



UNITED NATIONS CONVENTION ON BIODIVERSITY



NATIONAL CAPACITY SELF-ASSESSMENT

Thematic Assessment Report

BELIZE

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Submitted:

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Acronyms

ANDA	Association of National Development Agencies
BACONGO	Belize Association of Conservation Non-government Organizations
BAPPA	Belize Association of Private Protected Areas
BAS	Belize Audubon Society
BAHA	Belize Agriculture Health Authority
BTIA	Belize Tourism Industry Association
BTB	Belize Tourist Board
CBO	Community Based Organization
CCAD	Central American Commission on Environment and Development
CHM	Clearing House Mechanism
CI	Conservation International
CITES	Convention on International Trade of Endangered Species
CREI	Citrus Research and Education Institute
CZMAI	Coastal Zone Management Authority and Institute
DOE	Department of the Environment
EIA	Environmental Impact Assessment
FON	Friends of Nature
GIS	Geographical Information System
IUCN	International Union for the Conservation of Nature
KCC	Ke'Kechi' Council of Belize
LIC	Land Information Centre
MBRS	Mesoamerican Barrier Reef Programme
MBC	Mesoamerican Biological Corridor
MNRE	Ministry of Natural Resources and the Environment
NCSA	National Capacity Self-Assessment
NEAC	National Environmental Appraisal Committee of the DOE
NEMO	National Emergency Management Organization
NICH	National Institute of Culture and History
NGO	Non-government Organization
NPAPSP	National Protected Areas Policy and System Plan
PA	Protected Area
PACT	Protected Areas Conservation Trust
PfB	Programme for Belize
QUADS	Quality Assurance and Development Service (Ministry of Education and Culture)
RA	Rainforest Alliance
RAMSAR	International Convention on Wetlands and Waterfowl

SDA	Special Development Area
SATIIM	Sarstoon Temash Institute for Indigenous Management
SWA	Sibun Watershed Association
TEC	Tropical Education Center
TIDE	Toledo Institute for Development and Environment
TMCC	Toledo Maya Culture Council
TMWC	Toledo Maya Women's Council
TNC	The Nature Conservancy
TRIGOH	Tri-National Alliance for the Gulf of Honduras
UB	University of Belize
UNCBD	United Nations Convention on Biological Diversity
UNFCCC	United Nations Framework Convention on Climate Change
UNCCD	United Nations Convention to Combat Desertification (Land Degradation)
WCS	Wildlife Conservation Society
WWF	World Wildlife Fund

UNITED NATIONS CONVENTION ON BIOLOGICAL DIVERSITY
NATIONAL CAPACITY SELF-ASSESSMENT

THEMATIC ASSESSMENT REPORT OF BELIZE

EXECUTIVE SUMMARY

Belize is undergoing a National Capacity Self Assessment (NCSA) process to identify capacities to effectively address the requirements of the United Nations Convention on Biological Diversity (UNCBD). The NCSA process involves conducting a Biodiversity Stock-Take Report that is compiled in order to describe previous activities that addressed those requirements, current conditions within the country, stakeholders involved and systemic, institutional and individual capacities that exist. It also identifies what requirements have not been addressed. This Thematic Assessment, based on information compiled during the stock-take, was the next step in that process. It examined the requirements that are not being met, or that are being incompletely addressed, and identified causes, constraints and barriers hindering progress. These documents will contribute to the development of the National Capacity Self-Assessment Report on the UNCBD that will explore possible linkages and common goals and objectives among the UNCBD, the UN Framework Convention on Climate Change (UNFCCC) and the UN Convention to Combat Desertification/Drought (Land Degradation) (UNCCD). The findings from this process will help to identify areas where potential funding may best be invested to provide the kind of capacities needed in order to effectively address requirements of all three conventions.

Priority needs identified through the Biodiversity Thematic Assessment include:

- Development of a functional communications network that helps to coordinate activities among professionals.
- Establishment of a Clearing House Mechanism (CHM) through which information can be accumulated, organized and disseminated throughout the stakeholder community, including the general public.

- Work to make co-management agreements successful through capacity building and technical support.
- Standardization and application of an assessment and monitoring process that can be conducted through trained and experienced community members working in conjunction with appropriate organizations and educational institutions.
- Focus on watersheds as basic conservation units, protecting the soil and water that is so vital to the biodiversity and ecosystems of Belize.
- Design and implement multilateral policies that include the necessity of biodiversity preservation and ecosystem conservation when development decisions are made.
- Biodiversity and ecosystem awareness and education program that reaches into all sectors of society through many different media.
- Involve youth in the assessment, monitoring, conservation and application of solutions to identified problems that threaten biodiversity and ecosystems.

Capacities of Belize to effectively address those requirements set forth in the Articles of the UNCBD at the systemic, institutional, and individual levels identified are considerable. Growing capacities at the individual and institutional levels to conceptualize and formulate policies, enact legislation, develop strategies, implement effective programmes, engage communities, monitor conditions, analyze results and report findings are in place. However, there are also many capacity gaps and constraints.

A serious constraint at the **individual** level is that people throughout communities are not effectively engaged in the process of biodiversity preservation, ecosystem conservation and sustainable use of natural resources. Another **individual** level constraint is that technical and management people are often overloaded with responsibilities, some of which ultimately must be neglected or partially addressed.

A serious constraint at the **institutional** level is that GOB agencies, NGOs and CBOs are often assigned extensive responsibilities that stretch over the entire country and few staff and insufficient transportation by which to address these responsibilities. Obligations to many different, but often interrelated, global and regional treaties and conventions further increase

institutional responsibilities. Again, the results is that some things are not given due attention. Staff and transportation restrictions also prevent the implementation of effective monitoring programmes.

A fundamental capacity deficiency at the **systemic** level is at the political level where the enabling environment is created. There is no environmental and sustainable development ethic that permeates through all decisions made and actions implemented. Perhaps this deficiency may be addressed by the creation of a national biodiversity conservation, ecosystem conservation, natural resource management and sustainable use movement in Belize that engaged all levels of society in the pursuit of the common good. Strategic actions have been recommended that address some of these broad issues and a very basic draft Action Plan has been presented to address recognized gaps and constraints.

1. Introduction to the Convention on Biological Diversity in Belize

1.1. Overview of Belize Situation

Belize is rich in biodiversity and blessed with many healthy and functional ecosystems, due in large part to our small population. Forests cover about 67.4% of our terrestrial ecosystems (Program for Belize, 1995). The Central American Ecosystems Mapping Project identified 87 distinct types of terrestrial and marine ecosystems in Belize. Thirty perennial river basins range in size from small coastal creeks to large trans-national watersheds such as Rio Hondo and Belize River, most of these originating in Maya Mountains, a geographical feature unique to the region. Belize marine ecosystems, include mangroves, sea grass beds and coral reefs, are some of the most productive in the Caribbean. Almost 80% of the Mesoamerican Barrier Reef System (MBRS), a World Heritage Site, occurs within Belizean waters.

There is a documented 3,600 species of plants (including 613 medicinal plants) in Belize. Species confirmed in the country include 46 amphibians, 141 reptiles, 577 birds and 163 mammals. An estimate of 634 genera, representing 1,302 species of algae, invertebrates and fishes are documented from the marine ecosystems of Belize. Presently, 58 plants, two species

of fishes, two species of amphibians and one species or reptile have been determined to be endemic to Belize and 137 species of plants and animals occur on the IUCN Red List of Threatened Species, ranging from “extinct” to “least concern.” Forty-three mammal species occurring in Belize are endangered, rare and/or hunted range-wide. Thirteen mammal species are listed in the CITES as being of international concern, under the US Endangered Species Act or occur in IUCN Red Data Books (Program for Belize, 1995).

Morelet’s crocodile (*Crocodylus moreletii*) populations have recovered from years of hunting and are now considered to be healthy. American crocodiles (*Crocodylus acutus*) occur in significant numbers, mostly on a few select cayes. One of the largest populations of West Indian manatee (*Trichechus manatus*) occurs in Belize, with the highest numbers being found in the Southern Lagoon. The adjacent coastal area is also considered to be one of the largest hawksbill sea turtle (*Eretmochelys imbricata*) nesting beaches in the Caribbean. Belize was home to one of the largest breeding populations of Scarlet Macaws (*Ara macao*), but those birds have been recently displaced by the construction of a hydroelectric dam in the heart of one of the richest forest ecosystems in the country.

The Belizean economy is strongly linked to the natural resource base, particularly in agriculture, fisheries and tourism industries that contribute to the bulk of our earning potential. Rapid expansion in all of these sectors has occurred since the mid 1980s. A period of citrus expansion was followed by shrimp farm development in the coastal areas. Eco-tourism was a growing industry during the past twenty-five years, representing an estimated collective investment of US\$350,000,000.00 country-wide (personal communication, Executive Director, BTIA). However, eco-tourism is threatened today by the rapid and poorly integrated cruise ship tourism and adventure tourism, both of which, if un-scaled to fit into environmental use restraints, will lead to the further demise of our highly threatened ecosystems and the accompanying rich biodiversity. Belize is further challenged by the effects of an expanding global economy, excessive national debt, loss of public resources and the potential devaluation of our dollar. Belize lacks many of the capacities available to more populated nations, such as a large tax base and greater pool of human resources.

Despite these challenges and shortcomings in many areas, we have made significant progress in efforts addressing biodiversity and ecosystem conservation issues. Forty-one pieces of legislation address biodiversity and ecosystem issues and empower fourteen different GOB ministries, departments and institutions to deal with these issues as necessary. At least thirty-eight local NGOs and CBOs and sixteen international organizations are partners in working toward common goals and responsibilities, a growing number being involved in co-management of protected areas. Belize has signed on in support of at least twenty-five regional and international conventions and agreements relevant to biodiversity and ecosystem issues, including the United Nations Convention on Biological Diversity (UNCBD).

The Government of Belize (GOB) has committed to the conservation of biological diversity, sustainable use of biological resources and the fair and equitable sharing of benefits derived from the use of genetic resources. The Belize Biodiversity Strategy and the Belize Biodiversity Action Plan 1998-2003 (Jacobs and Castañeda 1998, eds.) was submitted in 1998. During that same year, a dozen new protected areas were added to the established National Parks System. The Forest Department currently manages 600,386 hectares (1,482,954 acres) of protected areas, representing seventeen forest reserves (248,490 hectares or 613,700 acres), sixteen national parks (165,000 hectares or 407,550 acres), seven wildlife sanctuaries (136,951 hectares or 338,268 acres), four nature reserves (43,091 hectares or 106,435 acres) and four natural monuments (6,855 hectares or 16,931 acres) (Forest Department, 2005). Co-management agreements with either NGOs or CBOs exist for twenty-two of these protected areas. The Fisheries Department manages eight marine reserves, four of which have co-management agreements with local NGOs or CBOs. The Institute of Archaeology is in charge of eleven archaeological reserves throughout the country.

Although great progress has been made in many areas, there is still a great need to develop the capacities to address the ever-increasing challenges of conservation. GOB agencies are challenged by excessive responsibilities, insufficient number of staff for tasks at hand, lack of appropriate equipment and transportation and operational budgets are being cut rather than expanded. NGOs and CBOs are working to become more sustainable during economically trying times. Meanwhile, protected areas are being de-reserved as large-scale developers seek investment opportunities in the tourism and aquaculture sectors of the country.

A stock-taking exercise is undertaken to identify the current on-going activities Belize that support the requirements of the UNCBD and to identify what has or has not been done to achieve those requirements. This Thematic Assessment and the Stock-Take Report will be used to support the National Capacity Self-Assessment Report on the UNCBD. The NCSA Report will explore possible linkages and common goals and objectives among the UNCBD, the UN Framework Convention on Climate Change (UNFCCC) and the UN Convention to Combat Desertification/Drought (Land Degradation) (UNCCD). Results of this effort will be to identify those areas where potential funding may best be invested to generate the kind of results needed to effectively address requirements of these conventions.

1.2. Belize Priority Requirements Under the Convention

Participants at the Belize Biodiversity Workshop, May 5-6, 2005, generated a list of priority Articles that should be the focus of biodiversity conservation efforts within the country during the next two years. Table 1 gives those priority areas identified, listed in the order in which they appear in the Convention. Article 19, concerning handling of biotechnology and its benefits has also been included in the assessment. A Priority Matrix was circulated among participants that seeks to rank each relevant recommendation. Results of this input was tabulated and included in follow-up drafts of this document presented at the workshop on June 17, 2005.

Table 1. Belize Priority Requirements Under the Convention on Biological Diversity.

Article 6	General Measures for Conservation and Sustainable Use
Article 7	Identifying and Monitoring Biodiversity and its Conservation
Article 8	In-situ Conservation, Including Protected Systems Management
Article 10	Sustainable use of Components of Biological Diversity
Article 13	Public Education and Awareness
Article 17	Exchange of Information
Article 19	Handling Biotechnology and Bio-safety Issues
Article 20	Financial Resources

1.3. Overview of Progress Meeting Priority Requirements

Article 6. General Measures for Conservation and Sustainable Development

The Belize Biodiversity Strategy (1998) has been a guiding document and updated policies have been drafted based on the identified responsibilities and strategies from the effort. New policies are being developed for Forest Department and Fisheries Department that incorporate much of the philosophy of the Convention, as required under Article 6. Operational policies have also been developed by NGOs involved in biodiversity protection and conservation objectives, including Belize Audubon Society (BAS), Program for Belize (PFB), Toledo Institute for Development and Environment (TIDE), Friends of Nature (FON) and others.

Article 7. Identifying and Monitoring Biodiversity and its Conservation

Biodiversity inventorying and monitoring are not coordinated efforts outside of those few institutions and GOB agencies conducting the studies. Standardized assessment and monitoring procedure manuals are now available for use in monitoring sea grass beds, mangroves and reefs. Standard methodologies are available for freshwater systems but are not widely available or utilized. Standard methodologies for terrestrial ecosystems are poorly developed. A central data management system is needed to accommodate all environmental assessment and monitoring information. The EIA process accumulates significant data involving assessment of sites where select development activities occur and needs to become a part of the general access information archiving and distribution system. There exists a strong need to create a certification process for laboratories within the country to ensure quality data.

Article 8. In-situ conservation and protected areas management

In-situ conservation has been well established in Belize and a protected areas management system is in place. Seventy-four protected areas, including six private protected areas, are established. Fifty of these are managed by the Forest Department, twenty-two of which are co-managed by NGOs and/or CBOs. Fisheries Department manages eight marine protected areas in conjunction with NGOs and CBOs through co-management agreements. The Institute of Archaeology manages eleven archaeological reserves and the biodiversity associated with each site. Efforts toward establishing a national corridor system that connects into the Mesoamerican

Biological Corridor System (MBC) are on-going. The National Protected Areas Policy and System Plan (NPAPSP) and the Mesoamerican Barrier Reef System (MBRS) are also being implemented.

Article 10. Sustainable use of components for biological diversity

Several efforts have been initiated to create sustainable use of natural resources. Sustainable forestry plots have been established in the Chiquibul under forty-year rotation cycles. Planned extraction of individual trees helped to minimize impact to surrounding trees. Research on medicinal plants and efforts by Ixchel and a small industry had been built around developing natural plant products for commercial outlets around the country, from local vendors to international resorts. Other initiatives involve breeding iguanas, crocodiles and orchids. The iguana breeding efforts are largely for restocking wild populations and other husbandry projects are still in the experimental phase. Aquiculture efforts involve local freshwater shrimp (*Macrobrachium* sp.), cichlids (*Cichlasoma synspilum*, *C. urophthalmus*, *Petenia splendida*) and snappers (*Centropomus undecimalis*) ultimately for export. Cultivation of marine sponges, select algae and other organisms that produce compounds that may have pharmaceutical applications has been discussed. However, one of the most important areas of sustainable use is for tourism. Many sites are set aside for tourist visitation.

Article 13. Public information and environmental awareness

Training, educational opportunities and environmental experiences for primary and secondary students, teachers and the greater Belizean public have been implemented through many different agencies. The Belize Zoo Camp, offered at and Tropical Education Center (TEC), is a summer activity that has provided environmental awareness and experiences for many children through the years. BAS has a long history of awareness and education programs. The Sibun Watershed Association (SWA) has conducted an effective outreach program among school systems through the Watershed Mobile Classroom, host community meetings and sponsors “Watershed Celebration Day.” PFB has actively engaged Belizean students in educational opportunities at Hill Bank and La Milpa field stations. Las Cuevas Field Station in the Chiquibul Forest is currently hosting field programs through which many high schools, college and universities participate. The Mesoamerican Biological Corridors Project, the Mesoamerican

Barrier Reef System, The Nature Conservancy (Freshwater Initiative and spawning aggregate studies) and other regional and international organizations working in Belize also provide educational materials, workshops and experiences. Belize Tourism Industry Association (BTIA) and the Belize Tourism Board (BTB) provide tour guide training programs. The Fisheries Department, the Forest Department and the Protected Areas Conservation Trust (PACT) have also been active in outreach and education efforts. These institutions have also been very active in providing environmental and biodiversity awareness outreach to the greater Belizean community, to the point where such words as 'species', 'watershed', 'ecosystem' and 'biodiversity' are in common usage.

Article 17. Exchange of information

Information systems are being developed as internet sites. A bibliography of published and unpublished information on the biodiversity and ecology of Belize has been compiled in draft. The Land Information Centre (LIC) maintains a geographically referenced database and maps of Belize, along with satellite imagery. Much of this information is now available for the general public. There is no central information and data repository/distribution system in place but efforts are underway to set up the biodiversity CHM within the Forest Department. A few important internet sites have been established by individual researchers where information is posted for downloading.

