising and information dissemination activities garner public support for biodiversity conservation through coastal zone management and the Barrier Reef Network of Marine Protected Areas. (Total: 898,000; GEF: 398,000; WCS: 500,000)

49. In order to mainstream marine resources conservation into undergraduate and graduate levels of the education system, the project will support the University College of Belize in developing its Marine Studies Program.

50. Awareness-raising and information dissemination activities will be directed at government officials, legislators, youth, new immigrants, and coastal developers (as recommended by the final evaluation) regarding the importance of biodiversity conservation for overall marine and coastal productivity, and particularly the role of the Barrier Reef Network of Marine Protected Areas. ***The following issues have been identified as needing particular coverage:***

- Options and existence values of coral reefs, direct use value to the economy, indirect use values in terms of natural security and the important place of reefs in Belize's cultural heritage.
- Integrated coastal zone management, highlighting the relationship between land-based activities and marine ecosystems. Also, conflict resolution among users as well as between users and resource managers.
- Awareness of biodiversity value and goods and services provided by mangroves.
- Use of mooring buoys, by local people, dive boats, and all those using recreational vessels to prevent direct damage to reefs.
- Encouragement of drift diving (as opposed to anchored dives) in areas where there are insufficient mooring buoys.
- Marine conservation awareness among fishermen and consumers of marine resources to foster better understanding of the rationale for marine resource legislation.
- A better understanding of crocodile behavior and their ecological significance as a flagship species.
- Awareness raising programme aimed at residents (particularly fishermen and turtle meat vendors) and visitors regarding current legislation protecting turtles, Belize's role in regional efforts to restore depleted turtle populations, and the necessity for conservation of these species.
- Manatee awareness raising programme to reduce visitor disturbance and aggravation from manatee-watching, and highlighting current poaching problems in the south, to include the publication of fact sheets and guidelines for tour guides and tourists.
- Seabirds awareness raising programme.

Outputs:

- 6.1 Marine Studies Program developed by the University College of Belize incorporating biodiversity conservation principles and practices.
- 6.2 Comprehensive awareness programme tailored to specific audiences (e.g., fishermen, tourism operators, decision-makers) and biodiversity conservation issues (see above list).
- 6.3 Information exchange links established and operational between this project and other marine and coastal biodiversity conservation initiatives in the Wider Caribbean.

5. RISKS AND SUSTAINABILITY

51. An overall risk to project success is a discontinuation of the strong political support provided by the government thus far on the management and planning of the coastal zone. The risk of this is fairly low given the close links between the macro economy and coastal and marine resources through the fisheries and tourism sectors. The inability to meet recurrent costs of biodiversity conservation and CZM is also mitigated by the fact that Belize has very progressive legislation that allows for redirecting natural resource user fees charged to tourists back into conservation. A conservative estimate of the initial revenues coming in from reinvesting 80% of MPA entrance fees in upkeep and maintenance of the MPAs in years 3-4-5 of the project stands at US\$420,000, an estimate that will greatly increase once the project has laid the foundation for MPA management and operations. The implementation of this norm in the network of MPAs represents government commitment and ability to cover recurrent costs of MPA management. Coastal zone management and the protection of coastal and marine biodiversity requires active participation and ownership by a number of sectors of the economy, and therefore the involvement of several government departments and agencies. Unless these different actors cooperate and communicate with one another, effective implementation of a CZM plan is rendered difficult. Again, the risk of such a lack of coordination is low given the high degree of cooperation forthcoming in the pilot-phase project. In addition, the project will target training in CZM techniques and awareness of the interlinkages between different economic sectors and coastal and marine resources to staff within the various government agencies.

52. Another potential problem is that of identifying a critical mass of dedicated staff to operationalize management plans of MPAs. The project will try to address this by careful selection of staff, hiring locals who already share a bond with the resource, and by providing good support services so that staff do not feel isolated (perhaps by establishing an active communication network between staff in various MPAs and between MPA staff and the advisory committees). An aspect critical to the long-term success of activities initiated by the project is the identification and acceptance of user fees earmarked for the CZM Authority. The project will give due emphasis in the initial stages to cultivating a constituency within the dive industry, streamlining the process of user fee collection so as not to over-burden users of the resource, and work on a marketing strategy that makes the “beneficiary pays” principle attractive to both users and intermediaries (tour guides, diving industry). Through its awareness raising activities the project will highlight the importance of conservation and sustainable management of the resource to the livelihoods of these intermediaries.

53. The issues of institutional and financial sustainability are woven in to the project's design with significant resources being devoted to consolidation of the CZM Authority and Institute and to the establishment of a barrier reef sub-account.

6. STAKEHOLDER PARTICIPATION AND IMPLEMENTATION ARRANGEMENTS

54. The stakeholders of this project range from the global community to government agencies active in the coastal zone, private sector operators active in the tourism industry, villagers, fishermen cooperatives, NGOs, and educational institutions. All these interest groups will be actively involved in project activities through the Coastal Advisory Committees and the MPA Advisory Committees. Alternative mechanisms for public participation, such as public forums, will also be included.

55. The project will be executed by the Government of Belize through the Ministry of Agriculture and Fisheries (MAF). The MAF will work in conjunction with the Ministry of Economic Development (MED), the agency responsible for coordinating foreign assistance in Belize. Overall coordination of the project will come from the Coastal Zone Management Authority, which is comprised of the Ministries of Agriculture and Fisheries, Economic Development, Natural Resources, and Tourism and Environment, as well as representatives of the NGO community, the private sector and the University College of Belize.

56. The project will provide the services of a National Project Adviser (NPA)/Director of the Coastal Zone Management Institute, with technical and administrative support staff. The Chief Executive Director of the CZM Authority and the National Project Adviser/Director of the Coastal Zone Management Institute will be responsible for the overall supervision of project activities.

57. Project activities will be implemented principally by the Coastal Zone Management Technical Institute, with other activities implemented by Ministry agencies and through sub-contracts to NGOs and private sector entities.

58. The UN Office of Project Services (UNOPS) will provide, through a Letter of Agreement, operational and administrative services with respect to the provision of international inputs, such as fellowships, procurement of specialized equipment, recruitment of international consultants, and sub-contracts.

59. UNDP, through its Offices in Belmopan, San Salvador and New York will monitor and back-stop the effective implementation of the project. UNDP will also ensure that a permanent coordination mechanism is established between the project and other participating donors, particularly the European Union and the Inter-american Development Bank.

7. INCREMENTAL COSTS AND PROJECT FINANCING

60. The incremental cost analysis is prepared in standard format and presented in Annex 1. An indicative budget, in millions of USD and by project component, is outlined below. It includes project support costs at the rate of 3.5%.

	Baseline	Increment		Total
		GEF Contribution	Non-GEF Contribution	
Component 1	1.226	1.404	0.811	2.215
Component 2	2.625	2.755	0.200	2.955
Component 3	0.557	0.317	0.000	0.317
Component 4	0.504	0.243	0.504	0.747
Component 5	0.000	0.057	0.000	0.057
Component 6	0.128	0.398	0.500	0.898
Coastal watershed management	3.270	0.000	0.000	0.000
Project support costs (3.5%)		0.181		0.181
TOTAL	8.310	5.355	2.015	7.370

8. MONITORING, EVALUATION AND DISSEMINATION

61. Project impacts will be monitored using the process and impact indicators identified for each project component, and presented in the logical framework matrix (see Annex 2). The CZM Institute's coral reef health monitoring program will provide the basic data necessary to assess the impact on the health of the coral reef ecosystem. In addition, stakeholder involvement will be ensured through the Coastal and Marine Protected Area Advisory Committees. These stakeholder bodies will report regularly on the impact the project is having on the ground.

62. In terms of evaluation, the project will follow current UNDP project evaluation processes such as the Tripartite Project Review, Program Performance Evaluation Reports, and the Mid Term- and Final Reviews. These will be complemented with GEF monitoring and evaluation procedures, namely the annual Project Implementation Review (PIR).

63. The project will be looking at building links with similar coastal zone management projects within the region. This will be a useful avenue for disseminating and sharing experiences and expertise. In addition, through its awareness and advocacy campaigns, the project will spread information within the country about the successes and challenges of the project.

ANNEX I

INCREMENTAL COST ASSESSMENT

1. BROAD DEVELOPMENT GOALS

1. Located in the Wider Caribbean Region, Belize is well known for the largest Barrier Reef Complex in the Western Hemisphere. Environmental issues in general and biodiversity conservation in particular are recognized as highly important concerns that have an impact on the performance of the economy. A relatively good record in terms of environmental management¹², coupled with the lowest population density in the region, has ensured that Belize has been able to conserve its environmental resources to a far greater extent than other countries in the Central American region.

2. The government has prepared a National Environmental Action Plan with the assistance of the World Bank (1996) and is in the process of preparing its Biodiversity Strategy and Action Plan through wide stakeholder consultation. The country is a signatory to several international conventions and treaties and has also passed significant domestic legislation that reaffirms its belief in the importance of environmental conservation (see Background and Context section of the project proposal). However, fiscal constraints continue to restrict the government in fully addressing biodiversity conservation.

2. GLOBAL BIODIVERSITY OBJECTIVE

3. The Belizean Barrier Reef stretches along the country's eastern coast and is approximately 220 kilometers in length. Associated with this barrier reef complex are three offshore coral atolls, over 1,060 sand and mangrove cayes, seagrass beds, extensive mangroves, littoral forest, estuaries and wetlands. These habitats provide nesting and foraging sites for many endangered species such as the West Indian Manatee, American Crocodile, sea turtles, and several threatened birds species. The objective of this project is to ensure the conservation and sustainable use of these highly diverse coastal and marine resources.

3. BASELINE

4. Belize's coastal zone, as is true in other parts of the world, is coming under increasing pressures from anthropogenic activities that originate in different economic sectors – agriculture, fishing, tourism, and agroindustry, amongst others. Annex 6 details the proximate threats and underlying causes that are jeopardizing marine biodiversity, and highlights the importance of effective coordination between all sectors active in the coastal zone. Appropriate coastal and marine area planning and management is essential for a long-term strategy to conserve marine biodiversity. Under the baseline some of these concerns will be addressed, though not fully (more details on baseline activities are provided in the project proposal).

5. Belize has established the mechanism for the kind of intersectoral coordination required. With GEF pilot-phase assistance, Belize has successfully established a Coastal Zone Management Authority and Technical Institute and initiated the development of a coastal zone management policy framework as one of the first steps towards a

¹² Approximately 57% of the country's territory is still under closed cover forest.

comprehensive integrated coastal zone management plan. Coastal zone management involves an iterative planning process that includes the following steps: (1) issues identification and assessment, (2) program preparation, (3) formal Plan adoption and funding, (4) Plan implementation, and (5) evaluation. The pilot-phase project has essentially completed steps 1 and 2 and has built an institutional foundation with legal and political support. However, five years is too short a period to complete one planning cycle that includes all of the above steps, and the next step is to prepare and implement a *Coastal Zone Policy Framework* through a broad-based consultative process.

6. The government will be devoting some resources to the protection of marine biodiversity through the management and operations of marine protected areas. However, the majority of sites within the network of marine protected areas (including the recently declared World Heritage Sites) function as “paper parks” due to a lack of resources. Unless management plans are revised and updated and operations improved, these marine protected areas will not be able to fulfill their role in conserving marine biodiversity.