Article 19. Handling of biotechnology and distribution of its benefits

This area was not identified as a priority concern. However, BAHA is currently developing policies to address issues related to handling of genetically modified organisms and Bio-Safety. Workshop consultation is scheduled for June 2005, during which the policy will be reviewed prior to submission for Cabinet approval.

Article 20. Financial resources

The UNDP GEF/SGP has been involved in funding conservation efforts in Belize since the early 1990s. This grant program has supported co-management efforts around the country and is still active in providing capacity building funding for new projects. PACT has emerged as a successful conservation management organization that is funded by tourist fees. Many

international organizations have contributed significant funds to support research and conservation efforts in Belize, including TNC, Conservation International (CI), International Union for the Conservation of Nature (IUCN), Wildlife Conservation Society (WCS), World Wildlife Fund (WWF), the Oak Foundation, the Darwin Initiative, Wildlife Trust and others. PFB has developed a successful fund raising and support system for managing the Rio Bravo Conservation and Management Area, a private protected area, and is supporting serious research into the development of sustainable natural resource use.

1.4. Overall Enabling Environment in Belize

1.4.1. Economic Framework

The Belizean economy is based largely on forestry, agriculture, fisheries, aquaculture and tourism industries that are dependent on our natural resource base. Logging was the original industry in Belize, with logwood and mahogany being the primary woods sought. Today the industry continues, but is based on many secondary woods, including pine. Bananas and sugar were the primary cash crops for many years, but sugar prices have fallen significantly. The citrus industry expanded in Stann Creek and Cayo Districts in the mid 1980s but has suffered from international price fluctuations. Shrimp farm development began to occur in coastal areas of the country in the early 1990s and has grown into an important industry. Eco-tourism traces its beginnings to the SCUBA and snorkeling offered out of San Pedro in the 1970s and grew into a major income generator for the country as tourism spread to other marine sites and inland areas. This tourism industry, based on birders and nature enthusiasts who spend multiple nights in the country is being threatened by large-scale cruise ship tourism (day trips in country only) and adventure tourism, both of which can pose significant impacts to environmental resources if not properly controlled.

In excess of 25% of Belizean households, representing 33% of the total population, fall below the BZ\$1,287 national poverty line, based on the National Housing and Population Census of 2000 and the 2002 Poverty Assessment Report. Rural populations (52% of the total) are the most economically depressed. Slash and burn agriculture and heavy dependency on local natural

resources, but lack of sustainable harvesting strategies, has resulted in the overexploitation of forests and fisheries by those people living at or below the poverty level. Creation of an economically sustainable society is hampered by unemployment, under employment, a heavy dependence on imported goods, small internal markets and dependence on a few cash crops (citrus, sugar, bananas, pond raised shrimp) that depend on unstable markets.

Within the past few years, the national debt climbed from about three hundred million US dollars in 1998 to over one billion US dollars in a country of about seventy-five thousand taxpayers. Today Belize is challenged by the objectives of international political and corporate powers, holding leverage over the country due to the debt burden, and the plans they have for our natural resource base. Pressure to further exploit the nation's national resources is incurred in part due to the conditions of vulnerability created by the national debt and the inability to pay toward it. Most of the public resources, including utilities, ports and the airport have been privatized in order to generate funds to pay toward the debt. Today most of these facilities are controlled by foreign investors. Even the waters in our streams, rivers, lakes and lagoons are now under control of the foreign-owned Belize Water Service.

Layered upon these challenges are those imposed by global climate change and land degradation and the impact that these phenomena will have on the already weak economy. Changes in dry season and wet season patterns are being recognized and the impact on the agricultural sector is direct and potentially severe. Most of the country's population live along coastal areas and are threatened by any significant rise in sea level. Floods, hurricanes and droughts may further impose a heavy toll on our economy and our ecosystems. Climate change effects and non-sustainable land use may lead to greater changes in local climatic patterns, modify flow regimes of watershed systems, reduce soil fertility, lead to soil erosion/sedimentation impacts and biodiversity loss. Such changes will have significant impacts on the national economy.

1.4.2. Partnerships, Delegation and Governance

Three ministries, representing thirteen primary departments and the Institute of Archaeology are directly involved in the management of Belize’s natural resources, including lands, forests, wildlife, fishes and water (Table 2). Several NGOs are involved in co-management. At least eight other Ministries are involved in the use of select natural resources or indirectly involved in environmental issues through education, health and development responsibilities. Table 3 identifies responsibilities and activities of GOB agencies and NGOs related to the primary articles of the UNCBD.

Table 2. GOB departments, NGOs and CBOs involved in environmental activities in Belize

PRIMARY AGENCIES	GENERAL RESPONSIBILITIES
GOVERNMENT OF BELIZE	
Ministry of Natural Resources and the Environment	
Forest Department	Manage forest resources and terrestrial and marine island PAs
Geology and Petroleum Department	Oversee extraction of mineral and petroleum resources
Lands and Surveys Department	Maintain land survey information of the Nation
Lands Information Center	Maintains GIS and mapping data for the country
Department of the Environment	Presides over the EIA process, addresses environmental issues
Ministry of Agriculture and Fisheries	
Fisheries Department	Oversees management of fisheries resources and eight MPAs
Coastal Zone Management Authority and Institute	Oversees costal planning, monitoring and research
Agriculture Department	Oversees agricultural sector of Belize and extension services
Ministry of Tourism	Oversees developing tourist sector in Belize
QUASI-GOVERNMENT AGENCIES	
Protected Areas Conservation Trust	Manages environmental funds generated from tourist fees
Belize Agriculture Health Authority	Addresses Bio-Safety and plant/animal health issues
National Institute of Culture and History	Oversees national museum, culture and historical preservation
Institute of Archaeology	Manages eleven archaeological reserves and research in Belize
LOCAL NGOs AND CBOs	
Association of the Friends of Five Blues Lake (AFFBL)	Co-manages Five Blues National Park in conjunction with the Forest Department
Belize Association of Private Protected Areas (BAPPA)	Promotes recognition of private protected areas as a viable land use category and encourages support legislation.
Belize Audubon Society (BAS)	Co-manages eight protected areas, promotes environmental awareness and education.

Belize Botanic Garden	Maintains specimens of select Belizean plants ex-situ.
Belize Institute for Environmental Law	Promotes development of necessary environmental legislation and public awareness of that body of legislation.
Belize Research Connections	Promote informed land use planning, management, researchers
Belize Tropical Forest Studies (BTFS)	Local NGO involved in the collection and distribution of biodiversity information on Belize
Belize Zoo	Maintains Belize vertebrates in ex-situ, promotes conservation efforts, environmental education programs, Zoo Camp.
Friends of Conservation and Development (FCD)	Involved in conservation issues in central western Belize, and Mopan River issues.
Friends of Nature	Co-manages Gladden Spit Marine Reserve and Laughing Bird Caye.
Friends of Gra Gra Lagoon	Co-manages Gra Gra Lagoon National Park and promotes environmental education at the local level
Friends of Mayflower Bocawina National Park	Co-manages the park as an archaeological site and park for the protection of natural resources.
Friends of Swallow Caye	Community association that co-manages Swallow Caye Wildlife Sanctuary
Program for Belize (Pfb)	Managing Rio Bravo, promotes sustainable land use, environmental education, research, ecotourism, sustainable forestry
Rancho Dolores Environmental and Development Group	Community association involved in the co-management of Spanish Creek Wildlife Sanctuary.
Sarstoon Temash Institute for Indigenous Management (SATIIM)	Works to promote community-based management of natural resources and protected areas involving Indigenous Peoples.
SPECTE	Promotes community-based conservation in western the Cayo District
Swia Ban	Promotes conservation on Caye Caulker
Toledo Association for Sustainable Tourism and Empowerment (TASTE)	Co-manages UB Hunting Caye Marine Field Station in conjunction with Earth Watch within the Sapodilla Cayes
Toledo Institute for Development and the Environment (TIDE)	Co-manages Port of Honduras Marine Protected Area and the watershed systems flowing into that coastal zone.
Ya'axche' Conservation Trust (YCT)	Implements participatory conservation and sustainable use of natural resources for equitable regional development
REGIONAL AND INTERNATIONAL NGOs, CBOs AND PROGRAMMES	
Birds Without Borders	Promotes conservation of migratory birds
Conservation International	Supports conservation efforts within Belize
Darwin Initiative	Supports research on sharks and other marine fauna in Belize
Flora and Fauna International	Supports community-based conservation efforts in Belize
International Union for the Conservation of Nature	Supports conservation efforts in Belize
LightHawk Conservation Airwing	Provides aerial surveys of areas around Belize

Mesoamerican Biological Corridor Program (MBC)	Promotes natural biodiversity by developing corridors between protected areas within the 7 Central American countries,
Mesoamerican Barrier Reef System (MBRS)	Working to promote biodiversity protection throughout the Mesoamerican Barrier Reef System region.
Oak Foundation	Supports UB NRM Program
Rainforest Alliance	Promoting protection and conservation of tropical forests
The Nature Conservancy	Supports conservation efforts in Port of Honduras area and associated watersheds and in New River Watershed
Wildlife Conservation Society	Supports conservation efforts in Rio Bravo Conservation Area and other areas within the region.
Wildlife Trust	Promotes manatee research and management efforts in Belize.
World Wildlife Fund	Supports conservation efforts within Belize and the region
UNDP Global Environmental Facility	Supports management of biological resources through capacity building, co-management, appropriate technology, etc.

Within the Ministry of Natural Resources and the Environment (MNRE), The Forest Department is the primary terrestrial natural resource management agency. Agency responsibilities include wildlife, biodiversity, watershed management, non-timber forest products, sustainable forest management, law enforcement, forest fire management and tourism. The Forest Department currently manages forty-eight PAs, representing a total of 600,386 hectares (1,482,954 acres) that include forest reserves, nature reserves, national parks, wildlife sanctuaries and natural monuments. Twenty-two protected areas are co-managed in conjunction with NGOs such as Belize Audubon Society and community based organizations. The Forest Department is also the Biodiversity Focal Point agency and will house and manage the Clearing House Mechanism (CHM). It is also responsible for implementing convention agreements under UNCBD, the Convention of Wetlands of International Importance Especially as Waterfowl Habitat (RAMSAR) and Central American Commission on Environment and Development (CCAD) and shares responsibility with the Fisheries Department for Convention on International Trade in Endangered Species (CITES).

The Forest Department works closely with the Fisheries Department issues involving coastal and marine protected areas and mangroves. The CHM will involve the Department with many different agencies interested in information sharing. The Toledo Healthy Forest Initiative involves several local NGOs, CBOs and village government groups. The Chiquibul Forest

Management Initiative involves FCD. Conservation International (CI) is considering investing substantial funds and PACT is interested in matching that amount to fund the project. The Forest Department has partnerships with PfB and the private sector (long term harvest permits). They have signed memorandums of understanding with Las Cuevas Field Station and SAGE for forest monitoring.

Within this same Ministry, the Lands and Surveys Department oversees the distribution of lands. The Land Management Programme is focused on developing a National Land Policy Framework for private and public sector development based on enhanced land security, developing a single land registry system, setting up Special Development Areas around the country and supporting land policy reform. The Department of Geology and Petroleum presides over extraction of mineral resources and the Department of the Environment (DOE) is charged with overseeing application of the EIA process and investigating and monitoring development issues to ensure that excessive and unnecessary environmental impact. Land Information Centre (LIC) is an archiving and dissemination center for geographically referenced information.

The Fisheries Department, within Ministry of Agriculture and Fisheries, is charged with overseeing management of Belize's aquatic (marine and freshwater) fisheries resources, regulating the extraction of those resources, regulating the aquaculture industry, overseeing the use of Belize's marine ecosystems and is also responsible for the management of eight marine reserves. This agency is involved in several co-management agreements with CBOs representing local communities and resource users. Local advisory committees are also set up to assist in the management of the site. The Fisheries Department is involved with the Plan Regional de Pesca y Acuicultura Continental (PREPAC), a regional initiative focused on sustainable fisheries management and aquaculture in Central America, public awareness and ecological issues.

The Coastal Zone Management Authority and Institute (CZMAI) have recently been placed in the Ministry of Fisheries and Agriculture. The agency has been involved in helping to integrate biodiversity conservation into the Coastal Zone Management Policy Framework, establish a Belize Barrier Reef Marine Protected Area Network and promote the integration of island development plans with marine biodiversity conservation. CZMAI has also been working to create a sustainable financing system for marine biodiversity conservation efforts, provide

training and raise the level of public awareness. The Coastal Planning Programme, implemented through the CZMAI, is a response to increasing tourism development in the coastal zone of Belize and focuses on the impact of sea level rise due to climatic change. The Coastal Zone Management Technical Committee drafted a Cayes Development Policy (1995) that has been under review for several years. CZMAI has run into funding problems recently and has been forced to down-size its staff.

The Belize Agricultural Health Authority (BAHA) oversees and ensures the health of agricultural plants and animals. The Agency operates the Central Investigation Laboratory that conducts food and environmental testing, microbiological analysis, antibiotic and pesticide screening, chemical residues testing and water quality analysis. From the standpoint of the CBD, BAHA is in charge of quarantine activities and is currently involved in drafting policies to address handling of genetically modified organisms and bio safety issues.

PACT is an environmental trust fund designed to enable and empower conservation, preservation, enhancement and management of Belize's natural resources and protected areas while supporting national development goals. PACT efforts are supportive and essential to meeting the requirements of the CBD. PACT provides funding to Government agencies, such as the Forest Department NPAPSP to improve PA management through institutional strengthening of the Biodiversity Management Program and Fisheries Department to access Queen Conch populations in marine reserves. Co-management programs are supported through PACT grants in terrestrial and marine environments. The UB Natural Resource Management Program (UBNRMP) is being funded to develop and equip a four-year degree program and UB Institute of Marine Studies (UBIMS) is being funded to develop greater research capacity at the Calabash Caye Marine Station. The Oak Foundation and PACT are working together to financially support these efforts. Scholarships are also provided by PACT to support select students working on degree programs both within UB and at universities abroad.

The Institute of Archaeology, an integral part of National Institute of Culture and History (NICH), is a statutory board responsible for managing archaeological sites around the country. Maintaining sites for visitors, overseeing excavations, research, archaeological impact assessments, public education, providing security of the sites and protecting biodiversity and ecosystems associated with the archaeological parks are Institute responsibilities. Jurisdiction of

the Institute also is in charge of permitting use of caves, as these systems are often sites of archaeological concern.

A recent study of legislative, institutional and management strategies for protected areas management in Belize proposes two different governance options for developing a more coordinated PA management system that ensures a collaborative effort among the three GOB agencies charged with managing PAs (Forest Department, Fisheries Department, Institute of Archaeology) (Homer, 2005). One plan calls for the formation of a statutory body made up of the protected area management units of each department working together. A decision will be made within two months as to which plan will be accepted (Homer, 2005 and personal communication with UNCBD National Focal Point).

Partnerships have been formed among Government agencies, NGOs and CBOs for co-management of protected areas. Currently there are twenty-two co-managed protected areas under the jurisdiction of the Forest Department and eight co-managed marine reserves under the Fisheries Department. Several NGOs have emerged that are made up of organizations sharing common goals. The Association of National Development Agencies (ANDA) is made up of non-government organizations focusing on development issues. Village government councils have joined together in the Association of Village Councils and community-based organizations of the Toledo District have formed the Southern Alliance for Grassroots Enterprises (SAGE). The Belize Association of Private Protected Areas (BAPPA) is made up of a growing number of these facilities from around the country. Belize Alliance of Conservation Non-government Organizations (BACONGO) is an organization representing many of the principal NGOs that have been involved in conservation and biodiversity preservation activities in the country.

1.4.3. Physical Infrastructure

The Forest Department maintains eight Forest Stations around the country and an office complex in Belmopan. The National Herbarium within the Forest Department is located in Belmopan and includes an extensive collection of taxonomic literature. The Fisheries Department maintains two main offices, one in Belize City in the same building with the MBRS and CZMAI, and the second facility in Punta Gorda. The Institute of Archaeology has its central office located in Belmopan and maintains the National Vault where archaeological artifacts are maintained.

Table 3. Significant Activities of GOB Agencies and NGOs that Address Responsibilities under Select Articles of the UNCBD

	General Measures for Conservation and Sustainable Use (Article 6)	Identification and Monitoring (Article 7)	In-Situ Conservation (Art. 8)	Ex-Situ Conservation (Art. 9)	Sustainable use of Components of Biological Diversity (Article 10)	Incentive Measures (Article 11)	Research and Training (Article 12)	Public Education and Awareness (Article 13)	Impact Assessment and Minimizing Adverse Impacts (Article 14)	Access to Genetic Resources (Article 15)	Access to and Transfer of Technology (Article 16)	Exchange of Information (Article 17)	Technical and Scientific Cooperation (Article 18)	Handling of Biotechnology and Distribution of Benefits (Art. 19)	Financial Resources (Article 20)	Reports (Article 26)
Forest Department	X	X	X		X		X	X			X	X	X			X
Geology and Petroleum Department													X			
Lands and Surveys Department						X										
Lands Information Centre							X	X			X	X	X			
Department of the Environment	X	X						X	X		X					
Protected Areas Conservation Trust	X	X				X	X	X				X			X	
Fisheries Department	X	X	X		X		X	X			X	X	X			
Coastal Zone Management Authority/ Institute	X	X					X	X				X				
Agriculture Department				X			X	X				X				
Belize Agriculture Health Authority		X					X	X		X	X	X	X	X		
Ministry of Tourism					X		X	X				X				
National Institute of Culture and History																
Institute of Archaeology			X													
Co-management NGOs and CBOs	X		X		X		X	X				X	X			
All Other Local/National Environmental NGOs	X						X	X								
BZ Zoo, BZ Botanical Garden, BZ Herpetarium				X			X	X		X		X	X			
6 th Form Colleges							X	X				X	X			
University of Belize							X	X		X	X	X	X			
International NGOs	X	X			X	X	X	X			X	X	X		X	

They also have an archaeological library. The DOE maintains an office in Belmopan. At one time they maintained a small water quality lab on the premises but it is no longer functional. Plans are to develop new laboratory facilities pending funding.

The Belize Agricultural Health Authority has an office in Belize City and Belmopan. It operates the Central Investigation Laboratory in Belize City that is focused on testing for pesticide residues on fruits and vegetables and conducting microbiological analysis of seafood for the EU market. It also has some water quality testing capacities. There is an agricultural research and extension service facility maintained at Central Farm on the Western Highway. The Ministry of Health runs a water quality and microbiology laboratory in Belize City near the Karl Heusner Memorial Hospital. The Belize Sugar Industry and Bowen and Bowen Inc. also run water quality laboratories.

The National Parks System of Belize is an extensive network of protected areas. Most of these PAs have park stations that are staffed with managers and/or Forest Rangers and Forest Guards. The Fisheries Department has field stations located within six of the marine protected areas under its charge. Each field station is staffed with a Park Manager and a Ranger. The Institute of Archaeology has park headquarters established at the parks under its charge. Staff consists of a Park Manager, sometimes an Assistant Park Manager and a Ranger. Some parks within the protected areas system have museums, restrooms, picnic areas and some have accommodations for over night stays (campgrounds, cabins, dormitories). Roads, trail systems, often with signage, bridges, pavilions and other features are found at select parks.

There are at least 21 environmental field stations around the country. Many of these sites are run by NGOs and institutions. The Smithsonian Institute, for example, has a field station located on Carrie Bow Caye that has been in operation for about thirty-two years. The UB Institute of Marine Studies has a field station on Calabash Caye, part of Turneffe Atoll, and is building a new field station in conjunction with Earth Watch Institute. PFB maintains two field stations, one at La Milpa and the other at Hill Bank within the Rio Bravo Management and Conservation Area. Private field stations included Wild Tracks, Wee Wee Caye Marine Laboratory, Possum Point Biological Field Station, Monkey Bay Wildlife Sanctuary and Las Cuevas Field Station

laboratories, vehicles and boats. Twenty-one field stations have been listed; many of these facilities catering to researchers and international student groups.

Several facilities around the country maintain ex-situ collections of plants and animals. The Belize Zoo maintains a collection of Belizean birds and mammals. Tea Kettle Enterprises maintains a collection of palm seeds; the Belize Botanical Garden maintains a living native plant collection. UB has a small plant propagation laboratory on the Belmopan Campus. BAHA has an insectarium for rearing parasitic wasps for the control of the pink hibiscus mealy bug and four or five butterfly rearing facilities are scattered around the country. A small, private aquarium is maintained on St. George's Caye and a Herpetarium (with aquariums and plants also) is being built in Belmopan.

Five tertiary level colleges offer Associate of Arts degrees in several natural resource related programs. UB is striving to meet the diverse needs of environmental students and stakeholders, by providing a Bachelor's Degree program in Natural Resources Management that focuses on applied assessment, management and monitoring theory and methodology. The UB-NRMP will cover fundamental principles in terrestrial, watershed, coastal resources and recreational/tourism management. The Program is located on the Belmopan Campus.

Most GOB agencies and NGOs involved in natural resource management complain of the lack of functional vehicles. Without dependable transportation, organizations such as DOE are not able to adequately oversee EIA activities, conduct routine monitoring or investigate complaints they receive. Additional equipment listed included global positioning system units and the capacity to utilize GIS technology to assist in management efforts. Also, water quality testing equipment, binoculars and other essential equipment is often lacking at many of the facilities described.

1.4.4. Environmental Protection in Belize

Over forty pieces of primary environmentally related legislation and many secondary pieces of legislation are in effect in Belize, not to mention many international treaties and conventions.

This body of legislation addresses many issues related to resource use, conservation and management.

GOB agencies charged with in-situ conservation include the Forest Department (within the MNRE), the Fisheries Department (within the MAF) and the Institute of Archaeology (within the NICH), each of which resides over protected areas. Wardens and rangers, Forest and Fisheries officers and even the Belize Defense Force have been involved in patrolling and protecting natural resources from illegal extraction and damaging use. The DOE is the primary agency responsible for environmental protection. One of its principal mandates is to oversee the environmental impact assessment (EIA) process closely to ensure that unnecessary environmental damage is not done.

The Forest Department and the Fisheries Department have developed co-management agreements with NGOs and local CBOs to selected protected areas and with BAS that operates throughout the country. About eight major private protected areas are established in Belize, with the Rio Bravo Management Area managed by PFB being the largest. Some private protected areas, such as Eden Conservancy (about 2,425 hectares near Blue Hole National Park on the Hummingbird Highway), are not yet officially recognized.

Often environmental protection measures are not fully implemented due to political interference. There are also many ongoing activities such as trans-boundary poaching of fishes, conchs and lobsters in the northern and southern parts of the country and the illegal extraction of timber and xate palm that prove to be very difficult to control. Lack of adequate transportation, including vehicles and boats, and the lack of enough staff to conduct jobs at hand, let alone additional responsibilities, are major deterrents to environmental protection.

Environmental protection also involves participation of CBOs, such as watershed associations like the Sibun Watershed Association (SWA) and the newly formed Moho Watershed Association. The communities throughout a watershed come together to identify threats and take collective action to address those threats. Through these efforts, communities ensure that environmental violations are reported and that appropriate GOB agencies take action, helping to minimize damage to ecosystems and biodiversity.

1.4.5. Implementation of the UNCBD in Belize

Various parts of the UNCBD have been implemented in many different ways by many organizations working independent and together. However, much of this activity is conducted without managers, researchers and technicians necessarily knowing that such efforts may be addressing select requirements of the UNCBD. Belize has many capacities that provide capacities to implement the UNCBD. These include:

- A wealth of biodiversity and functional ecosystems
- A growing number of citizens who are concerned about environmental issues
- Concerned youth who want to become involved in conservation and efforts to address environmental issues
- Many trained, experienced and often advanced degreed managers, researchers, educators, technicians capable of conducting many needed activities and learning new skills
- Legislation in place to support preservation, conservation and sustainable use efforts.
- GOB agencies focused on managing natural resources through preservation, conservation, sustainable use, community involvement and environmental awareness
- Many NGOs and CBOs working to promote and support preservation, conservation, sustainable use and environmental awareness efforts
- International NGOs, foreign institutions and researchers involved in Belize
- Field stations and laboratories
- A natural resource management program at UB

BAHA is the lead agency addressing Bio-Safety and biotechnology issues. Administrators and consultants have been involved in developing a policy document that is to be presented to the general public for input. Once the consultation process is complete, the document will go before the Cabinet for approval.

Belize also suffers from many constraints that retard and sometimes prevent progress toward addressing responsibilities of the UNCBD. All stakeholders do not coordinate efforts and share information, data and expertise effectively. A larger sector of society is not involved in

biodiversity and ecosystem projects and activities. There are limited skills and capacities (GIS/GPS technology, information management, field and laboratory capacities) common to most activities that are not yet identified. Financing of projects and programs in Belize is provided through several international NGOs and foundations and now through PACT. However, adequate support and sustainable management efforts for the protected areas management system in the country and throughout the region is not always available. Other capacities, including transportation and staff needs are sometimes lacking.

2.0 Capacities Affecting All Requirements

2.1. Strengths, Weaknesses, Opportunities and Threats

A SWOT analysis was conducted to help determine the capacities required at the individual, institutional and systemic levels to meet the requirements of the UNCBD (Table 4). Strengths include a public with a growing awareness of environmental issues and many highly trained individuals having returned and expected to return soon from study programmes abroad, GOB agencies focused on environmental concerns, an established national protected areas system and a host of regional and international agencies involved in Belize. Weaknesses, such as inadequate funding and staff, inadequate laboratory and field capacities and restricted availability of transportation hamper progress. Opportunities include engaging the citizens of Belize, particularly youth, share knowledge and information and coordinate efforts to address mutual concerns. Threats range from lack of widespread public awareness, political interference, an unsound National economy, the effects of globalization and global climatic change.

Table 4. SWOT analysis of capacities to implement requirements of the UNCBD at three levels.

STRENGTHS	WEAKNESSES	OPPORTUNITIES	THREATS
INDIVIDUAL			
<ul style="list-style-type: none"> • Knowledgeable and trained technical people • Growing number of trained PA staff • Young professionals with strong environmental ethics • Concerned and active citizens 	<ul style="list-style-type: none"> • inadequate number of staff to cover jobs • many youths are not as involved as necessary • community members not fully engaged • environmental awareness not fully spread • appropriate training not fully available • no professional registrar in place 	<ul style="list-style-type: none"> • engage technologically apt and concerned youth • engage youth at all levels • engage elderly in oral histories of ecosystem changes • engage the greater community in local conservation efforts. 	<ul style="list-style-type: none"> • Apathy due to lack of awareness • Lack of faith in the governing system to adequately address all issues • lack of avenues through which to get involved
INSTITUTIONAL			
<ul style="list-style-type: none"> • Forest Dept. policies • Fisheries Dept. policies • DOE EIA process • PACT policies • NGOs/CBOs involved in PA mgt • Colleges/UB 	<ul style="list-style-type: none"> • Institutions overloaded with responsibilities • Challenges of co-mgt with CBOs • Need for institutional management skills • Funding restrictions • Transportation restrictions • Laboratory and field equipment capacities lacking or inadequate 	<ul style="list-style-type: none"> • Involve communities • Involve colleges/UB in Gov/NGO/CBO efforts • Provide applied training to next generation • Collaborate on info and communications system 	<ul style="list-style-type: none"> • Political interference • Lack of effective communication, coordination • No environmentally sound land use policy • Poor enforcement of environmental laws
SYSTEMIC			
<ul style="list-style-type: none"> • Rich biodiversity • Established PA system • Environmentally based economy 	<ul style="list-style-type: none"> • Rapid and incompletely planned development • Intra-organizational coordination not well entrained • Ineffective information access/archiving system • Lack of legislative incorporation of UNCBD requirements 	<ul style="list-style-type: none"> • Increasing internet access and usage • Increasing information available electronically • Increasing computer literate public 	<ul style="list-style-type: none"> • Global climate change • National debt • International corporate takeover of national assets

Appendix 1 is a capacity matrix that identified the capacities at these three levels necessary to carry out the principal functions of the UNCBD. Since the submission of the 1998 National Report on Biodiversity, there has been a continuing effort to implement many of the responsibilities of the UNCBD convention, consciously and/or inadvertently. Environmental legislation has been developed (though not effectively enforced) and many stakeholders (NGOs, CBOs, communities and concerned individuals) are heavily involved in biodiversity protection and ecosystem conservation efforts in Belize.

Legislated responsibilities directly addressing UNCBD articles are shared among at least seven different GOB agencies, but effective coordination is an issue. Many of these agencies are undergoing policy revisions that more fully address convention requirements and annual work plans set targets. Economically, eco-tourism has been a driving force in pushing conservation and now cruise ship tourism has arrived, representing a new challenge. PACT has become a successful funding agent, joining with the ranks of a host of international NGOs that have been supporting work in Belize for years. The dedicated people working for these many different GOB agencies, NGOs and UB represent a range of talents, skills and training and a significant number of Belizeans are returning from abroad with advanced degrees.

2.2. Systemic Capacity

Belize and its neighbors are signatories to many global and regional conventions such as the Central American Commission on Environment and Development (CCAD), CITES, MBRB, MBC, the International Convention on Wetlands and Waterfowl (RAMSAR), the Tri-National Alliance for the Gulf of Honduras, the UNFCCC, the UNCCD and the UNCBD. Within the country, there are several NGOs, such as BACONGO, ANDA and SAGE, made up of member organizations.

GOB agencies are collaborating on interagency levels. Creation of a statutory body that allows all GOB agencies, representing three different ministries, responsible for protected areas management to work together as a unit is being considered. Organizations such as the National

Environmental Appraisal Committee (NEAC) and the National Emergency Management Organization (NEMO) are multi-agency organizations that provide framework for inter-organizational coordination and collaboration on key focus areas. These conventions and organizations provide many opportunities for collaboration on issues of addressed in the UNCBD.

At the national level, there is no policy on biodiversity protection, ecosystem conservation and sustainable natural resource use in existence. There is no guiding document that reaches across GOB ministries. Legislation is in place that empowers various GOB Departments to oversee the protection, conservation and sustainable use of our natural resource base.

2.2.1. Capacity to Conceptualize and Formulate Policies, Legislations, Strategies and Programs

The capacity to develop policies and programs at the systemic level has been clearly demonstrated by the organizations listed above. Legislation is currently in place at the National level to help implement preservation, conservation and sustainable use efforts. Regional programs such as the MBRS are currently underway and are coordinated throughout many agencies within Mexico, Belize, Guatemala and Honduras. However, intra-organizational goals and objectives are not well entrained at all levels and many local efforts are not coordinated with these regional efforts, missing opportunities for synergism.

2.2.2. Capacity to Implement Policies, Legislations and Strategies

Implementation of policies, legislation and strategies has been accomplished in some cases, as with the MBRS, CITES and other initiatives. However, effective implementation of these guiding agendas on the ground, at the level of the resource user level (from the poor to corporations) is often challenged by lack of awareness among developers, lack of legislative implementation of requirements and lack of general access to appropriate information concerning these agreements. Rapid development that is currently on-going in the country is occurring without complete large-scale planning that incorporates regional, national and local concerns. There is a definite need for a stronger community-base built into these systemic level

concepts and avenues through which community members can become involved in all aspects of protection, conservation and sustainable use protects and programs that directly affect their lives and livelihoods.

2.2.3. Capacity to Engage and Build Consensus Among All Stakeholders

Many efforts have been implemented that bring representative stakeholders from all sectors together at conferences and workshops to learn about initiatives, engage in dialogue, exchange information and have input into project implementation. Effective consensus building is hampered by the lack of effective coordination of mutual intra-organizational goals and objectives and the lack of general information access. These processes can be enhanced and other outreach avenues identified and activated to ensure that community members are fully engaged.

2.2.4. Capacity to Mobilize Information and Knowledge

Currently, several agencies, such as LIC and CZMAI, and web-accessible information sites are available for information access. However, there is a constriction in full access to information from all active organization projects and research efforts that needs to be addressed and the formats in which information is available often limits access to those organizations and individuals with the training and technological capacities to use that information. More equitable information sharing pathways are needed, with proper data management being fundamental.

2.2.5. Capacity to Monitor, Evaluate, Report and Learn

The capacity to monitor and evaluate biodiversity and ecosystem changes is there but not fully utilized nor is it sustainable. Several NGOs, particularly associated with marine environments (Green Reef, TNC, UBIMS, FON, and others) and a few working inland (PFB, BAS) that manage to maintain monitoring efforts to some extent. GIS systems and remote imagery archives give access to mega-scale data that is highly useful in ecosystem level monitoring, such as keeping track of forest fires, land use changes, flood effects and hurricane impacts. This

capacity will become more important as the technology becomes more accessible to stakeholders at all levels. Currently there is no effective, generally accessible data collection, management and distribution network/information sharing system available to implement interagency efforts. Plans are underway to create a CHM to fill many of these needs.

Many reports have been generated at this level, addressing regional and national issues. However, this information does not necessarily reach throughout all sectors of society and is often not written for general use. Therefore there is not an equitable distribution of information. Efforts are underway to evaluate projects and learn from past efforts through many agencies, such as this current process. One focus of many organizations is toward building a stronger community-base through effective co-management and other avenues.

2.3. Institutional Capacity

Belize has a diversity of institutions, including Government, non-government and private, working toward achieving environmental and sustainable development agendas. Many institutions (Forest Department, DOE, Fisheries Department, CZMAI, BAHA, Institute of Archaeology, BAS, PfB, TIDE, FON, UB) have managed to survive, grow and develop capacities to pursue their respective missions, goals and objectives (Table 2). However, within a continually changing economy and global ecology, this is a continual process.

Capacity to Conceptualize and Formulate Policies, Legislations, Strategies and programmes

Several key GOB agencies, including the Fisheries Department, the Forest Department, PACT, BAHA and others are currently undergoing policy reviews and revisions. These new policies are to be presented to the general public through workshops public forums and other consultation efforts during June and July of this year. These policies reflect both the conceptualization of biodiversity preservation, ecosystem conservation and sustainable development. Similar processes are conducted by NGOs as they struggle to move forward with their agendas. However, each organization needs to adjust strategies and programmes to fit into the economic constraints from which all suffer. Many organizations have been forced to scale down staff and adjust programme scopes to operate on reduced budgets, restricted funding availability. Also,

key managers sometimes move into private sector jobs and the need for institutional management skills maintained within the institution becomes a critical concern.

2.3.1. Capacity to Implement Policies, Legislations and Strategies

GOB agencies involved in natural resource management, including the Fisheries Department, the Forest Department, DOE and the Institute of Archaeology, are constantly confronted with lack of adequate staff, sometimes equipment and usually always transportation. Furthermore, these institutions are dealing with many responsibilities related to on-the-ground resource management, policy development, internal and external evaluations and responsibilities imposed by other international and regional agreements and conventions. These wide ranges of responsibilities sometimes compete for time and human resources, restricting effectiveness in other areas. The inability to be mobile and to maintain effective field presence results in increased illegal hunting, fishing, logging, non-timber forest products extraction and looting of artifacts. Illegal or improperly planned waste treatment, land clearing and dredging/filling activities further challenge effective implementation of policies, legislation and strategies. Political interference is a constant deterrent to effective implementation of preservation, conservation and sustainable use agendas. NGOs and CBOs involved in protected areas management are also restricted by these same constraints and capacity needs. Management skills are needed at all levels of operation within institutions. Co-management agreements represent additional challenges to ensure that volunteers and staff on site are also able to carry out management responsibilities effectively.