7. Pollution and sedimentation originating in coastal watersheds is another longer-term concern. The long distance of the reef from the mainland has meant that these problems do not at present threaten the barrier reef complex. Mitigative action to control these problems are, however, largely in the country’s own sustainable development interest. Indeed, the government has initiated activities in this regard and will continue to allocate resources in the future to the following: maintaining certain forest areas as watershed protection forests, sustainable agriculture programs, control, monitoring and enforcement of industrial-effluent regulations, and studying the impact of sedimentation originating in coastal watersheds on the health of the reef (EU-funded study). Awareness and a basic understanding of the links between activities that take place in coastal watersheds and coastal and marine resources is still inadequate and specific programs targeted to increasing such awareness are unlikely to occur under the baseline.

4. ALTERNATIVE

8. The alternative strategy proposed will complement the existing institutional foundation for planning and management of the coastal zone by addressing the following gaps: limited technical and human resource capacity to design a coastal zone management policy framework and regional plans with stakeholder consultations (through GoB and EU co-financing); inadequate management and effective operations in marine protected areas; lack of integration of development plans for cayes with conservation concerns of marine biodiversity; lack of a self-sustaining financing mechanism for coastal zone management; lack of legal and institutional framework to facilitate bioprospecting; and the need to complement widespread environmental conservation advocacy with conservation concerns of marine biodiversity.

9. The overall development objective of the project is to secure options and existence values embodied in the second largest barrier reef system in the world. The specific purpose is to enable the conservation of coastal and marine resources through effective planning in the coastal zone and the designation and management of marine protected areas. These objectives will be achieved through the following components:

- Component 1** Consolidated capacity to effectively integrate biodiversity conservation concerns into coastal zone management policy framework
- Component 2** The Belize Barrier Reef Marine Protected Area Network is established and fully functional.
- Component 3** Caye development plans are integrated with marine biodiversity conservation concerns through a demonstration project.
- Component 4** Sustainable financing mechanism for marine biodiversity conservation will be established.
- Component 5** Legal and regulatory capacities for facilitating bioprospecting agreements will be in place.
- Component 6** Training, awareness-raising and information dissemination activities will garner public support for coastal zone management and the network of marine protected areas.

10. There are several sectors active in the coastal zone all of who have an impact on the conservation of marine biodiversity. Some sectors clearly benefit from a healthy and productive marine resource base. At the same time, to conserve the highly rich marine biodiversity associated with the barrier reef complex in the long run, inter-sectoral coordination and planning in the coastal zone is of the essence. The alternative strategy will ensure this coordination by leveraging resources from the Government of Belize and the European Union for these activities, and additional targeted biodiversity conservation measures. Cofinancing has been leveraged from the EU (support to the CZMA and MPA Network), and from the IDB (community-level coastal monitoring in Toledo District, WCS and the Government. Preparation of the *Coastal Zone Policy Framework* through a broad consultative process is in national sustainable development interest (Outputs 1.1 to 1.5), and the government of Belize will support this through its own resources (complemented with EU resources). The Government will also contribute towards the financial sustainability of the MPA network by reinvesting entrance fees into management of the Barrier Reef MPA network (US\$ 420,000 over years 3-4-5) and through directing a greater share of PACT grant allocations to the MPA network (US\$ 503,670). In addition, WCS will be co-financing some of the conservation awareness activities.

5. SCOPE OF ANALYSIS

11. The incremental cost analysis includes all activities that affect the coastal zone in general and the marine biodiversity of the barrier reef complex in particular. The system boundary that has been chosen is much wider than the MPA network, given the fact that activities that take place in the coastal zone have a bearing on the ecological integrity of the MPA network. The time period considered is five years. The analysis considers all current and anticipated threats to marine biodiversity either originating in coastal watersheds or in closer proximity to the barrier reef complex and habitats important to the survival of threatened and vulnerable species.

12. There are likely to be incidental domestic benefits as a result of this intervention. The project will build in-country technical and human resource capacity to undertake effective coastal zone management and planning. The implementation of decisions that

improve spatial planning and avoid unsustainable development patterns in the fragile coral reef environment will result in benefits in the medium-term. This coupled with improved management and operations of protected areas will most likely improve performance of the fisheries and tourism sectors. Such benefits, however, are likely to occur in the long-term and not over the life of the project. In addition, securing these longer-term benefits will entail foregone opportunities in the short-term.

13. While the Alternative strategy is likely to create domestic benefits (through new and additional tourism revenues), the government will be reinvesting a large proportion of these revenues into securing global conservation benefits (management and operations of the globally significant network of MPAs). The government recognizes that conservation produces domestic benefits and it is this acknowledgement that has resulted in government policy and legislation that requires a certain percentage of tourism revenues to be reinvested in conservation as follows:

- 80% of MPA entrance fees are reinvested into the operations of the MPA,
- 20% go to PACT for further reinvestment into marine and terrestrial biodiversity conservation,
- 100% of divers and sport fishing fees to be reinvested in supporting the CZMA and Institute and certain specific CZM activities carried out by the line ministries (mandated by CZM Act),

6. COSTS AND INCREMENTAL COST MATRIX

14. The cost of the baseline situation that reflects the immediate concerns and priorities of the country is US\$8,310,151. An alternative strategy that would ensure the conservation of valuable marine and coastal resources through certain additional measures is costed at US\$15,680,681. The total increment (including project support services) is therefore US\$7,370,530. Of this increment, US\$5,355,659 (of which US\$181,109 are project support costs) is being requested from the GEF. Non-GEF resources have been leveraged for the remaining amount as follows: EU (661,200), IDB (100,000), GoB (753,671), and WCS (500,000).

15. The matrix below provides a breakdown of baseline and incremental activities. It also indicates the components towards which co-financing will be targeted.