2.3.3. Capacity to Engage and Build Consensus among All Stakeholders

Much effort has been invested in developing community-based environmental awareness and creating effective co-management efforts. Although twenty-four protected areas have co-management agreements, many of these associations are not as functional as hoped. There is a need to build capacity among co-managers to effectively implement management agendas, monitor the impacts of management efforts and report those results in order that mutual management decisions can be reached. The level of coordination, time and management skills needed to fully develop effective co-management partnerships needs to be enhanced. Even when

co-management agreements may be functional between a GOB agency and a local NGO or CBO, sometimes the general community is not fully included in the process and therefore community support is not strong, representing an area where much work is needed. Presently there is a moratorium on the development of any new co-management agreements, pending the release of recommendations by the NPAPSP to improve this process. Funding restrictions (salaries, equipment, infra-structure), training needs and lack of adequate transportation challenge progress in the field.

2.3.4. Capacity to Mobilize Information and Knowledge

Institutions within Belize are often focused on internal activities, challenges and constraints and are not always effective at distributing data, reports and information effectively. This is also related to the lack of an effective CHM. However, many of these fore mentioned GOB agencies, NGOs and CBOs have invested time, money and energy in environmental awareness, education and outreach programs. Through these efforts, information, knowledge and concern has been spread through youth, local government and the general communities of the country. All organization representatives asked indicated that more efforts to mobilize information and knowledge, not just through communities, but among all concerned organizations at all levels, should be a primary agenda.

2.3.5 Capacity to Monitor, Evaluate, Report and Learn

Effective assessment and routine monitoring is only being conducted by a few organizations. MBRS (coral reefs), Smithsonian Institute (mangroves, sea grass beds, coral reefs) and CZMAI (coral reefs, sea grass beds, manatees), BAS (Christmas Bird Count) and PFB (forest plots, freshwater indicators) have maintained such programs. DOE is involved in compliance monitoring efforts for select developments. The CZMAI has recently faced severe budget restrictions and has to redirect monetary resources. The Forest Department maintains records on timber extraction and other forest products. They also issue research and collection permits for terrestrial activities, allowing them to keep track of much of the research conducted. The Fisheries Department monitors fish landings and lobster and conch populations at select areas. Mangrove, sea grass bed and reef monitoring efforts are on-going through MBRS, Green Reef,

UBIMS, University of Mississippi and others. Lack of adequate laboratory capacities, equipment, transportation and staff dedicated to monitoring efforts greatly restricts these capabilities. Certainly capacities need to be developed through adoption of standardized methods, training of technicians, equipping those technicians with the necessary gear and transportation if effective monitoring efforts are to be put into place. Additionally, an evaluation and reporting system where information can be effectively shared is required to get the most use of these efforts. Given the level of experience and expertise within each organization, GOB and non-government, the capacity to learn from previous efforts and to implement successful programs is present.

2.4. Individual Capacity

Within the past ten to fifteen years, the capacity of individuals involved in biodiversity preservation, ecosystem conservation and sustainable development efforts has greatly improved. Many more Belizeans now have access to tertiary-level education programs in natural resource management fields than ever before. UB will be offering the first B. Sc. degree program in Natural Resources Management beginning in August, 2005. More scholarships are available for students entering Belizean institutions and foreign institutions. Many Belizeans are currently abroad working on advanced degrees and many others have recently returned to the country with Master and Doctorate degrees in many environmentally related fields, bringing with them new skills, professional associations and up-to-date management and development philosophies. Considering that these trained professionals are drawn from a population base of less than 300,000 people, a high percentage of Belizeans have capacities to personally assist in the implementation of UNCBD responsibilities, as well as those of many other conventions and programs.

2.4.1. Capacity to Conceptualize and Formulate Policies, Legislations, Strategies and Programs

Among the many professionals involved in environmental efforts within Belize and the region are people with backgrounds in environmental law, policy development and analysis, project management and program development. Select individuals are currently driving the policy development processes on-going at key GOB agencies such as the Forest Department, the

Fisheries Department, BAHA, PACT and others. The NGO community is likewise populated by professionals with these same skills. There is also a body of consultants working on many projects that add their own policy analysis and development skills and project management strategies.

Often policy development (and ownership) suffers from lack of true representative input from the greater Belizean community. Once developed, policies may be presented and discussed at public meetings around the country. However, these meetings are often not attended by a wide cross-section of Belizean society. Often those resource users are inadequately represented, particularly the poor, who are the most affected by policy decisions, strategies and projects. Particularly absent from the decision making process are the voices of youth, those within our society who eventually assume direct charge of the conditions created or perpetuated by today's decisions.

2.4.2. Capacity to Implement Policies, Legislations and Strategies

Effective implementation of policies, legislation and strategies is often determined at the individual-to-individual level. This is also often the level through which political interference occurs. However, select individuals, particularly many of the key personnel, such as chief executive officers, directors and project managers, are able to push their agendas forward. Many of the current changes underway in GOB agencies, NGOs and educational institutions are promoted and facilitated by dedicated individuals from within those respective organizations.

Weaknesses for implementation at the individual level are the lack of adequate number of staff to actually do the jobs required. Many of the actions taken are by non-government individuals, concerned community members and leaders, those often being women. However, community members and youths in particular, who can address many of the jobs that must be done, are often not fully engaged in projects and co-management programmes.

2.4.3. Capacity to Engage and Build Consensus among All Stakeholders

Some of the individuals within involved institutions that are the most effective at engaging communities and building consensus among stakeholders are those extension service people, rangers, wardens, park managers, education officers, teachers and advisors that have intimate contact with communities. Supported by their respective agencies, these on-the-ground professionals have the greatest capacity to implement community involvement and support.

Effective facilitation of a consensus-building process is a skill that some professionals have, but more skilled facilitators are needed. More effective avenues through which community members can acquire and provide information, pose questions and share ideas are required to engage a larger representative number of people. The multi-cultural and linguistic nature of Belize is also a challenge to effective consensus-building. Thus facilitators must represent a wide range of Belizean society.

2.4.4. Capacity to Mobilize Information and Knowledge

The environmental education materials, outreach programs, school programs, summer environmental camps, educational field trips and other activities are implemented by select educators, technicians, researchers and managers working within the various institutions throughout the country. Individual capacity to access and exchange information has drastically improved during the past few years through internet access and our growing electronic capacities. However efficient access to the right information needed is often a challenge. There is currently no central repository of information to which a person can turn. However, the Clearing House Mechanism (CHM) planned for biodiversity, Bio-Safety, climate change and other areas will make information more accessible. Once in the hands of professionals directly involved with other professionals, administrators, managers, officials and communities, information can be more widely disseminated.

By far and large teachers, and the students they teach, are the largest groups of individuals involved in mobilizing information and knowledge to the general public. Environmental

information packages, booklets, manuals and resource kits have been made available to teachers and teachers have been engaged in workshop training. Some youth are able to participate in environmental camps and field excursions. However, the training and experiences are not available to all those who would benefit and help spread awareness and knowledge within their own communities. More concerted efforts are needed to jointly develop educational tools, build capacities of educators, facilitate field trips and generally engage youth in the spread of awareness and knowledge of biodiversity and ecosystem functions and issues

2.4.5. Capacity to Monitor, Evaluate, Report and Learn

There are many trained and experienced professionals working within Belize with the capacity to design, implement and report on assessment and monitoring programs. Restrictions include lack of adequate number of trained technicians to operate necessary laboratories and equipment and to analyze data for all of the areas where such information is required. There is also a deficiency of trained technicians available to operate water, soils and microbiology laboratories at a high quality standard needed to support monitoring and assessment needs.

Professionals are available in the country and through involved international organizations and universities to conduct workshop and in-the-field training for environmental technicians, teachers, students and general community members interested in getting involved in local monitoring programs. Youth are a great and insufficiently tapped valuable human resource and represent a great capacity to learn. Many projects and actions fail to adequately include youth help access, monitor, conserve, and rehabilitate biodiversity and ecosystem resources. For any project or effort to be truly sustainable, youth must be involved.

3. Capacities Needed to Meet Priority Requirements of the UNCBD and Root Cause Analysis of Failures

3.1. Systemic, Institutional and Individual Capacities

3.1.1. Systemic Capacity

Belize and its neighbors within are signatories to many global and regional conventions such as the Central American Commission on Environment and Development (CCAD), CITES, MBRS, MBC, the International Convention on Wetlands and Waterfowl (RAMSAR), the Tri-National Alliance for the Gulf of Honduras, the UNFCCC, the UNCCD and the UNCBD. Within the country, there are several NGOs, such as BACONGO, ANDA and SAGE, made up of member organizations.

GOB agencies are collaborating on interagency levels. Creation of a statutory body that allows all GOB agencies, representing three different ministries, responsible for protected areas management to work together as a unit is being considered. Organizations such as the National Environmental Appraisal Committee (NEAC) and the National Emergency Management Organization (NEMO) are multi-agency organizations that provide framework for inter-organizational coordination and collaboration on key focus areas. These conventions and organizations provide many opportunities for collaboration on issues of addressed in the UNCBD.

At the national level, there is no policy on biodiversity protection, ecosystem conservation and sustainable natural resource use in existence. There is no guiding document that reaches across GOB ministries. Legislation is in place that empowers various GOB Departments to oversee the protection, conservation and sustainable use of our natural resource base.

3.1.2. Institutional Capacity

Belize has a diversity of institutions, including Government, non-government and private, working toward achieving environmental and sustainable development agendas. Many institutions (Forest Department, DOE, Fisheries Department, CZMAI, BAHA, Institute of Archaeology, BAS, PfB, TIDE, FON, UB) have managed to survive, grow and develop capacities to pursue their respective missions, goals and objectives.

However, each organization needs to adjust strategies and programmes to fit into the economic constraints from which all suffer. Many organizations have been forced to scale down staff and adjust programme scopes to operate on reduced budgets, restricted funding availability. Also, key managers sometimes move into private sector jobs and the need for institutional management skills maintained within the institution becomes a critical concern.

3.1.3. Individual Capacity

Within the past ten to fifteen years, the capacity of individuals involved in biodiversity preservation, ecosystem conservation and sustainable development efforts has greatly improved. Many more Belizeans now have access to tertiary-level education programs in natural resource management fields than ever before. UB will be offering the first B. Sc. degree program in Natural Resources Management beginning in August, 2005. More scholarships are available for students entering Belizean institutions and foreign institutions. Many Belizeans are currently abroad working on advanced degrees and many others have recently returned to the country with Master and Doctorate degrees in many environmentally related fields, bringing with them new skills, professional associations and up-to-date management and development philosophies. UB, for example, has added five Ph. D.-level Belizean faculty to Science and Technology in August 2005. Considering that these trained professionals are drawn from a population base of less than 300,000 people, a high percentage of Belizeans have capacities to personally assist in the implementation of UNCBD responsibilities, as well as those of many other conventions and programs.

3.2. Capacities Needed to Meet Priority Requirements of the UNCBD

This section discusses capacity needs and challenges at the systemic, institutional and individual levels for those UNCBD Articles identified as priority areas (Table 1). This list was developed by participants of the May 6, 2005 workshop, representing a wide range of organizations involved in environmental efforts within Belize and constituting a substantial collective knowledge of recent and on-going activities addressing responsibilities listed in the UNCBD. Interviews with key persons further identified needs and constraints and gave insight into potential and actual underlying causes of failures and short-comings in addressing responsibilities listed. Some of these needs are common to many efforts while others are more specific to select requirements under the UNCBD. This list is NOT given in order of priority but in order of UNCBD Articles addressed. It is also not an exhaustive discussion of the issues. A more complete analysis can only be achieved through more extensive discussions among stakeholders represented by management agencies and resource users.

3.2.1. General Measures for Conservation and Sustainable Use (Article 6)

3.2.1.1. Development of national strategies, plans and programmes for the conservation and sustainable use of biological diversity

Currently a development and revision of policies, strategies and work plans is underway in several key agencies (Forest Department, Fisheries Department and PACT). Proposed policies are more aligned with requirements of the convention and promote sustainable use of biological resources. Managers and administrators within these respective agencies have the general background and academic qualifications to address this requirement. Underlying causes for failure to implement these policy changes before now within the Forest Department and the Fisheries Department has largely been due to the focus on the management of extracted resources. However, institutional shifts have occurred where these agencies are becoming recognized for their roles in protected areas and biodiversity management.

3.2.1.2. Integrate the conservation and sustainable use of biological diversity into relevant sectoral or cross-sectoral plans, programs and policies

Involved GOB Departments have the capacity to conceptualize and formulate necessary policies, legislation, strategies and programmes at the individual level (many highly qualified individual staff are employed) and to implement these concepts at institutional levels. The challenge is to effectively implement these concepts at the systemic level, particularly when confronted with political interference on behalf of select economic interests. The capacity to engage stakeholders and to build consensus among the community of environmental professionals representing many different GOB agencies, NGOs, CBOs and educational institutions is present, but the challenge will be to effectively include the private sector and the political components of GOB Ministries.

The systematic environment during the past few years has been heavily focused on development agendas. Environmental issues are often seen as counter to development efforts. Collaborative efforts are underway to include resource allocation Departments, such as the Lands and Surveys Department, into biodiversity and ecosystem conservation and planning meetings. Institutionally, the capacity to implement multilateral decisions and actions is increasing, but mechanisms are needed that encourage systemic-level cooperation. Organizations such as NEAC (pertaining to the EIA process) and BACONGO (involving key environmental NGOs) represent multilateral mechanisms of specific stakeholders involved in discussion making, cooperation, consensus-building and information exchange relative to their respective agendas.

Causes for failure to integrate conservation and sustainable use of biological diversity at cross-sectoral levels probably relates to a history of each GOB Department focusing more intensely on internal issues rather than inter-department issues. Failure to integrate conservation and sustainable use of biodiversity into those agencies not directly involved in biodiversity management is largely due to the absence of a widely accepted appropriate and sustainable resource use policies. For example, lack of awareness and training among surveyors and Lands and Surveys Department staff, as well as the there is a critical need for a National Land Use Policy that addresses environmental issues related to development activities, contributes to lack of adequate protection for critical areas such as riparian forests and corridors.

Causes for failure to implement effective trans-boundary sustainable use of biodiversity resources and conservation of shared ecosystems stem from regional border disputes (Guatemala and Belize) and political agendas in both countries that do not support or run counter to preservation, conservation and sustainable use agendas. Failure to create a cooperative and effective enabling environment at national and international levels will likely retard progress toward preservation of biodiversity, ecosystem conservation and sustainable use of our natural resources. Some guidelines are available through eco-regional planning models and projects such as the MBRS and the MBC.

3.2.2. Identification and Monitoring (Article 7)

3.2.2.1. Identify components of biological diversity important for its conservation and sustainable use

The national and regional environmental communities have been involved in identifying components of biodiversity and getting those important sites set up as protected areas for conservation and protection. The Critical Habitat Assessment of Belize conducted in 1992 by the Belize Center for Environmental Studies represents an early effort to conduct a national scale assessment and priority list of important areas. This guiding document and other similar efforts are usually well received by the environmental community and often GOB agencies have been directly involved in establishing protected areas at recommended priority sites. Many institutions have worked collaboratively to implement both conservation and sustainable use of biodiversity resources. The NPAPSP implemented through the Forest Department includes many areas of high biodiversity. Often specific sites targeted for conservation are championed by select individuals who keep the issue visible to decision makers. Many researchers and organizations now have access to remote imagery and more data than ever before.

Failure to identify and conserve biodiversity resources had been due to such factors as restricted information access and the lack of country-wide evaluation of biodiversity resources. De-reservation of protected areas or portions of protected areas has occurred. It is unclear of the motives for some of these changes, but often development schemes are accommodated by these efforts, representing conflict between development planning and biodiversity conservation.

3.2.2.2. Monitor components of biological diversity, paying particular attention to those requiring urgent conservation measures or which offer the greatest potential for sustainable use

Work on creating standardized assessment and monitoring protocols for marine applications has resulted in the availability of manuals and procedures that guide these efforts in the field (MBRS, Green Reef). This same standardization process is needed for freshwater and terrestrial protocols. Many methodologies in use today are based on the application of “Rapid Biological Assessment” protocols that rely on the direct assessment of local biodiversity as a way to gauge ecosystem health. This requires a significant working knowledge of the fauna and flora of each system under investigation.

Currently there is no organized national effort to survey those areas that are requiring urgent conservation measures, particularly with an interest for those having the greatest potential for sustainable use. Some projects, such as marine fishes spawning aggregation sites, are being monitored and efforts are on-going to protect these sites as sources of future fish stock. Fishers using these resources have been involved in assessment procedures.

Failure to standardize monitoring protocols relates to the overall lack of standard monitoring efforts by most agencies (with notable exceptions such as monitoring conducted by the Meteorology Department). Lack of adequate monitoring programs is related to the lack of staff to dedicate to those efforts and the restriction of transportation to access designated sample sites. Failure to maintain effective monitoring programs is also due to lack of adequate laboratory capacity (soil, water quality, microbiology, taxonomy) to support field efforts. The immediate benefits for adopting standard methodologies are the generation of collective data pools that allow for more direct comparisons of project results from many areas of the country and conducted by several different organizations. Failure to develop functional monitoring programs and standardized protocols will result in continued collection of data sets of limited value to national and regional assessment projects and will hamper sharing of data and expertise.

3.2.2.3. Identify processes and categories of activities which have adverse impacts on the conservation and sustainable use of biological diversity, and monitor their effects

Institutional capacities and individual expertise exists to monitor select processes in which adverse impacts are occurring. Over fishing of fish spawning aggregates, as mentioned above, is one example. Sporadic assessment efforts and some monitoring for adverse impacts are being implemented at select sites around the country by the DOE Environmental Compliance, Monitoring and Enforcement Unit to ensure that development projects are carrying out their respective Environmental Compliance Plans and abiding by the environmental protection regulations. The Fisheries Department has been involved in monitoring fish landing sites to gage the fishing pressure placed on the resource and to respond to identified concerns. The Forest Department staff is involved in monitoring logs extracted from permitted sites and attempt to monitor areas where illegal logging activities occur. However, all of these efforts are constrained by lack of adequate staff to cover the entire country. Lack of transportation contributes to failure of the Forest Department to effectively patrol areas for illegal extraction, steep-slope clearing and riparian deforestation. Lack of adequate access to boats and fuel prevent the Fisheries Department from effectively patrolling coastal waters for illegal fishing. Lack of aerial surveys, access to real time remote imagery, adequate radio telecommunications and other advanced technology prevents these agencies from being able to keep pace with the challenges of controlling illegal activities. Minimal fines and poor enforcement of legislation also contributes to the failure to curtail illegal practices.

Mass tourism is having a growing detrimental effect on our marine and some terrestrial protected areas and biodiversity resources. Some studies have been conducted, but there is no strict user limits or other impact control procedures in place for protected areas. There is certainly no long term monitoring of many of these sites to gage the impact of these use activities on the natural resource base. Failure to implement these efforts relate to the same restrictions sited above- lack of adequate personnel, equipment, technological capacity and transportation.

3.2.2.4. Maintain and organize data derived from identification and monitoring activities

Capacity at the individual level exists for developing and maintaining organized data bases on the biodiversity of Belize and is being done by several individuals with the support of NGOs such as BAS and WCS. All institutions maintaining any assessment and monitoring activities maintain data (Forest Department, Fisheries Department, DOE, LIC, BAS, FON, TIDE, TNC, Green Reef, UB, Smithsonian Institute, etc.). However, there is no central data repository operating as an open access system for the fully accessible and free exchange of information across multi-institutional levels.

Biodiversity assessment and monitoring and the use of indicator groups for ecosystem assessment and monitoring are dependent on the maintenance of type of specimens, photographs, range data and taxonomic literature. The Agriculture Department at Central Farm has maintained an insect collection for many years. The Forest Department Herbarium houses over 15,000 specimens representing 1,219 genera and 3,409 species. About 5,050 of these specimens have been entered into an electronic database created by the Royal Botanic Gardens, Edinburgh. The Forest Department is involved in “Biodiversity as an Instrument for Development in Central America”, a regional herbarium program that helps to build skills and capacities to compile and maintain national herbarium collections. Through this effort, several technicians and a student for UB have received technical training and other support.

Individual expertise exists in the country to set up and operate a data storage and distribution system and type specimen archive to support biodiversity preservation and ecosystem conservation efforts and research agendas. Failure to implement an effective data storage system is related to the lack of the technological capacity to set it up and the financial support to maintain it over the long term. Failure to implement a functional specimen archive that fully supports environmental research is largely due to the lack of an appropriate location for such a facility. This initiative is further challenged by the lack of support funding needed to properly curate, store and maintain specimens and the personnel to staff such an operation.

3.2.3. In-situ Conservation (Article 8)

3.2.3.1. Establish a system of protected areas or areas where special measures need to be taken

National Parks System Act and supportive legislation has resulted in creation of a national park system. There are now seventy-two (72) protected areas (including five private protected areas) established in the country. Several more private protected areas have been proposed and are functionally protected, but are awaiting official approval. Many of these protected areas are “paper parks”, being established legally but not having management plans in place and no real on-the-ground management activities in effect. Many of the other parks are insufficiently staffed. Without effective patrols and full involvement of local communities, protected areas suffer from illegal hunting, fishing, logging and extraction of other forest materials. Poor people, some being illegal aliens from Guatemala (in the case of protected areas along the western border), settle in some protected areas, clear land and plant milpas. Managers, wardens and rangers of undersized staff have less time to devote to community outreach, missing opportunities to build working relationships with the local resource users. Protected areas are also threatened by de-reservation of lands for development. There is no committee or board in place to oversee de-reservation efforts to ensure that such actions are truly in the best interest of Belize and the National Parks System.

Belize has had great success in designating areas as “protected,” but experiences many failures or partial successes in the actual management of these protected areas. The failure to fully and effectively manage protected areas is related to the usual restrictions such as insufficient staff mentioned above, lack of adequate transportation, lack of equipment and lack of essential training. Park personnel are often isolated from their respective departmental headquarters, often for days or weeks at a time, although communication is available. Those individuals must be self-motivated and dedicated to their respective jobs. Efforts are underway by the Forest Department to instill a strong sense of professionalism and ownership among park personnel, with the idea that this helps to inspire dedication to and pride in the job.

Management capacities exist at the institutional level, but administrators are responsible for many other duties, are often involved in regional and international meetings, do not get out into

the field as often as needed and are trying to balance job requirements, salaries, equipment, supplies and other needs on restricted and shrinking budgets. Many parks are supported, often in the initial phases, by funding from international NGOs and other sources. However, when funding timeframes run out, financial support for the parks shifts to the Government. Organizations such as PACT are successful in channeling monies generated from tourism into protected areas management.

Belize's protected areas system is widely accepted at the systemic level, with Belize being recognized for its conservation efforts by the amount of areas officially set aside and protected. Responsibilities for management of these areas falls under three different departments within two different ministries and a statutory body, including the Forest Department (responsible for managing 48 protected areas), the Fisheries Department (8 marine reserves) and the Institute of Archaeology (11 archaeological reserves). Although these three agencies share many of the same concerns, challenges and constraints, there is no collaborative management effort. A proposal is being presented whereby a protected areas management body is established, representing all three organizations, with the hope that this larger organization can encourage collaboration and promote synergism at the systemic level.

Five privately owned protected areas have been established in Belize and several others are functionally but not officially established. Private protected areas can contribute significantly to conservation efforts in Belize and represent the kind of interest and collaboration needed to establish and maintain a corridor system, as many of these private areas bridge National protected areas. However, there is no Private Protected Areas Act or Private Protected Areas Policy in place to guide and support this effort. Individuals and the various organizations that they represent have come together, facilitated by the MBC project, and formed the Belize Association of Private Protected Areas (BAPPA) in order to facilitate development of policies and promote land tax incentives for private land holders willing to set aside land for conservation. Failure to fully develop the private protected areas potential in Belize is largely due to the lack of such incentives.

3.2.3.2. Develop guidelines for the selection, establishment and management of these areas

The NPAPSP is currently under development and will provide guidelines for protected areas management. Policy development within the Forest Department and the Fisheries Department also addresses protected areas guidelines. However, much work is needed beyond the level of policy development. Many terrestrial protected areas do not have management plans developed and often do not have adequate staff to conduct activities required by a management plan. The Fisheries Department now requires that a management plan be developed for any area being proposed for consideration as a marine protected area. Failure to develop adequate management plans relate back to those same institutional shortages, particularly personnel, as discussed in sections above.

Successful and sustainable management of protected areas depend on the collaboration and involvement of local communities, including direct resource users. Great efforts and resources have been invested into implementing effective co-management systems within Belize. Co-management arrangements have been made between the Forest Department and the Fisheries Department with NGOs or CBOs for twenty-two (22) protected areas. Models of co-management efforts range from protected areas managed by large NGOs such as BAS to small, local CBOs. There are many examples of successes and failures in Belize and the region. Capacity to formulate policies, strategies and programs and to build stakeholder consensus exists, but needs to be developed, both at individual and institutional levels. This is a learning process on the part of all co-management partners and mistakes are often made, particularly when working with multi-ethnic communities, politically divided villages and across different economic levels.

Failures often involve problems with understaffing of park wardens or rangers, lack of community involvement and acceptance of co-management responsibilities and sometimes mismanagement of funds by community members charged with administrative duties not having the necessary training. Sometimes the level of economic benefits to the local community generated by tourists does not match expectations, potentially leading to loss of interest in a protected area and maybe even a return to hunting and other traditional illegal resource use patterns. Local political and ethnic divisions within participating communities and incomplete

representation of all community groups sometimes contribute to management problems. New approaches may be needed that more fully engage community members into the process, getting resource users involved and working through fully representative management boards that include all stakeholder groups. Failure to establish successful co-management systems may likely compromise the long term success of many protected areas.

Guidelines for establishing private protected areas, listing responsibilities and identifying benefits to Belize and to the landowners, are lacking. Failure to effectively encourage and oversee this process and providing incentives to protect private lands will result in the loss of conservation opportunities and developing strong connections between GOB agencies and those landowners.

3.2.3.3. Regulate or manage biological resources important for the conservation of biological diversity with a view to ensuring their conservation and sustainable use

Legislation is in place to regulate the capture of spiny lobsters, queen conch, scale fishes and other marketable marine organisms by the Fisheries Department. The Forest Department oversees extraction of timber and other forest products and is in charge of enforcing wildlife protection laws. The Fisheries Department is responsible for reviewing research proposals and issuing permits for work in coastal zone and marine areas and continental waters. The Forest Department does the same for terrestrial research efforts. However, the institutional and individual capacities to regulate and manage biological resources is restricted by the same restrictions cited in sections above, lack of adequate human resources, lack of adequate transportation and equipment, weak fines and punishment and lack of the ability to successfully prosecute people committing illegal acts. Lack of funding to fully manage parks as ecosystems and failure to implement an effective corridor system also interferes with the regulation and management of biological resources.

NGOs play important roles in the management of biological resources. The primary active fish spawning aggregate sites such as Gladen Spit are being protected and monitored, in this case by FON, for example. Several organizations through the years have worked with Gales Point

villagers to protect hawksbill sea turtle nests within one of the largest nesting beaches in the Caribbean. However NGOs and community groups often rely on volunteer support and suffer from many of the same problems facing GOB agencies- lack of financial support for staff, transportation and equipment needs and training needs.

Effective regulation and management of biological resources requires having effective monitoring programs in place and support for research necessary to support management agendas. Failure to effectively protect target species and ecosystems can often be traced to poor understanding of the biology and ecology of the species or ecosystem of focus, lack of baseline information and the inability to effectively gauge results of management efforts. The individual capacity to implement monitoring and research occurs within the country, but the funding to support these activities is not readily available. Institutional support for these efforts is in place, but there is not adequate acceptance or understanding of the need for monitoring and research throughout the larger systemic level, particularly among decision makers charged with developing national budgets. Broad scale support for research and monitoring as essential management activities and as education opportunities for students and community members is generally lacking as limited resources are being focused on other areas.

3.2.3.4. Promote the protection of ecosystems, natural habitats and the maintenance of viable populations of species in natural surroundings

Several major protected areas have been set aside that initially focused on single species or group of species. Crooked Tree Wildlife Sanctuary was established to protect the local wetland for the vast amount of wading and aquatic birds that congregate in the area during the dry season. Cockscomb Basin Wildlife Sanctuary was set up to protect jaguars. The Community Baboon Sanctuary was developed for the protection of howler monkeys. Southern Lagoon Wildlife Sanctuary was set up as a manatee sanctuary. However, management focus has broadened to focus on effective management of the sustaining ecosystem in order to protect target species. Capacities, constraints and causes for failure related to these efforts are the same as discussed in sections above.

A biological corridors system is being developed within Belize that connects protected areas together and to protected areas within the region through the Mesoamerican Biological Corridor System. Establishment of functional corridors is dependent on developing corporation with local landowners and developing agreements to maintain identified corridors in a natural state. Lack of effective incentives for landowners, such as tax breaks, is essential if this system is to succeed. Awareness and acceptance of corridor importance and functions is essential if these systems are to be maintained over the long term.

The MBC has been conducting assessments for the design of a corridor system within Belize that connects our protected areas together and links our system with the regional protected areas network. This is essential to encourage wildlife movement and effective management of genetic resources. However, identified corridors, most of these occurring on private property, are being threatened by development projects that fail to take corridors into account. Policies and legislation supporting corridor establishment is needed but is challenged by the sensitive issues of private land ownership. Corridors must be accepted at the systemic level, becoming part of our collective planning and development processes, especially those involving major public works projects such as road construction.

There is an urgent need to move forward in the effort to establish corridor systems that have already been identified and surveyed. This involves developing agreements with private landowners, preserving riparian forests (natural corridors) and incorporating the corridor concept into such projects as agricultural expansion, logging operations, development schemes and highway construction plans. The general public has not developed a full appreciation for the importance of maintaining corridors among protected areas and more aggressive awareness efforts are needed. Emphasis must be placed on building awareness of and appreciation for corridors at the level of the individual landowner.

Failure to establish an effective corridor system includes lack of general awareness, lack of full GOB acceptance with legislative support, lack of appropriate incentives for landowners, lack of full support from the private development sector and lack of the political will to implement a corridor system. Failure to implement an effective corridor system ensuring that Belize is

connected into the Mesoamerican Biological Corridor System will result in the increased fragmentation of our protected areas and the genetic isolation of many of our fauna and flora.

There is institutional interest within the Forest Department to implement protection of special forest areas of Belize and there is the capacity to formulate policies and strategies to address these issues. However, the capacity to do so is affected by the limited staff and transportation available to assess problem areas and oversee permitted harvesting efforts to ensure compliance with steep slope and riparian forest protection regulations. Lack of enforcement of the existing laws protecting forests within sixty-six feet of the river edge and lack of awareness among the general public, particularly among developers, has resulted in deforestation. Failure to protect these forest ecosystem resources will result in increasing deterioration of terrestrial landscapes, riverine habitats and marine ecosystems.

3.2.3.5. Promote environmentally sound and sustainable development in areas adjacent to protected areas with a view to furthering protection of these areas

The Physical Planning Section of the Lands and Surveys Department oversees creation of Special Development Areas that have been established in some parts of the country. These are large tracts of land where zoning is implemented with the objective of promoting appropriate land use for development and conservation. The EIA process helps to guide development and ensure that conservation areas are protected.

The Forest Department, the Fisheries Department and their co-management partners work with communities within buffer zones of protected areas. Much work is needed in environmental awareness and education within these special communities. Communities, and in particular the direct resource users, are often not fully involved in the conservation directives within their local areas. This results in lost opportunities to develop partnerships and involve concerned and interested community members in management efforts. Efforts by GOB agencies and NGOs involved in protected areas management are restricted by the amount of time needed to foster strong community relationships and the lack of adequate staff, transportation and general funding, as discussed in sections above.

3.2.3.6. Rehabilitate and restore degraded ecosystems and promote the recovery of threatened species

Steep slope and riparian areas have been and are being deforested. Substantial removal of forest cover affects local hydrologic patterns, promotes erosion of top soils and increases siltation of reefs and other habitats. Destruction of riparian forests is destabilizing river banks, reduces stream shading, reduces essential input of leaves and wood, increases erosion and siltation and, where agriculture is developed adjacent to streams and rivers, removes natural corridors allows agricultural chemicals to be introduced into aquatic systems. Wetlands are critical nursery grounds, carbon storage sites and absorb floodwaters. Appropriate care and management must be afforded to these forests if ecosystem functions, both in terrestrial and marine settings, are to remain in place.

Many areas around Belize are now in need of reforestation. The Mountain Pine Ridge area, greatly affected by the Southern Pine Bark Beetle, represents a large system where replanting efforts are being considered. There are many local areas where reforestation efforts are needed, including steep slope and riparian sites. These efforts can be implemented through resident community members and resource users if they are to be successful and sustainable. Community tree nurseries would provide great opportunities to engage local youths in the process for harvesting seeds, nurturing seedlings, planting saplings and tending them until they become well established. There exists the capacity at the individual, community and commercial levels to maintain nurseries, but such efforts will need institutional support in the form of financing and project coordination. Planting trees represents a carbon sequestering effort that can contribute, even if in a small way, to addressing increasing atmospheric carbon dioxide levels and possibly representing a funding potential.

3.2.3.7. Establish or maintain means to regulate manage or control the risks associated with the use and release of living modified organisms resulting from biotechnology

The BAHA National Bio-Safety Committee is in the process of establishing a national framework for Bio-Safety. The effectiveness of this guiding framework is dependent on political and public awareness of the threats and issues associated with the potential release of living modified organisms. Training will be required for Customs agents to ensure that they are properly informed and aware to the potential for introductions.

3.2.3.8. Prevent introduction of, control or eradicate those alien species which threaten ecosystems, habitats or species

The threat of invasive species is a growing concern in Belize, especially as aquaculture and wildlife husbandry efforts increase. Tokayed geckos are now established on Southwater Caye and can potentially spread to other islands in the area and eventually reach the mainland. Tilapia has invaded many of the lagoons, rivers and streams. An investigation of the impacts that tilapia and other invasive species impose on native fauna and flora of Belize is necessary if appropriate management responses are to be taken.

There are no effective systemic capacities in place to prevent establishment of invasive species. Indeed many invasive organisms are introduced through the agriculture and aquaculture industries with GOB support. This includes shrimp, fishes, grasses and tree species that have been established in ponds and test plots around the country. There is a growing institutional capacity and more complete awareness of introduction pathways with the national quarantine program and the organization of the BAHA. However, there is a need at the individual level for more trained inspectors able to fully inspect introduction pathways such as port facilities and the importation of agriculture and aquaculture seed stock. Failure to implement such efforts on a large scale has been due to the lack of in-country expertise and the lack of focus on invasive species issues at the institutional level until the past few years. Being a former British colony, Belize has a long history of uncontrolled introductions of plants and animals from many tropical areas around the world (particularly ornamental and agricultural plants), contributing not only to

the number of established invasive species, but also perhaps contributing to a relaxed attitude about such genetic invasions.