Incremental Cost Matrix (all figures are in US dollars)

	Baseline	Alternative	Increment
Global benefits	<p>Changes in reef community structure that is affecting long-term survival probabilities of coastal and marine biodiversity in the Belize Barrier Reef complex.</p> <p>Developmental pressures from cayes that are in close proximity to the reef could counteract conservation efforts within marine protected areas.</p>	<p>An effective and well-trained coastal zone management authority can ensure coordination between different sectors to the level and extent necessitated by conservation concerns.</p> <p>Integration of developments in the wider landscape with needs of marine protected areas (through a demonstration) ensures that threats from “buffer zone” communities are mitigated.</p> <p>The use of economic instruments to establish a sustainable financing mechanism will ensure conservation beyond the life of the project.</p> <p>A strong marine conservation constituency amongst the younger age groups, educators, government officials, will develop national ownership and pride in these efforts.</p> <p>Mainland-based sources of threats to marine and coastal resources will be kept in check.</p>	<p>Habitat of threatened and vulnerable marine species and barrier reef complex are conserved within a representative network of marine protected areas, thus securing options and existence values.</p>
Domestic benefits	<p>Degradation of the marine and coastal environment and resources is affecting long-term potential of economic sectors based on marine resources and quality of life of coastal communities.</p>	<p>Improved in-country capacity to include environmental considerations into long-term planning and management of the coastal zone.</p>	<p>Potential benefits from improved prospects of the fisheries and tourism sectors and from better shoreline protection.</p>
Costs/ Activities	<p><u>Planning and management of the coastal zone</u> (1,225,945)</p> <p>Core funding of CZM program (salaries, administration).</p> <p>Monitoring and data collection efforts relating to reef productivity.</p> <p>Terrestrial GIS mapping by Lands Information Center.</p>	<p><u>Planning and management of the coastal zone</u> (3,441,695)</p> <p>Baseline programs & resources plus: Design of a CZM plan as a national policy framework through wide stakeholder consultation; establishment of Coastal Advisory Committees (CACs); training of CACs (711,200; GoB and EU) Community level monitoring of coastal areas in Toledo District (100,000; IDB) Capacity strengthening for monitoring and</p>	<p>Increment: 2,215,750</p> <p>Of which, GEF: 1,404,550 GoB: 250,000 EU: 461,200 IDB: 100,000</p>

	Baseline	Alternative	Increment
	<p><u>Marine Protected Areas</u> (2,625,125)</p> <p>Department of Fisheries proposed expenditures on MPAs Mooring buoys program Department of Forestry's outlays on mangrove management (mainland) and MPA planning Belize Audubon Society's program on MPA management (Half Moon Caye, Blue Hole)</p> <p><u>Integrated Caye development</u> (557,035)</p> <p>Core budget allocation for caye development plans by Lands Dept. Monitoring of compliance with marine dredging guidelines near cayes. Program for solid waste management of the Department of Environment (supported by IDB).</p> <p><u>Sustainable financing mechanism</u> (503,671)</p> <p>Resources available to MPAs by submitting proposals to PACT.</p> <p><u>Education, awareness, and dissemination</u> (128,375)</p> <p>— Environmental education programs of Belize Audubon Society, Belize Zoo, and TIDE. University College of Belize's marine courses.</p>	<p>data collection relating to health of the reef (within MPAs and strategically located "hot spots"); data management and linkages with other databases. (1,404,550; GEF)</p> <p><u>Marine Protected Areas</u> (5,579,625)</p> <p>Baseline programs & resources plus: Improved planning and operations of a representative network of 7 MPAs; establishment of MPA Advisory Committees (2,954,500; GEF, EU)</p> <p><u>Integrated Caye development</u> (874,535)</p> <p>Baseline programs & resources plus: Demonstration of a caye development plan that is integrated with management plans for an MPA; training in control of shoreline erosion and "good practice" guidelines for dredging operations (317,500; GEF)</p> <p><u>Sustainable financing mechanism</u> (1,250,342)</p> <p>Baseline programs & resources plus: Establishment of a Barrier Reef sub-account for coastal zone management Additional resources redirected to MPA network from PACT grants (substitutional co-financing from GoB/PACT of 503,671).</p> <p><u>Education, awareness, and dissemination</u> (1,026,375)</p> <p>Baseline programs & resources plus: Efforts relating to conservation of marine and coastal biodiversity targeted to govt. officials, legislators, youth, new</p>	<p>Increment: 2,954,500</p> <p>Of which, GEF: 2,754,500 EU: 200,000</p> <p>Increment: 317,500</p> <p>Of which, GEF: 317,500</p> <p>Increment: 746,671</p> <p>Of which, GEF: 243,000 GoB/PACT: 503,671</p> <p>Increment: 898,000</p> <p>Of which, GEF: 398,000 WCS: 500,000</p>

	Baseline	Alternative	Increment
	<p><u>Coastal watersheds management</u> (3,270,000)</p> <p>Ministry of Agriculture's programs on sustainable agriculture and integrated pest management.</p> <p>Department of Environment's programs on effluent monitoring, EIAs and clearance.</p> <p>Department of Forestry's outlays on protection forests.</p> <p>Lands Department's enforcement and surveillance of regulations in coastal watersheds.</p> <p>Study on impact of changing land-use practices on the coastal zone.</p>	<p>immigrants, and coastal developers. (898,000)</p> <p><u>Coastal watersheds management</u> (3,270,000)</p> <p><u>Legal and institutional capacities for facilitating bioprospecting agreements.</u> (57,000)</p>	<p>Increment: 0</p> <p>Increment: 57,000 Of which, GEF: 57,000</p>
Total costs	Baseline: 8,310,151	Alternative strategy: 15,499,572 Plus project support: 181,109 Total Alternative: 15,680,681	Increment: 7,189,421 Plus project support: 181,109 Total increment: 7,370,530 Of which, GEF: 5,174,550 GEF Project support: 181,109 EU cofinance: 661,200 IDB cofinance: 100,000 GoB cofinance: 753,671 WCS cofinance: 500,000

ANNEX II
Logical Framework Matrix

Intervention Logic	Indicators of Performance	Source of Verification	Risks and Assumptions						
<p>Development Objective: Conservation of options and existence values embodied in the second largest barrier reef system in the world.</p>	<p>Stabilisation of biological and physical parameters that represent the health of the reef.</p>	<p>Monitoring data generated by the project.</p>	<p>Natural phenomena such as hurricanes and coral bleaching events precipitated by global climate change do not neutralise positive impacts of the project.</p> <p>Baseline programs to address issues in national sustainable development, that also have a bearing on coastal and marine biodiversity, continue and are effective.</p>						
<p>Project Purpose: To enable the conservation of coastal and marine resources through an effective planning of the coastal zone and the designation and management of marine protected areas.</p>	<p>By year 5, CZM Authority and Institute are recognised and established with a sustainable financing mechanism and their recommendations are reflected in National Economic Development and Tourism Plans.</p> <p>By the end of the project, the area of well-managed MPAs within the Barrier Reef system will have increased as follows:</p> <table style="margin-left: auto; margin-right: auto;"> <tr> <td></td> <td style="text-align: center;">Baseline</td> <td style="text-align: center;">Five years</td> </tr> <tr> <td>Area in hectares</td> <td style="text-align: center;">47,128</td> <td style="text-align: center;">98,307</td> </tr> </table> <p>Stable/ increasing population of flagship species (manatees, crocodiles, turtles)</p>		Baseline	Five years	Area in hectares	47,128	98,307	<p>National Economic Development Plan (produced every 5 years)/ Tourism Development Plan</p> <p>Management plans of MPAs</p> <p>Monitoring reports of the project</p>	<p>Government continues its commitment to the conservation of coastal and marine resources and is ready to adopt guidelines and recommendations produced by the project.</p> <p>General public is receptive to and values educational material on coastal and marine resources conservation.</p>
	Baseline	Five years							
Area in hectares	47,128	98,307							
<p>Component 1: Consolidated capacity to effectively integrate biodiversity conservation concerns into coastal zone management policy framework.</p>	<p>By year 2, CZM Plan is developed with wide stakeholder consultations.</p> <p>By year 4, 8 Coastal Advisory Committees (CACs) will be operational.</p>	<p>Government gazette</p> <p>Meeting minutes and attendance records submitted to CZM Authority, CZM Authority's meeting minutes.</p>	<p>Inter-agency co-operation continues to the level and extent necessary.</p> <p>Communities are willing to actively participate in CACs.</p>						

Intervention Logic	Indicators of Performance	Source of Verification	Risks and Assumptions															
	<p>CACs receive training in CZM techniques as follows:</p> <table border="0" data-bbox="594 370 995 451"> <tr> <td>Year</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td>Cum.</td> <td>2</td> <td>4</td> <td>6</td> <td>8</td> </tr> <tr> <td>Total</td> <td></td> <td></td> <td></td> <td></td> </tr> </table> <p>Increase in number of times that CZM Institute provides data and other support to line ministries for decision-making related to coastal and marine resource conservation.</p> <p>Decrease in occurrences of coastal and caye development that are in contravention of conservation practices.</p> <p>Basic research results are incorporated in MPA management plans.</p>	Year	1	2	3	4	Cum.	2	4	6	8	Total					<p>Evaluation reports of training programs (list of participants, participant evaluations).</p> <p>CZM Institute reports</p> <p>Meeting minutes of CZMA.</p> <p>Updates of MPA management plans.</p>	<p>Same as above.</p> <p>Government agencies view the CZM Authority and Institute as a knowledge base and resource that they can draw upon.</p> <p>Same as above.</p> <p>Basic research conducted by the project is useful for management decisions.</p>
Year	1	2	3	4														
Cum.	2	4	6	8														
Total																		
<p>Component 2: The Belize Barrier Reef marine protected areas network is established and fully functional.</p>	<p>Management plans for project sites (paper parks) will be revised and updated as follows:</p> <table border="0" data-bbox="594 945 957 1003"> <tr> <td>Year</td> <td>1</td> <td>2</td> </tr> <tr> <td>Cumulative total</td> <td>2</td> <td>5</td> </tr> </table> <p>New management plans will be developed by end of year 3 for the two MPAs proposed by the project.</p> <p>Gazetting of regulations identified by management plans</p> <p>Increase in occurrence of reporting by voluntary wardens</p> <p>Increased revenue from fines.</p> <p>Progressive increase in revenues from</p>	Year	1	2	Cumulative total	2	5	<p>Project records, management plans</p> <p>Same as above.</p> <p>National Gazettes.</p> <p>Patrol reports, minutes of MPAAC's meetings.</p> <p>Reports of MPAs</p> <p>Reports of MPAs and</p>	<p>Active involvement in planning by local communities through MPAACs.</p> <p>On-site staff remains committed to its management and supervisory functions.</p> <p>Relevant law enforcement agencies cooperate in design and implementation of logistical plans for patrols.</p>									
Year	1	2																
Cumulative total	2	5																