Tilapia represents a particular case that is in need of serious investigation. The Fisheries Department now has an Inland Fisheries and Aquaculture Unit that is aware of the problem and making plans to address the issue. A doctoral student (Mr. Peter Esselman) will be working with local college and university students as he begins a survey of wild tilapia throughout its range. This project will help to build individual capacity to address such issues, involving surveying populations, mapping ranges, collecting samples and conducting genetic testing to identify possible invasion sources and pathways.

3.2.3.9. Endeavour to provide conditions needed for compatibility between present uses and conservation of biological diversity and the sustainable use of its components

Many efforts have been implemented in Belize that attempt to establish compatibility between resource users and conservation efforts. For example, research on fish spawning aggregates supported by TNC incorporated commercial fishers as part of the research team. Skills and knowledge that these fishers brought to the project were valuable in helping to achieve research agendas. Participating fishers understand and support the need to establish a moratorium on fishing spawning aggregate sites. Zoning and sustainable fishing practices in within marine protected areas managed by the Fisheries Department also represent efforts to combine conservation and resource use agendas.

Other areas exploring the compatibility between resource users and conservation needs for biodiversity resources include medicinal plant research conducted at IxChel where collection, processing and marketing of products have been conducted. Sustainable forest use criteria are applied in the Toledo Healthy Forest Initiative and the Sustainable Forest Management Licensing program under the Forest Department. SPECTE is involved in the reforestation of riparian areas on the Mopan River for enhancing green iguana populations in the area that are enhanced by the release of captive breed iguanas reared to sizes beyond the stages characterized by high mortality.

Challenges faced by these efforts are getting the resource users actively involved in efforts to develop conservation use patterns that are transferable into practice. This involves not just developing actions on the ground but also in market development for products produced through sustainable projects. Failures may be related to the challenge of developing sustainable markets for products and ensuring consistent product quality.

3.2.3.10. Respect, maintain and promote appropriate knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity

Belize is rich in traditional knowledge and many initiatives are in place to acknowledge, record and maintain this very important knowledge base. The GOB National Institute of Culture and History (NICH) is the public institution charged with overseeing traditional and indigenous history, practices, and knowledge. IxChel has been very instrumental in recording and preserving traditional sustainable use practices and identification of species, preparation of formulations and application of different medicinal plants within Belize. Several important CBOs have been formed to promote indigenous rights and traditions and strive to maintain cultural identity, including the Sarstoon Temash Institute for Indigenous Management (SATIIM), the Toledo Maya Culture Council (TMCC), the Toledo Maya Women's Council (TMWC), the Ke'Kchi' Council of Belize (KCC) and the Belize Indigenous Training Institute (BITI).

Institutional capacities exist to facilitate this requirement and NICH represents GOB support of such efforts. Select individuals from many of the ethnic groups are emerging as leaders in the movement to preserve and research traditional practices and knowledge. Some of these individuals have earned doctoral degrees or are currently working on advanced degrees in programmes focused on different aspects of this requirement. However, funding for research is needed to continue these efforts.

3.2.3.11. Develop or maintain necessary legislation and/or other regulatory provisions for the protection of threatened species and populations

Legislation has been developed that addresses threatened wildlife species, including manatee, sea turtles and orchids others organisms. However, there is no Biodiversity Act in place. The institutional capacity in Belize is compromised by lack of adequate and well-trained wardens and rangers available to effectively address legal infractions. Fines are set too low to present a major deterrent to infractions and sometimes the legal system fails to perpetrators.

3.2.3.12. Where a significant adverse effect on biological diversity has been determined, regulate or manage the relevant processes and categories of activities

In-country activities relative to this requirement includes efforts to breed green iguanas for release into the wild to repopulate areas where they were hunted heavily, such as the SPECTE project mentioned in 3.3.9 above. Scarlet macaw studies are underway in the upper Macal River Watershed that are being impacted by the construction of the Chalillo Dam and nesting boxes are being installed, a project being implemented through the Forest Department. Freetown Sibun Village has established a Hiccattee river turtle protected area within the lower Sibun River. The Fisheries Department has been involved in conch and lobster studies, assisted by researchers, with the ultimate objective of adjusting management strategies to ensure sustainability of these traditional marine fisheries.

Identification of problem situations is often not readily done as there are no routine surveillance efforts underway due to the cost involved. However, this represents an opportunity to involve the public in notifying appropriate agencies of adverse effects. An awareness campaign would be required to sensitise the public to those conditions that may constitute a threat to biodiversity and appropriate reporting procedures. These initiatives are challenged by funding necessary to respond to identified problems and determining who pays for cleanup and mitigation activities in the case of trans-boundary impacts and activities resulting from industrial accidents, particularly when related to hurricanes or other natural disasters. Monitoring of sites is also an expense in both money and staff time invested.

3.2.3.13. Cooperate in providing financial and other support for in-situ conservation, particularly to developing countries

International NGOs, including The Nature Conservancy (TNC), Conservation International (CI), World Wildlife Fund (WWF), Wildlife Trust and many others, have been very important supporters of in-situ conservation efforts in Belize. The UNDP Global Environmental Fund Small Grants Program has helped to promote many initiatives, including co-management agreements. The United States Government has entered into an agreement with the Belize Government, working through the Ministry of Finance, for a Debt for Nature Swap of BZ\$19 million to be used to support large NGOs and PACT. PACT has been very active in dispersing funding to conservation efforts around the country.

3.2.4. Sustainable Use of Components of Biological Diversity (Article 10)

3.2.4.1 Integrate consideration of conservation and sustainable use of biological resources into national decision making

GOB institutions have been very active in taking measures to promote sustainability of natural resources over the past few years. The Fisheries Department has closed thirteen (13) fish spawning aggregation sites to commercial fishing pending recovery of the resource. The Forest Department is involved in issuing long-term licenses for logging operations, with 40 year and longer rotation plans for forestry plots. The National Protected Areas System, through the NPAPSP project is also working toward long-term sustainability for park management.

The EIA process is an important protective measure that is in place to avoid or minimize impacts to biodiversity. The EIA is an important planning process for developers, helping them to understand the ecological conditions in which development activities are occurring and be aware of ways to prevent making mistakes that may prove to be costly to fix in the future, such as arresting erosion processes once a riparian forest has been cleared for example. Institutions such as the Citrus Research and Education Institute (CREI) and BAHA are working to minimize

introduction of agricultural diseases and pests and overseeing use of introduced species for biological pest control.

Other sustainable use initiatives include preservation of traditional use of biodiversity resources through efforts such as the work on-going at IxChel and through CBOs focusing on indigenous and ethnic peoples, such as promoted by the Belize Indigenous Training Institute (BITI). Efforts have been underway to involve communities in the rehabilitation of degraded areas through promotion of riparian forest rehabilitation through such organizations as SPECTE. Cooperation between GOB and the private sector for the development of sustainable use methods for biodiversity resources includes promotion of organic citrus and cocoa production, the aquaculture of native fishes and crustaceans and issuance of long-term forest licenses represent areas where actions are being taken.

Institutional capacities exist to conceptualise sustainable use policies and actions and to implement projects on the ground. At the systemic level, there is a climate of support for initiating sustainable enterprises, particularly as consumers in developed countries become more aware of the impact of their purchasing decisions, with many people beginning to shop more responsibly. The individual capacities are present in the country to put many of these initiatives into place. However, finances are always the bottom line and failures may be related to problems in developing and ensuring sustainable markets for such initiatives and luring investors into sustainable enterprises.

3.2.5. Public Education and Awareness (Article 13)

3.2.5.1. Promote understanding of the importance of, and the measures required for, the conservation of biological diversity, in particular through the media and educational programmes

Educational outreach has been conducted by many NGOs, CBOs and some GOB Departments, especially the Fisheries Department, the Forest Department, DOE and the Ministry of Health. Products have included books, videos, CDs, workshops and on-site training. GOB agencies were

involved in sponsoring the Environmental/ Natural Resource Awareness Week during the recent Earth Day Celebration. The MBC has provided environmental exhibitions at primary and secondary schools through the Ministry of Education Curriculum Development Unit (QUADS). The MBC has also published a Guide for the introduction of the biological corridor concept in primary and secondary schools through QUADS.

There is a strong need for continued and enhanced environmental awareness and education programmes that make information available throughout our society. It is important to provide appropriate biodiversity and ecosystem information to students, community groups, farmers, hunters, fishers, the business sector, industries and politicians, for these groups have the most immediate impact on the natural resource base. It is especially important to focus awareness activities on the children because they are the true sustainability of our society. People throughout society must become truly aware of the great global, national and local changes that are underway, our respective roles in those changes, how our lives and the Earth will likely be affected and- most importantly, what we can do to preserve, conserve, sustainable use and restore our precious biodiversity and the ecosystems. Consumers and politicians must understand the interrelationship between their decisions and actions and the health of biodiversity, ecosystems and humanity. It is essential that we work to establish or re-establish a strong connection between people and the natural world around us if we hope to instill respect and concern for our biodiversity and ecosystems.

Materials need to be designed to serve many needs. Types of information formats should include well-illustrated booklets, manuals, textbooks, videos and CDs, as well as brochures and posters. Activities and presentations are needed that engage the target audience. There is a great opportunity for collaboration in the development and use of materials, delivery of programs and providing outreach services among the community of NGOs, CBOs, education institutions and GOB agencies.

Institutional and individual capacities for development, production and distribution of information materials exist in the country. Many NGOs have already developed educational programmes and materials. College and UB faculties and students are valuable resources for the

further development and delivery of educational experiences within early grade levels and the general community.

3.2.5.2. Cooperate with other States and international organizations in developing educational and public awareness programmes, with respect to conservation and sustainable use of biological diversity

Some cooperation with International NGOs, Peace Corps, Mesoamerican states and regional organizations such as CCAD already exist. RARE is involved in a project “PRIDE” that is applied in the region, promoting the development of community “ownership” of the rich natural biodiversity. However, there is limited exchange of information at the regional scale and great opportunities exist to build linkages. Effective teacher and student exchange programmes, collaboration on environmental awareness within trans-boundary ecosystems and the creation of Spanish/English educational materials is essential if collaboration and exchange among individuals and institutions involved in educational outreach efforts is to be enhanced.

3.2.6. Exchange of Information (Article 17)

3.2.6.1. Facilitate the exchange of information, from all publicly available sources, relevant to the conservation and sustainable use of biological diversity, taking into account the special needs of developing countries

Information access has historically been a problem in Belize. We lack a full-scale library with access to technical journals and that serves as an information storage center for all relevant environmental reports and documents. This usually results in projects being conducted that may not rely on the latest methodologies or analytical criteria. It also creates situations where managers, researchers, educators and others are not aware of the availability of relevant information concerning a project area.

Several groups are working to address information needs of Belize. A bibliography of research in Belize has been compiled and some effort is underway to assemble this information into

electronic format by private libraries and NGOs. The MBRS maintains a data base. DOE has a library that includes all EIAs conducted in Belize. CZMAI has assembled a substantial document and GIS library. LIC has a significant library of electronic maps and remote imagery. There are many other documents within NGO and private libraries around the country. Such information is scattered in many places and there is no central location where documents, maps, remote imagery and other information can be archived and made available. Failure to establish such a facility has been largely due to lack of technical capacity and expertise.

A biodiversity Clearing House Mechanism (CHM) is in the process of being established in the Forest Department. This system will be internet-based and will be widely accessible. The Forest Department certainly has the institutional capacity to house the facility and the Alternate the Biodiversity Focal Point is receiving training to maintain the system. Many opportunities exist to engage students from the UB-NRM Programme and other educational institutions to contribute to the collection and archiving of articles, reports and data sets. This facility will greatly enhance information acquisition, archiving and information sharing.

3.2.7. Handling of Biotechnology and Distribution of its Benefits (Article 19)

Bio-Safety and biotechnology issues have not been areas of major concern within Belize until recently. Increasing pressures of globalization and advancement of genetically modified crops and other organisms have made these issues pertinent to preservation and conservations within Belize.

BAHA has become the lead agency in developing a policy document to address these issues. Dr. Michael DeShield, Technical Director of BAHA, has been named as the National Focal Point for the Cartagena Protocol on Bio-Safety and the Bio-Safety Clearing House. A moratorium on the use of any genetically modified organisms (GMOs) was put into place until a system was in place within Belize to deal with these issues. The National Bio-Safety Committee was formed in November 2002 and is chaired by the Ministry of Agriculture. A National Project Coordinator was hired in January 2005 and the National Bio-safety Framework (NBF) is to be completed by December 2005.

Capacities are being developed at the systemic and institutional levels. However, the need to be addressed in order to put policy measures in place is at the individual level. Staffing and training is required and the funding to support these efforts.

Researchers from the University of Mississippi have been active in Belize, focusing on sponges, select corals and algae. However, their efforts to set up a long term research programme in Belize failed largely due to the lack of an effective policy that identified the obligations and terms of benefit sharing between Belize and the institution. Belize did not have the legislative framework, institutional capacity or the individual expertise available to handle this new area of research. Currently policies are being developed by the Fisheries Department and the Forest Department. Also the National Bio-Safety Committee is developing a Bio-Safety Framework. Capacity to formulate policies are present in the country at the individual level, but careful consultation is required to ensure that Belize and partner institutions are properly protected and all rights are equitable and fair. Failure to properly implement these policies may result in the loss of opportunities for Belize and contracting parties.

3.2.8 Financial Resources (Article 20)

This is a standard requirement of all undeveloped and developing countries attempting to implement international agendas. Challenged by growing economic constraints, excess national debt and a monetary system in danger of being devalued, Belize is not able to support the additional staff, training, equipment and transportation necessary. Well-targeted funding placed within established and transparent management systems with specifically defined goals and objectives is needed to move forward. Development at systemic, institutional and individual levels is needed. The capacities to conceptualize and formulate policies and legislation, implement strategies and programmes, engage communities and build consensus among stakeholders, exchange information, monitor changes, report findings and learn from experiences exists in Belize at the institutional and individual levels. Failure to mobilize this capacity is largely due to lack of:

- fully established multi-lateral policies
- salary to supported staff positions dedicated to UNCBD requirements

- necessary training for managers and technicians
- adequate research
- equipment and supplies
- transportation

3.3. Root Causes of Failure or Barriers to Implementation

Since the submission of the 1998 National Biodiversity Strategy and Action Plan, there has been a continuing effort to implement many of the responsibilities of the UNCBD, consciously and/or inadvertently. Table 5 below summarizes the root cause analysis of failures or barriers to implementation of requirements of the UNCBD.

Table 5. Root cause of failures or barriers to implementation of requirements of the UNCBD.

PRIORITY CBD ARTICLES	ROOT CAUSES OF FAILURES OR BARRIERS TO IMPLEMENTATION
Article 6. General Measures for Conservation and Sustainable Use	
Develop or adapt national strategies, plans or programmes for the conservation and sustainable use of biological diversity	The policy of the Forestry Department and the Fisheries Department has largely been due to the focus on the management of extracted resources.
Integrate the conservation and sustainable use of biological diversity into relevant sectoral or cross-sectoral plans, programmes and policies	<p>Effective implementation of these concepts at the systemic level, particularly when confronted with political interference on behalf of select economic interests.</p> <p>Limited capacity to engage stakeholders and to build consensus among the community of environmental professionals representing many different GOB agencies, NGOs, CBOs and educational institutions.</p> <p>Environmental issues are often seen as counter to development efforts.</p> <p>GOB Departments focusing more intensely on internal issues rather than inter-department issues.</p> <p>Failure to integrate conservation and sustainable use of biodiversity into those agencies not directly involved in biodiversity management is largely due to the absence of a widely accepted appropriate and sustainable resource use policies.</p> <p>Causes for failure to implement effective trans-boundary sustainable use of biodiversity resources and conservation of shared ecosystems stem from regional border disputes (Guatemala and Belize) and political agendas in both countries that do not support or run counter to preservation, conservation and sustainable use agendas.</p>

PRIORITY CBD ARTICLES	ROOT CAUSES OF FAILURES OR BARRIERS TO IMPLEMENTATION
Article 7. Identification and Monitoring	
Identify components of biological diversity important for its conservation and sustainable use	<p>Failure to identify and conserve biodiversity resources had been due to such factors as restricted information access and the lack of country-wide evaluation of biodiversity resources.</p> <p>De-reservation of protected areas or portions of protected areas has occurred. Motives for some of these changes are unclear, but often development schemes are accommodated by these efforts, representing conflict between development planning and biodiversity conservation.</p>
Monitor components of biological diversity, paying particular attention to those requiring urgent conservation measures or which offer the greatest potential for sustainable use	<p>Currently there is no organized national effort to survey those areas that are requiring urgent conservation measures, particularly with an interest for those having the greatest potential for sustainable use.</p> <p>Failure to standardize monitoring protocols relates to the overall lack of standard monitoring efforts by most agencies (with notable exceptions such as monitoring conducted by the Meteorology Department).</p> <p>Lack of adequate monitoring programs is related to the lack of staff to dedicate to those efforts and the restriction of transportation to access designated sample sites.</p> <p>Failure to maintain effective monitoring programs is also due to lack of adequate laboratory capacity (soil, water quality, microbiology, taxonomy) to support field efforts.</p>
Identify processes and categories of activities which have adverse impacts on the conservation and sustainable use of biological diversity, and monitor their effects	<p>Lack of adequate staff to cover the entire country.</p> <p>Lack of transportation contributes to failure of the Forest Department to effectively patrol areas for illegal extraction, steep-slope clearing and riparian deforestation.</p> <p>Lack of adequate access to boats and fuel prevent the Fisheries Department from effectively patrolling coastal waters for illegal fishing.</p> <p>Lack of aerial surveys, access to real time remote imagery, adequate radio telecommunications and other advanced technology prevents these agencies from being able to keep pace with the challenges of controlling illegal activities.</p> <p>Minimal fines and poor enforcement of legislation also contributes to the failure to curtail illegal practices.</p>
Maintain and organize data derived from identification and monitoring activities	<p>There is no central data repository operating as an open access system for the fully accessible and free exchange of information across multi-institutional levels.</p> <p>Failure to implement an effective data storage system is related to the lack of the technological capacity to set it up and the financial support to maintain it over the long term. Failure to implement a functional specimen archive that fully supports environmental research is largely due to the lack of an appropriate location for such a facility.</p>
Article 8. In-situ Conservation	
Establish a system of protected areas or areas where	Many of the terrestrial protected areas are established legally some with a management plan in place and no real on-the-ground management activities in effect.

PRIORITY CBD ARTICLES	ROOT CAUSES OF FAILURES OR BARRIERS TO IMPLEMENTATION
special measures need to be taken	<p>Many of the other parks are insufficiently staffed; without effective patrols and full involvement of local communities.</p> <p>Protected areas are also threatened by de-reservation of lands for development. There is no committee or board in place to oversee de-reservation efforts to ensure that such actions are truly in the best interest of Belize and the National Parks System.</p> <p>Failure to fully develop the private protected areas potential in Belize is largely due to the lack of incentives.</p>
Develop guidelines for the selection, establishment and management of these areas	<p>Many terrestrial protected areas do not have management plans developed and often do not have adequate staff to conduct activities required by a management plan.</p> <p>Failures often involve problems with understaffing of park wardens or rangers, lack of community involvement and acceptance of co-management responsibilities and sometimes mismanagement of funds by community members charged with administrative duties not having the necessary training.</p> <p>Sometimes the level of economic benefits to the local community generated by tourists does not match expectations, potentially leading to loss of interest in a protected area and maybe even a return to hunting and other traditional resource use patterns.</p> <p>Local political and ethnic divisions within participating communities and incomplete representation of all community groups sometimes contribute to management problems.</p> <p>Guidelines for establishing private protected areas, listing responsibilities and identifying benefits to Belize and to the landowners, are lacking.</p> <p>Failure to effectively encourage and oversee this process and providing incentives to protect private lands will result in the loss of conservation opportunities and developing strong connections between GOB agencies and those landowners.</p>
Regulate or manage biological resources important for the conservation of biological diversity with a view to ensuring their conservation and sustainable use	<p>Institutional and individual capacities to regulate and manage biological resources is restricted by the lack of adequate human resources, lack of adequate transportation and equipment, weak fines and punishment and lack of the ability to successfully prosecute people committing illegal acts.</p> <p>Lack of funding to fully manage parks as ecosystems and failure to implement an effective corridor system also interferes with the regulation and management of biological resources.</p> <p>Failure to effectively protect target species and ecosystems can often be traced to poor understanding of the biology and ecology of the species or ecosystem of focus, lack of baseline information and the inability to effectively gauge results of management efforts.</p> <p>The individual capacity to implement monitoring and research occurs in country, but the funding to support these activities is not readily available. Institutional support for these efforts is in place, but there is not adequate acceptance or understanding of the need for monitoring and research throughout the larger systemic level, particularly among decision makers charged with developing National budgets.</p> <p>Broad scale support for research and monitoring as essential management activities and as</p>

PRIORITY CBD ARTICLES	ROOT CAUSES OF FAILURES OR BARRIERS TO IMPLEMENTATION
	education opportunities for students and community members is generally lacking as limited resources are being focused on other areas.
Promote the protection of ecosystems, natural habitats and the maintenance of viable populations of species in natural surroundings	<p>Identified corridors, most occurring on private property, threatened by development projects that fail to take corridors into account.</p> <p>Failure to establish an effective corridor system include lack of general awareness, lack of full GOB acceptance with legislative support, lack of appropriate incentives for landowners, lack of full support from the private development sector and lack of the political will to implement a corridor system.</p> <p>Policies and legislation supporting corridor establishment is needed but is challenged by the sensitive issues of private land ownership.</p> <p>Lack of enforcement of the existing laws protecting forests within sixty-six feet of the river edge and lack of awareness among the general public, particularly among developers, has resulted in deforestation.</p>
Promote environmentally sound and sustainable development in areas adjacent to protected areas with a view to furthering protection of these areas	Efforts by GOB agencies and NGOs involved in protected areas management are restricted by the amount of time needed to foster strong community relationships and the lack of adequate staff, transportation and general funding.
Rehabilitate and restore degraded ecosystems and promote the recovery of threatened species	There exists the capacity at the individual, community and commercial levels to maintain nurseries, but such efforts need institutional support in the form of financing and project coordination.
Establish or maintain means to regulate, manage or control the risks associated with the use and release of living modified organisms resulting from biotechnology	Bio-Safety framework under development but the effectiveness of this guiding framework is dependent on political and public awareness of the threats and issues associated with the potential release of living modified organisms.
Prevent introduction of, control or eradicate those alien species which threaten ecosystems, habitats or species	<p>There are no effective systemic capacities in place to prevent establishment of invasive species.</p> <p>Failure to implement such efforts on a large scale has been due to the lack of in-country expertise and the lack of focus on invasive species issues at the systemic and institutional levels.</p>
Endeavour to provide conditions needed for compatibility between present uses and conservation of biological diversity and the	Challenges faced by these efforts are getting the resource users actively involved in efforts to develop conservation use patterns that are transferable into practice. Failures may be related to the challenge of developing sustainable markets for products and ensuring consistent product quality.

PRIORITY CBD ARTICLES	ROOT CAUSES OF FAILURES OR BARRIERS TO IMPLEMENTATION
sustainable use of its components	
Respect, maintain and promote appropriate knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity	Belize is rich in traditional knowledge and many initiatives are in place to acknowledge, record and maintain this very important knowledge base but lack of funding restricts efforts.
Develop or maintain necessary legislation and/or other regulatory provisions for the protection of threatened species and populations	Some legislation has been developed that addresses threatened wildlife species, including manatee, sea turtles, orchids and others organisms but there is a lack of adequate and well-trained wardens and rangers to effectively address legal infractions. Fines are set too low to present a major deterrent to infractions and sometimes the legal system fails to punish perpetrators.
Where a significant adverse effect on biological diversity has been determined, regulate or manage the relevant processes and categories of activities	Identification of problem situations is often not readily done as there are no routine surveillance efforts underway due to the cost involved. Surveillance and technical assistance are challenged by funding necessary to respond to identified problems and determining who pays for cleanup and mitigation activities in the case of trans-boundary impacts and activities resulting from industrial accidents, particularly when related to hurricanes or other natural disasters.
Article 10. Sustainable Use of Components of Biological Diversity	
Integrate consideration of conservation and sustainable use of biological resources into national decision-making	Failures may be related to problems in developing and ensuring sustainable markets for such initiatives and luring investors into sustainable enterprises.
Article 13. Public Education and Awareness	
Promote understanding of the importance of, and the measures required for, the conservation of biological diversity, in particular through the media and educational programmes	Materials need to be designed to serve many needs. Types of information formats should include well-illustrated booklets, manuals, textbooks, videos and CDs, as well as brochures and posters.
Cooperate with other States and international organizations in developing educational and public	Limited exchange of information at the regional scale and great opportunities exist to build linkages. Effective teacher and student exchange programmes, collaboration on environmental awareness within trans-boundary ecosystems and the creation of Spanish/English

PRIORITY CBD ARTICLES	ROOT CAUSES OF FAILURES OR BARRIERS TO IMPLEMENTATION
awareness programmes, with respect to conservation and sustainable use of biological diversity	educational materials is essential if collaboration and exchange among individuals and institutions involved in educational outreach efforts is to be enhanced.
Article 17. Exchange of Information	
Facilitate the exchange of information, from all publicly available sources, relevant to the conservation and sustainable use of biological diversity, taking into account the special needs of developing countries	Information is scattered in many places and there is no central location where documents, maps, remote imagery and other information can be archived and made available. Failure to establish such a facility has been largely due to lack of technical capacity and expertise.
Article 19. Handling of Biotechnology and Distribution of its Benefits	
	No legislative framework, institutional capacity or the individual expertise dedicated to benefit sharing.
Article 20. Financial Resources	
	Challenged by growing economic constraints, excess national debt and a monetary system in danger of being devalued, Belize is not able to provide for the additional staff, training, equipment and transportation necessary.

4. Strategy to Address Gaps

Based on the information within this document, the following are recommended as strategic actions to be taken to address the identified gaps and constraints. This list needs to be reviewed, expanded and specified.

1. Design an institutionalized coordinating entity through which the National Focal Points of all interrelated conventions can coordinate activities, share information and resources and target mutual goals in order to meet obligations within each of the respective agreements.
2. Design and implement an awareness and education programme targeting all sectors of society that will help integrate efforts to meet obligations of the conventions into the National

development planning process, taking into account biodiversity preservation and ecosystem conservation issues.

3. Develop a risk analysis and a cost/benefit analysis that show the benefits from the effective management of our natural resource base and the short, medium and long-term costs that would be incurred if no action is taken.
4. Identify areas where restoration ecology is a priority and the kinds of activities required to rehabilitate damaged areas of critical concern (riparian areas, steep slopes, littoral areas, wetlands).
5. Promote watersheds as units of management that involve communities and other stakeholders to help protect soil, water, ecosystem functions and biodiversity.
6. Actively develop partnerships among agencies focused on common biodiversity and ecosystem conservation and sustainable use issues.
7. Improve the capacity and effectiveness of co-management agreements
8. Involve youth in assessment, monitoring, conservation, community outreach, ecological rehabilitation and sustainable use activities.
9. Involve direct resource users (hunters, fishers, loggers, miners, farmers) in helping to implement measures that ensure resource sustainability.
10. Help identify sources of funding to provide support to GOB agencies, NGOs and CBOs involved in managing and protecting the natural resource base of the country and implementing those responsibilities addressed in the UNCBD.

5. Action Plan for Addressing Gaps

An action plan is needed that includes input from all stakeholders at all levels of society. Actions need to engage many levels of society, including youth, women, the elderly, community leaders, industries and businesses, CBOs, NGOs, GOB, regional and international partners. The plan can provide a framework upon which activities throughout the public sector, the private sector, GOB agencies, NGOs, CBOs and international environmental community are coordinated and integrated project areas that address national needs. This endeavor needs to be strongly linked to other conventions, such as the UNFCCC, UNCCD, and many others to which Belize has ratified. A National Biodiversity Policy is needed that helps to strengthen and synergize ecosystem conservation, natural resource management and sustainable use programmes, projects and activities in Belize that engaged all levels of society in the pursuit of the Common Good.

The following is a list of actions, general and specific, that have been proposed during the course of interviews and conversations related to the development of this assessment. This list is included to capture or highlight ideas that may not be emphasized or directly addressed by in the preceding text.

Enhancement of existing capacities

- Promote true co-management system (based on lessons learned from around the country) that fully engages community members in the responsibilities and benefit of their local protected area through training and experience that prepares participants to address those responsibilities.
- Encourage the creation of community-based protected areas, private protected areas, biological corridors and other forms of land use for conservation, such as occurring through the NPAPSP project.
- Reassign underutilized staff or who has essential skills that are not being applied.
- Support initiatives of communities to become stewards of watershed resources.

- Encourage individual and group initiatives to develop appropriate and approved botanical gardens, select breeding facilities and other facilities that can contribute to the protection of biodiversity.

Development of new capacities

- Develop a National Biodiversity Policy including the National Bio-Safety Framework and handling of Biotechnology (already in progress through BAHA).
- Implement a multi-institutional biodiversity and ecosystem awareness campaign coordinated through the Quality Assurance and Development Service (QUADS) of the Ministry of Education and Culture, local community groups and environmental organizations that target all sectors of society.
- Support the development of the Biodiversity CHM to become a fully active information compilation, archiving and distribution system.
- Conduct a legislative review and revise existing legislation to incorporate UNCBD requirements.
- Promote a climate of interagency resource and information sharing that helps to reduce costs and duplication of efforts by all involved.
- Involve Sixth Form and UB natural resource and environmental science students in field and laboratory activities where their input can be utilized.
- Set up and operate a certified water and soils laboratory, a taxonomy laboratory and a microbiology laboratory at UB that is coordinated with other laboratories around the country and in the region working to support biodiversity and ecosystem assessment, monitoring, conservation and sustainable use efforts.

- Ensure that Belize takes full advantage of the regional and international institutions located within the country, such as MBRS office in Belize City, the Smithsonian Institute field station located at Carrie Bow Caye and the CCCCC office in Belmopan.

A 2-year action plan of immediate priorities for capacity development in the biological diversity thematic area was developed through a public consultation workshop in May 2005. The draft was further reviewed by key stakeholder groups and then finalized. The following table summarizes the details of the 2-year action plan and additionally incorporates an evaluation of the activities after the 2-year cycle. The Action Plan addresses priority actions in six UNCBD Articles, namely Articles 6,7,8,10,13 and 17.

**2-YEAR ACTION PLAN FOR CAPACITY BUILDING IN BELIZE UNDER THE
UNITED NATIONS CONVENTION ON BIOLOGICAL DIVERSITY**

CBD ARTICLES (considered as priority for Belize over the next 2 years)	PRIORITY CAPACITY BUILDING ACTION NEEDED	PROPOSED ACTIVITIES	LEAD AGENCY	INDICATORS	INDICATIV E BUDGET
Article 6. General Measures for Conservation and Sustainable Use					
Develop or adapt national strategies, plans or programmes for the conservation and sustainable use of biological diversity	<p>1. Integrate CBD Decision VI/28 Programme of Work (PoW) on Protected Areas into the work programme of key government protected areas management agencies.</p> <p>2. Assist NGOs and CBOs that manage protected areas to develop work plans that adopt the CBD PoW on Protected Areas.</p>	<p>1. Circulate CBD PoW on Protected Areas to all relevant staff for review.</p> <p>2. Hold planning meeting with all relevant staff to develop work plan.</p> <p>3. Identify actions for implementation with existing resources.</p> <p>4. Identify actions for implementation that require additional resources.</p> <p>5. Identify and procure additional resources.</p> <p>6. Initiate implementation of work plan (NPAPSP project).</p> <p>1. Circulate CBD PoW on Protected Areas to all NGO/CBO co-managers, as well as private protected area managers.</p> <p>2. Hold planning meeting with NGO/CBOs to develop work plan.</p> <p>3. Identify actions for implementation with existing resources.</p>	Forest Dept & Fisheries Dept	<p>- Minutes of planning meeting.</p> <p>- Work plan developed.</p> <p>- Periodic report on implementation of work plan.</p> <p>- Letters to NGO/CBOs with copies of the PoW inviting participation in the planning process.</p> <p>- Minutes of the planning meeting</p> <p>- Work plan developed.</p>	

CBD ARTICLES (considered as priority for Belize over the next 2 years)	PRIORITY CAPACITY BUILDING ACTION NEEDED	PROPOSED ACTIVITIES	LEAD AGENCY	INDICATORS	INDICATIV E BUDGET
		4. Identify actions for implementation that require additional resources. 5. Identify and procure additional resources. 6. Initiate implementation of work plan (NPAPSP project).		- Periodic report on implementation of workplan.	
Integrate the conservation and sustainable use of biological diversity into relevant sectoral or cross-sectoral plans, programmes and policies	1. Conduct an economic valuation of the protected areas system 2. Revisit TOR of the Policy Coordinating Unit, MNRE and strengthen its mandate to include policy coordination for the three conventions (CBD, CCD & UNFCCC)	1. Select sites for economic valuation. 2. Prepare terms of reference for the economic valuation. 3. Recruit consultant. 4. Review and finalise consultant's report. 1. Select a small team of senior decision makers to undertake review. 2. Hold review meetings to identify concerns, issues and mechanisms. 3. Prepare new draft TOR/mandate for Policy Coordinating Unit. 4. Arrange for Cabinet adoption of enhanced coordination role. 5. Promote enhanced coordination role among all ministries and other stakeholders.	Forest Dept Ministry of Natural Resources & Environment [CEO]	- List of selected sites - TOR prepared - Consultant's contract - Economic valuation report prepared - List of team members - Minutes of meetings - New TOR/ mandate prepared - Cabinet adopt mandate - Plan and documentation of promotion activities	
Article 7. Identification and Monitoring					
Identify components	Develop national	1. Identify and invite key persons to plan for	Forest Dept &	- Letters of invitation	

CBD ARTICLES (considered as priority for Belize over the next 2 years)	PRIORITY CAPACITY BUILDING ACTION NEEDED	PROPOSED ACTIVITIES	LEAD AGENCY	INDICATORS	INDICATIVE BUDGET
of biological diversity important for its conservation and sustainable use	biodiversity monitoring strategy	development of the strategy. 2. Prepare TOR with the planning team to guide its activities. 3. Identify why, what and where need to be monitored. 4. Identify priorities for monitoring. 5. Identify sources of data and capacity for monitoring. 6. Identify potential partnerships for participation in monitoring. 7. Prepare strategy for monitoring.	Fisheries Dept.	- TOR developed - Minutes of planning meetings - Strategy developed	
Maintain and organize data derived from identification and monitoring activities	1. Set up database of agencies that conduct monitoring, including the identification of types of data collected and frequency. 2. Develop protocol and MOU for sharing of data.	1. Identify all agencies that monitor aspects of biodiversity. 2. Determine what is monitored, by whom and how often. 3. Create database for this information. 4. Assign responsibility for database management. 1. Develop protocol for use and updating of the information with collaborating agencies. 2. Engage collaborating agencies to consistently share data via signing of MOU.	Forest Dept & Fisheries Dept Forest Dept & Fisheries Dept	- List of agencies prepared - Report on status of monitoring prepared - Database created - Database manager identified - Protocol prepared - Number of MOUs signed.	