Intervention Logic	Indicators of Performance	Source of Verification	Risks and Assumptions
	<p>entrance fees starting in year 3.</p> <p>By year 5, all essential infrastructural support for operationalizing management plans is in place.</p>	<p>management and operations budgets.</p> <p>Reports of MPAs.</p>	
<p>Component 3: Caye Development Plans are integrated with marine biodiversity conservation concerns through a demonstration project.</p>	<p>EIAs conducted on Cayes are streamlined with caye development plans.</p> <p>Decrease in poorly conducted dredging operations.</p> <p>By year 4, there exist guidelines on shoreline development, waste disposal, and water use for Caye Caulker.</p> <p>By year 5, there exists a plan for government-sponsored programs on sewage treatment and solid waste disposal on the Caye.</p> <p>Village Council is using the integrated development plan for allocation of lots and planning of infrastructure.</p>	<p>Department of Environment reports.</p> <p>Reports of MPA patrols.</p> <p>Project reports.</p> <p>Plans of the Department of Environment and Water and Sewage Authority.</p> <p>Minutes of Village Council meetings.</p>	<p>Lands and Housing and Planning Departments are receptive to the integration of conservation needs into caye development and adopts the suggested guidelines.</p> <p>Relevant government agencies are receptive to and apply training on dredging and shoreline erosion.</p> <p>Communities will actively participate in integrated caye development plans.</p>
<p>Component 4: A sustainable financing mechanism for marine biodiversity conservation is established.</p>	<p>By year 3 there exists a streamlined system for collecting and earmarking user fees for CZM Authority and MPAs.</p> <p>Regulations regarding the collection of user fees are gazetted by law.</p> <p>By year 4, the sub-account is capitalized.</p> <p>By year 5, resources of the sub-account are being employed towards developing alternative livelihoods for communities affected by MPA regulations.</p>	<p>Report of sub-account manager</p> <p>Gazettes</p> <p>Minutes of the CZM Authority and MPAAC meetings; analysis of alternative livelihoods being promoted.</p>	<p>Dive industry and other representatives of the eco-tourism industry are favourable to the “beneficiaries pay” principle.</p> <p>Relevant ministry remains committed to passing legislation required to operationalize collection of user fees.</p> <p>Alternatives are economically viable relative to the activity being replaced.</p>

Intervention Logic	Indicators of Performance	Source of Verification	Risks and Assumptions
Component 5: Legal and regulatory capacities for facilitating bioprospecting agreements will be in place	<p>Draft legal amendments to facilitate bioprospecting.</p> <p>Model bioprospecting agreement developed.</p> <p>Recommendations for a financial mechanism for ploughing back profits and royalties into conservation and community development.</p>	Project evaluation reports.	Relevant ministries actively participate in discussions for co-ordinating legislation and drafting amendments.
Component 6: Education, awareness-raising and information dissemination activities.	<p>Increase in enrolment and graduating levels of UCB's Marine Studies Program.</p> <p>Increase in awareness of the mandate and functions of the CZM Authority and Institute among the general public and other sectors of government.</p> <p>Increase in awareness of conservation issues pertaining to coastal and marine resources.</p> <p>Preparation and dissemination of educational material.</p> <p>By year 4 exchanges are organized with at least 3 other projects in the region.</p>	<p>University reports, enrolment records.</p> <p>Opinion surveys in years 3 and 5.</p> <p>Same as above.</p> <p>Results of independent evaluations undertaken as a part of project monitoring.</p> <p>Project reports.</p>	General public is receptive and actively participates in awareness and advocacy campaigns.

Components and Outputs

Component 1

- 1.1 Coastal Zone Policy Framework, with the characteristics outlined in paragraph 30, above, and based on the priority recommendations included in the State of the Coastal Zone Report.
- 1.2 Stakeholder support of the Policy Framework through consultations (government agencies, NGOs, members of coastal communities) during the planning phase and prior to formal endorsement of the CZM Policy Framework.
- 1.3 Coastal Advisory Committees (CACs) established, representing government agencies, NGOs, private sector and local community, in five selected regions of the coast and cayes, where development pressures are greatest.
- 1.4 Development guidelines designed for each of the five regions in consultations with the CACs.
- 1.5 Coastal Advisory Committees trained in leadership skills, planning, conflict resolution and consensus building, through workshops and study tours at national and regional levels.
- 1.6 Reef monitoring programme, including training in biodiversity monitoring techniques, data collection, and analysis (i.e., conversion of data into trends and indicators). Sites to be monitored encompass MPAs and others strategically located in "hot spot" areas. Training will be targeted at staff of the Technical

Components and Outputs

Institute, MPAs and the Department of Fisheries. Monitoring and basic research will be carried out on key endangered flagship species (manatees, crocodiles, sea turtles), including commercially important species such as the Nassau grouper.

1.7 Stronger Institute capacity for data management. The data centre will be expanded by linking it to other databases, such as those of the Smithsonian and the Fisheries Department. Annual state-of-the-coasts will be prepared based on analyses of data and information.

Component 2

2.1 MPAACs established as a means of channelling community inputs into the development and implementation of MPA management plans.

2.2 Revised management plans under implementation for existing marine protected areas (including demarcation of boundaries). Boundaries of current MPAs may need to be adjusted to include critical habitats or areas that are important in the maintenance of ecological processes.

2.3 New management plans developed and under implementation for additional sites.

2.4 MPA Network equipped with essential instruments (boats, dive and communications equipment) and basic infrastructure facilities (visitor centre, warden quarters).

2.5 MPA staff recruited and trained.

2.6 Network of voluntary wardens established.

2.7 Logistical plans developed and under implementation for patrols with the active involvement of other relevant agencies (maritime wing, police).

2.8 Annual "state of the MPA" reports for extensive dissemination.

Component 3

3.1 Integrate development planning and control on the Cayes with management plans for the MPAs through guidelines and policies on shoreline development, waste and sewage disposal, and water use that are attuned to human settlements in close proximity to reefs.

3.2 Training in control of shoreline erosion and "good practice" guidelines for dredging that were prepared under the pilot phase.

3.3 Awareness-raising materials produced and disseminated to key government officials regarding the impact of development on the reefs (e.g. from sewage and solid waste).

3.4 Awareness and training workshops implemented with local officials from around the country regarding Caye Caulker "good practice" demonstrations.

Component 4

4.1 Appropriate levels of user fees (based on pilot phase findings) determined and a streamlined system in place for collecting user fees and managing funds.

4.2 Comprehensive fund-raising strategy to complement other revenue sources developed and under implementation.

4.3 Eligibility criteria and requirements articulated for accessing resources from the fund.

4.4 Awareness-raising programme in place and operational aimed at building a constituency supportive of biodiversity conservation within the dive industry.

4.5 Barrier Reef sub-account designed, capitalised and operational, with established governance process.

4.6 Assessment of the use of sub-account resources to design sustainable alternative livelihoods for communities adopting biodiversity-friendly practices consistent with the zoning scheme.

4.7 Annual reports on the sub-account's activities to maintain transparency and build awareness.

Component 5

5.1 Assessment of the legal framework regarding bioprospecting issues in Belize including constitutional, international and local laws.

5.2 Analysis of deficiencies in present legal framework to support effective and equitable sharing of benefits from bioprospecting and draft legal amendments as necessary.

5.3 Recommendations for appropriate institutional arrangements for oversight and regulation of bioprospecting partnerships based on experience in other countries, as well as recommendations for the role of local communities and rules pertaining to prior informed consent.

Components and Outputs

5.4 Report on critical issues to be reflected in an equitable bioprospecting agreement/ contract, and recommendations for design of agreements based on experience in other countries (for example, involvement of local communities and scientific institutions in gathering and processing of samples to develop skills in-country).

5.5 Recommendations for mechanism whereby profits on the sale of samples and royalties on the commercialization of products are channeled to the conservation and sustainable use of coastal and marine resources, potentially through the Barrier Reef sub-account.

Component 6

6.1 Marine Studies Program developed by the University College of Belize incorporating biodiversity conservation principles and practices.

6.2 Comprehensive awareness programme tailored to specific audiences (e.g., fishermen, tourism operators, decision-makers) and biodiversity conservation issues.

6.3 Information exchange links established and operational between this project and other marine and coastal biodiversity conservation initiatives in the Wider Caribbean.

ANNEX III

STAP REVIEW OF GEF PROJECT PROPOSAL

Conservation and Sustainable Use of the Belize Barrier Reef Complex

Introduction.

This Review follows the format outlined in the Terms of Reference. It concentrates on the major issues but minor questions are addressed where this might be helpful.

Summary.

This is considered a most competent proposal. Its quality probably is a result of it following a phased approach which deliberately set out to identify lessons demonstrated in the Pilot Phase and to incorporate those into the Project design.

It is not considered to have any major weaknesses. The incremental benefits of the Project are realistically assessed.

Detailed Assessment

A. Assessment of the scientific and technical soundness of the project;

The technical and scientific aspects (including the social science aspects) are considered to be sound. The principal causes of environmental degradation and potential loss of biodiversity in environments such as Belize's marine and coast are identified and the institutional and technical responses to them are appropriate.

The embedment of Protected Areas in the framework of Integrated Coastal Management is necessary technical provision for maintaining biodiversity.

Controlling fishing within sustainable limits will be difficult. In most regions of the world, control through attempts to limit effort or take fail because of the factors that lead to "the tragedy of the commons". The possibility of giving individual communities sole rights to particular fishing areas might be considered. Where this has been done, it has made enforcement practicable, reducing the demands on government officers.

Damage to corals from increasing nutrient levels is a major problem in the Caribbean. Reduction or elimination of economic incentives which lead to increased nutrient run-off from the land, for instance the subsidy on fertilizers, is highly desirable.

B. Identification of the global environmental benefits resulting from the project;

The proposal rightly recognises that protection of the Belize Barrier Reef and adjacent coastline is the highest priority for maintaining major representations of the biodiversity of the Caribbean. These ecosystems within and adjacent to the

Belize Reef are presently in a comparatively healthy state, but it is very unlikely that Belize will be able to maintain or improve that state without external assistance, as proposed in this project.

C. Evaluation of the project's compliance with GEF objectives, operational strategy and guidance in the biodiversity focal area;

The project places appropriately central emphasis on maintaining biological diversity and productivity through the application of the methods defined in Integrated Coastal Management (ICM) theory. The very strong commitment to developing ownership in the Belize population of the objectives of the project, through their involvement in all aspects of design, planning, management, research and monitoring, is laudable. The incorporation of capacity building as a central element in the project meets the requirement that the program will not collapse when external funding and assistance diminish or terminate at the end of the project.

Annex 1 makes the point that “under the baseline situation the resources to continue effective coordination for coastal zone planning are inadequate.” This raises the question of how resources will be found for such continued planning after the completion of this Project. Experience universally is that the demands for resources for planning do not diminish after the initial plan is prepared.

D. Assessment of the project's significance, and potential benefits ;

From the viewpoint of protecting the biodiversity of the Caribbean, the project could hardly be more significant. It is difficult to conceive of an alternative project in the Caribbean, whether within Belize or outside it, which could contribute as much to the biodiversity of the Caribbean (and therefore to global biodiversity) as this project., for the same level of investment.

E. Characterization of the potential replicability of the project to other sites (either in country or elsewhere) i.e., added value for the global environment beyond the project itself;

If this project demonstrates that protecting biodiversity is compatible with achieving sustainable development, it will serve to convince other countries in the Caribbean of the merit of the ICM approach. There is good communication within this region through the various regional organisations, but as noted below, regional cooperation has not been particularly exemplified in the Caribbean.

The methods proposed for this project are generally applicable. Indeed, these methods are the only ones that have worked consistently in various regions of the world in achieving both environmental protection and development. Therefore, the project is considered to be highly replicable in other areas of the Caribbean, although most other countries do not have the various advantages

possessed by Belize, such as a highly committed government, a low population density, a history of capacity building and a relatively undamaged environment.

F. Estimation of the project's sustainability in institutional, financial and technical terms;

Generally, the proposed institutional arrangements are very sound. They build on an existing governmental system which has demonstrated a commitment to integration of decision-making and to changing organisational arrangements so as to achieve major objectives, e.g. by the passing of the Coastal Zone Management Act.

Careful attention will have to be given to defining the respective responsibilities of, and relationship between, the Coastal Zone Management Authority and the Coastal Zone Management Institute and their CEO's. There is significant potential for competition, rather than cooperation, between them. Central Government will have to ensure that cooperation is an absolute requirement and continued cooperation should be a major indicator of performance in the Project. The Data Centre should be located within the CZM Institute.

A similar observation can be made about other government institutions. Almost ubiquitously, Fisheries and Conservation Departments see each other as enemies and act accordingly. The Authority will need to be given by the Government real authority (which should rarely be exercised), if it is to achieve integration of decision-making and actions from sectoral agencies.

The proposal for achieving financial sustainability is commendable. The mechanism of the Trust offers a proven way to ensure that most of the revenue from protected areas is expended on management of those areas, in the face of demands from other sectors of expenditure for additional resources. Consideration might be given to requiring, as a condition of having a permit, tourist operators in protected areas (such as dive operators) to collect on behalf of the Government a daily "management charge" from each tourist using their service. This charge can be quite small (perhaps \$5 per day per person), but collection by the operator is efficient, virtually costless and usually acceptable to tourists.

Technically, the scale of Belize, the present condition of the environment, the existing capabilities in the country, the commitment to capacity building and the proposal to establish the Coastal Zone Management Authority and Institute provide a sound basis for achieving technical feasibility.

The decision not to prepare a detailed CZM Plan for the whole of the Belize coastal/marine area as part of the Project is strongly supported. The establishment of a policy framework within which detailed planning will occur is optimal.

G. Appraisal of the extent to which the project will contribute to the improved definition and implementation of GEF's strategies and policies, thus paving the way for more effective international, technical cooperation, assistance and investment projects.

As described above, the general strategy of this project is strongly commended. The integration of protected areas into the general ICM program will be a major contribution to achieving ecologically sustainable development.

What is quite certain is that continuation of traditional sectoral approaches fails everywhere because of the incentives to internalise profits and externalise costs.

If this project is seen in the future as a success, it will represent a valuable confirmation of the merit of this strategy and can be used by the GEF to accelerate the adoption of such strategies elsewhere. Because Belize is a small country, it is an ideal opportunity to develop an ICM program which can be a pilot for later, larger programs in the Caribbean and elsewhere. The lessons learned in this situation can be applied by the GEF in its global strategies.

H. Where applicable, evaluation of relevant linkages to other focal areas (biodiversity conservation, climate change);

It is assumed that this heading should refer to "International Waters" rather than "biodiversity conservation".

The GEF objective in the international waters focal area is to contribute primarily as a catalyst to the implementation of a more comprehensive, ecosystem-based approach in managing international waters and their drainage basins as a means to achieve global environmental benefits. This project clearly contributes to this objective. The Caribbean is a semi-enclosed, comparatively small sea bordered by many countries. Its survival therefore depends on responsible actions by all those countries. This project has the potential to establish a modus operandi for these countries which, if applied consistently, has the best chance of achieving ecologically sustainable development of the region.

Particularly, the extension of the ICM concept to the headwaters of the drainage basins is a valuable attribute of this Project.

The program to maintain forests in Belize contributes to the objectives of the Climate Change focal point.

I. Where applicable, assessment of the insertion of the project into the framework of other programmes and action plans at regional or sub-regional levels;

Various Caribbean initiatives exist which are suitable as frameworks for the insertion or interaction of this project. They include the CARICOM Network, the CEP of UNEP (especially the programme to develop a MPA network in the

Wider Caribbean), the programs of the Gulf and Caribbean Fisheries Institute focussing on reserves and the activities of IUCN and WWF.

My experience with this Region, however, is that it is very difficult to achieve consensus on policy and cooperative action plans, for a variety of social, racial, political and economic reasons.

The project will contribute to the integrity of sites listed on the World Heritage List.

J. Characterization of any other beneficial effects not resulting from analyses above or below;

None identified.

K. Characterization of the degree of involvement of relevant stakeholders in the project;

The degree of involvement of relevant stakeholders appears almost ideal. Attention should be given to representation of women and young people in appropriate fora and organisations.

L. Appraisal of the role, potential and importance of capacity-building elements of the project;

Probably because of the lessons learned in the Pilot Phase of this project, appropriate attention has been given to this vital aspect of sustainability.

Strong support is particularly given to the concept embedded in this Project of starting small (with pilot sub-projects) and proceeding to apply lessons learned and capacities built in succeeding phases.

It is recommended that the strategy of “training the trainers” be applied to all aspects of capacity building, to take advantage of the multiplier effect. Ultimately, consideration could be given to training trainers from other Caribbean countries using this project as a training/demonstration opportunity.

The proposal to develop a network of voluntary wardens for MPAs is supported. However this should be done with recognition of the difficulties involved- particularly the clear definition of the powers (and limits of power) of the wardens, their relationship with the professional officers and their selection and training to cope with occasional violence or threat.

M. Estimation of the project’s innovations in terms of approach and implementation.

While all of the elements of this project’s approach have been developed theoretically for some time and have been applied in various places, it is rare for

them to be brought together in such an integrated way. This can be regarded as a most important innovation, not only in the Caribbean, but globally.

General Minor Points

- The proposal needs a contents page and a list of references.
- The endorsement of the Operational Focal Point is needed.
- The list of acronyms is incomplete.
- It is naive to imagine that people will cease killing crocodiles when they are told it is unnecessary and illegal.