CBD ARTICLES (considered as priority for Belize over the next 2 years)	PRIORITY CAPACITY BUILDING ACTION NEEDED	PROPOSED ACTIVITIES	LEAD AGENCY	INDICATORS	INDICATIVE BUDGET
Article 8. In-situ Conservation					
Develop guidelines for the selection, establishment and management of these areas	Disseminate guidelines being prepared under the NPAPSP project	<ol style="list-style-type: none"> 1. Prepare list of agencies for receipt of guidelines. 2. Prepared copies and distribute guidelines. 3. Provide orientation on use of guidelines. 	Forest Dept	<ul style="list-style-type: none"> - List of agencies prepared - Number of copies distributed - Number of orientation sessions held. 	
Regulate or manage biological resources important for the conservation of biological diversity with a view to ensuring their conservation and sustainable use	Adopt proposed revisions to the National Parks Systems Act	<ol style="list-style-type: none"> 1. Submit recommendations to legal advisor/draftsperson for preparation of revised legislation. 2. The Minister is oriented on the need for and benefits of the revision of the legislation. 3. The Minister lobbies his Cabinet colleagues to support the proposed changes to the legislation. 4. Revised legislation submitted to parliament. 5. Legislation passed. 	Ministry of Natural Resources & Environment & Attorney General	<ul style="list-style-type: none"> - Draft legislation prepared. - Presentation for encouraging the Minister's support prepared. - New legislation enacted. -Copies of Legislation. 	
Article 10. Sustainable Use of Components of Biological Diversity					
Integrate consideration of conservation and sustainable use of biological resources into national decision-making	1. Develop policy on conservation and sustainable use of biological diversity (National Biodiversity Policy)	<ol style="list-style-type: none"> 1. Select lead agency and individual responsible for the exercise. 2. Select team of persons with the requisite experience to undertake the task. 3. Set the time line for delivery and identify mechanism for extensive participation and effective consensus building. 4. Develop details of what has to be done and 	Policy Coordinating Unit [MNRE]	<ul style="list-style-type: none"> - Lead agency and individual responsible for policy development selected. - Team selected. - Time line set and mechanism identified. - Scope of work developed and sources of information 	

CBD ARTICLES (considered as priority for Belize over the next 2 years)	PRIORITY CAPACITY BUILDING ACTION NEEDED	PROPOSED ACTIVITIES	LEAD AGENCY	INDICATORS	INDICATIV E BUDGET
	2. Promote this policy among all Ministries and departments.	sources of information. 5. Secure authorisation for access to restricted information and support of senior decision makers for the process. 6. Identify and agree on Principles for policy development. 7. Conduct policy analysis (formulation, criteria, search, forecasting, and synthesis). 8. Conduct broad-based consultations on draft policy. 9. Finalise policy statement. 10. Arrange for policy to be approved by Cabinet. 1. Develop strategy for promoting the policy. 2. Implement promotion activities among all departments, including the potential impact on departmental activities.		identified. - Written authorisation and support secured. - Principles identified and agreed upon. - Documentation on outputs of policy analysis. - Number of consultations conducted and reports on outcome. - Policy statement submitted to Cabinet. - Promotion strategy developed - Number of promotion activities held.	
Article 13. Public Education and Awareness					
Promote	1. Package	1. Identify the key target audiences.	Forest Dept &	- Key target audiences	

CBD ARTICLES (considered as priority for Belize over the next 2 years)	PRIORITY CAPACITY BUILDING ACTION NEEDED	PROPOSED ACTIVITIES	LEAD AGENCY	INDICATORS	INDICATIVE BUDGET
<p>understanding of the importance of, and the measures required for, the conservation of biological diversity, in particular through the media and educational programmes</p>	<p>information on economic value of biodiversity and promote to stakeholders groups, especially the political directorate. Include also, the consequences of mismanaging biodiversity</p> <p>2. Conduct an evaluation to determine the effectiveness of the promotion campaign.</p> <p>3. Set up a coordinating body for awareness for all three</p>	<p>2. Develop TOR for preparation of promotion materials (packaging of the information appropriate to the target) to be undertaken by a professional marketing/media consultant.</p> <p>3. Hire Consultant to prepare the required materials.</p> <p>4. Identify local staff for training in the effective promotion of the packaged materials.</p> <p>5. Recruit Trainer and train selected staff.</p> <p>6. Conduct promotion to targeted audiences.</p> <p>1 Develop or adopt an evaluation method.</p> <p>2. Select personnel to conduct the evaluation.</p> <p>3. Train personnel in the evaluation methodology.</p> <p>4. Conduct evaluation and identify lessons to be learnt from the results.</p> <p>1. Identify personnel for the coordinating body.</p> <p>2. Prepare TOR to guide the coordinating body with input from the identified personnel.</p> <p>3. Determine feasibility of statutory instrument to establish the coordinating body.</p> <p>4. Develop TOR for a national strategy to promote</p>	<p>Fisheries Dept.</p> <p>Ministry of Natural Resources & Environment</p> <p>Ministry of Natural Resources & Environment [CEO]</p>	<p>identified</p> <ul style="list-style-type: none"> - TOR prepared - Materials prepared - Number of staff trained in promotion of materials - Number of promotion activities held. <ul style="list-style-type: none"> - Method selected - Number of personnel selected and trained - Evaluation report submitted. <ul style="list-style-type: none"> - Personnel selected - TOR for coordinating body prepared 	

CBD ARTICLES (considered as priority for Belize over the next 2 years)	PRIORITY CAPACITY BUILDING ACTION NEEDED	PROPOSED ACTIVITIES	LEAD AGENCY	INDICATORS	INDICATIVE BUDGET
	conventions	awareness on the CBD, CCD and UNFCCC. 5. Recruit consultant for preparation of the national strategy.		- TOR for national strategy prepared - National awareness strategy prepared.	
Article 17. Exchange of Information					
Facilitate the exchange of information, from all publicly available sources, relevant to the conservation and sustainable use of biological diversity, taking into account the special needs of developing countries	Establish an accessible database of published information on Belize's biodiversity.	1. Identify sources of published information on Belize's biodiversity. 2. Arrange for procurement of copies of the information. 3. Arrange for conversion to digital format where required. 4. Enter information into the database system of the University of Belize. 5. Arrange for copies of this database to be made available to Government agencies. 6. Promote the availability of this information to members of the public and key stakeholder groups. 7. Conduct an annual update of the database.	University of Belize	- Number of documents procured - Number of documents digitised - Number of documents entered into database - Number of government agencies with copies of the database. - Number of promotion activities on the database - Record of update.	
Evaluation and Action Planning	1. Conduct a participatory evaluation of the implementation of	1. Prepare TOR for the evaluation. 2. Recruit consultant to conduct the evaluation. 3. Invite key stakeholder groups to participate in the evaluation process.	Ministry of Natural Resources & Environment	- TOR prepared - Consultant recruited - Number of stakeholders involved in the process	

CBD ARTICLES (considered as priority for Belize over the next 2 years)	PRIORITY CAPACITY BUILDING ACTION NEEDED	PROPOSED ACTIVITIES	LEAD AGENCY	INDICATORS	INDICATIV E BUDGET
	<p>this 2-year action plan.</p> <p>2. Prepare a new 2-year action plan</p>	<p>4. Utilise results of the evaluation in planning a new 2-year action plan.</p> <p>Identify priorities and develop a new 2-year plan of action through the participation of key stakeholder groups.</p>	<p>Ministry of Natural Resources & Environment</p>	<p>- Evaluation report submitted.</p> <p>- Number of planning sessions held</p> <p>- Number of stakeholders participating in the process</p> <p>- New action plan prepared.</p>	

6. Description of the Process

A stock-take exercise was undertaken to gather information on those actions and projects in Belize that address the requirements of the UNCBD. This process involved compiling information not only on actions and projects, but also on the various institutions, Government and non-government, that are involved in implementing these efforts. It also required developing a general overview of the biological resources within the country and identification of some of the issues related to biodiversity preservation, ecosystem conservation and sustainable use of these natural resources. Information was gathered through documents, research reports, interviews with key persons involved in natural resource management within the country. Consultation with the NCSA project director and the Lead Consultant was essential in compiling the final document.

The Belize UNCBD Workshop, held at the Biltmore Hotel during May 6, 2005, provided a venue for gaining a consensus among all participants as to the priority requirements under the Convention on Biodiversity. During this meeting, participants were provided with a table of convention Articles and an incomplete list of activities that had occurred under each article within Belize. Using a projection of the electronic version of the list, participants listed as many actions and efforts that could be recalled and these were added to the table. The table was further edited and the resulting version is given in Appendix 2 of the UN Convention on Biological Diversity NCSA Stock-take of Belize. From this list, participants were then asked to generate a list of priority Articles that should be the focus of biodiversity conservation efforts within the country during the next two years.

The prioritized list of 8 different Articles from the UNCBD was reviewed in detail within the Thematic Assessment. Ten participants in the June 24, 2005 workshop filled out the Priority Matrix for these 8 Articles presented in Appendix 2. Issues were raised with this process to reduce the Articles that were to receive focus in this study, particularly when this document is suppose to be the principal document for deciding funding needs from this point forward. Selecting whole articles rather than individual requirements resulted in the lack of focus on many requirements that are highly important to Belize and conservation efforts underway. Those

requirements not covered in this Assessment should be reviewed and also considered for funding.

The Biodiversity Stock-Take Report was used as a base document for compiling the Biodiversity Thematic Assessment. Based on findings of the stock take, capacities within the country, scattered through GOB agencies, NGOs and CBOs, were identified and briefly described. Capacity needs were also identified and discussed. This information will be used to prepare the National Report that will be instrumental in identifying project needs and guiding future funding efforts.

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General references are cited below. However, this document is based on the information compiled in the UNCBD Stock-Take Report- Belize that includes information drawn from many sources. A more extensive list of references is given in the appendices of that document.

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Appendix 1

Capacity Matrix Identifying the Systemic, Institutional and Individual Level Capacities to Address Requirements Under the UNCD

Key Functions to be Performed to Comply with CBD	Capacity In Place or Developing to Perform General CBD Functions		
	System Level	Institutional Level	Individual Level
<p>Conceptualize and formulate policies, legislation, strategies and programmes</p> <p>Analyze global, regional, and national socio-economic conditions</p> <p>Visualize and develop long-term strategies</p> <p>Conceptualize sectoral and cross-sectoral policies</p> <p>Prioritize, plan, and formulate programmes</p>	<p>Contextual framework</p> <p>National Report submitted in 1998 Second report, due in 2001, is in draft form only</p> <p>Third report, due in May 2005 is not written</p> <p>Institution and laws</p> <p>Environmental legislation is in place</p> <p>Penalties are enforced infrequently</p> <p>Disputes are seldom resolved in the courts</p> <p>NGOs and CBOs are involved in developing some legislation</p>	<p>Departmental Governance</p> <p>Ministries and Departments have well defined mission statements</p> <p>Forest Dept, Fisheries Dept, DOE, Institute of Archaeology operate at the national level</p> <p>Forest and Fisheries Officers and Park Rangers operate at the local level</p> <p>Departmental Strategy</p> <p>Updated policies are being developed for Forest Dept, Fisheries Dept., BAHA, PACT</p> <p>Strategies are determined by legislative mandates</p> <p>Resources management</p>	<p>Job requirements</p> <p>Job descriptions and requirements need to be updated for some Departments</p> <p>Monitoring performance</p> <p>Reporting and accounting is described by each GOB Department, NGO and CBO</p> <p>Periodic performance appraisals are conducted by GOB based on standard procedures</p> <p>Incentives</p> <p>Salaries and benefit packages are provided</p> <p>Many employees are dedicated to the</p>
<p>Implement policies, legislations, strategies and programmes</p> <p>Mobilize and manage human, material, and financial resources</p> <p>Execute and manage programmes and projects effectively</p> <p>Select effective technologies and infrastructure</p>	<p>Participation, accountability and transparency</p> <p>Opportunities exist for the public to contest and influence legislation</p>	<p>Departmental Strategy</p> <p>Updated policies are being developed for Forest Dept, Fisheries Dept., BAHA, PACT</p> <p>Strategies are determined by legislative mandates</p> <p>Resources management</p>	<p>Job requirements</p> <p>Job descriptions and requirements need to be updated for some Departments</p> <p>Monitoring performance</p> <p>Reporting and accounting is described by each GOB Department, NGO and CBO</p> <p>Periodic performance appraisals are conducted by GOB based on standard procedures</p> <p>Incentives</p> <p>Salaries and benefit packages are provided</p> <p>Many employees are dedicated to the</p>

<p>Engage and build census among all stake-holders</p> <p>Identify and mobilize stakeholders</p> <p>Create partnerships and co-management agreements</p> <p>Raise awareness and promote environmental education</p> <p>Appropriately involve all stakeholder groups in decision-making and implementation</p> <p>Accept sharing arrangements and resolve conflicts</p>	<p>Policies are presented at public forums</p> <p>Stakeholders/clients are not always involved in the decision- making process</p> <p>Authority level</p> <p>Authority over natural resources is shared among many different GOB departments, with several NGOs and CBOs involved in co-management agreements and also holding some authority</p>	<p>Resources are allocated by government for GOB Departments</p> <p>Funding agencies provide support for many PAs</p> <p>PACT provides funding for capacity development for Forest Depart.</p> <p>NGOs and CBOs funded through various sources</p> <p>Operational management</p> <p>Operational procedures are guided by government regulations and practices</p>	<p>conservation and preservation efforts and derive job satisfaction</p> <p>Skill development</p> <p>Training programs and workshops are available</p> <p>Advanced educational opportunities exist</p> <p>Information is accessible</p>
<p>Capacity to mobilize information and knowledge</p> <p>Gather, analyze, and synthesize information</p> <p>Identify problems and potential solutions</p>	<p>Markets and financial flows</p> <p>Eco-tourism is a main financial income associated with conservation efforts and is subject to many external influences</p>	<p>Targets are set out in the Annual Work Plans</p> <p>Communication within the department appears to be less than adequate</p>	
<p>Capacity to Monitor, Evaluate, Report and Learn</p> <p>Monitor and measure progress</p> <p>Identify and distribute lessons learnt</p> <p>Use lessons learnt for policy dialogues and planning</p> <p>Report to donors and global conventions.</p>	<p>Cruise ship tourism brings some income into select protected areas but also introduces impacts</p> <p>Science</p> <p>Foreign institutions, NGOs and UB involved in assessment, monitoring and research activities</p>	<p>Quality Assurance</p> <p>Standard GOB evaluations used</p> <p>Staff Quality</p> <p>Recruitment is done by the appropriate government ministry</p> <p>Promotion is based on training and performance</p>	

Appendix 2

Priority Matrix for Requirements Under the UNCBD

Ten participants in the June 24, 2005 workshop filled out the Priority Matrix as a consensus group for eight Articles identified during the May 6, 2005 workshop as those of highest priority.

SCALE	Global = G	Regional = R	National = N	Local = L
IMPORTANCE	High = H	Medium = M	Low = L	
ABILITY TO ADDRESS ISSUE	High = H	Medium = M	Low = L	
PRIORITY RANKING	High priority = 1 2 3 4 5 = Low priority			

REQUIREMENTS WITHIN ARTICLES	SCALE	IMPORT	ABILITY	PRIORITY
Article 6. General Measures for Conservation and Sustainable Use				
Develop or adapt national strategies, plans or programmes for the conservation and sustainable use of biological diversity	N	H	M	1-2
Integrate the conservation and sustainable use of biological diversity into relevant sectoral or cross-sectoral plans, programmes and policies	N	H	L	1
Article 7. Identification and Monitoring				
Identify components of biological diversity important for its conservation and sustainable use	RN	H	M-L	1-2
Monitor components of biological diversity, paying particular attention to those requiring urgent conservation measures or which offer the greatest potential for sustainable use	RNL	H	ML	1-2
Identify processes and categories of activities which have adverse impacts on the conservation and sustainable use of biological diversity, and monitor their effects	RNL	H	ML	1
Maintain and organize data derived from identification and monitoring activities	N	H	H	1
Article 8. In-situ Conservation				
Establish a system of protected areas or areas where special measures need to be taken	GRN	H	HM	1
Develop guidelines for the selection, establishment and management of these areas	N	H	HM	1
Regulate or manage biological resources important for the conservation of biological diversity with a view to	RNL	H	ML	1-2

ensuring their conservation and sustainable use				
Promote the protection of ecosystems, natural habitats and the maintenance of viable populations of species in natural surroundings	GRNL	H	ML	1
Promote environmentally sound and sustainable development in areas adjacent to protected areas with a view to furthering protection of these areas	NL	H	M	1
Rehabilitate and restore degraded ecosystems and promote the recovery of threatened species	NL	M	L	2-3
Establish or maintain means to regulate, manage or control the risks associated with the use and release of living modified organisms resulting from biotechnology	GRN	H	L	3
Prevent introduction of, control or eradicate those alien species which threaten ecosystems, habitats or species	RN	H	L	1
Endeavour to provide conditions needed for compatibility between present uses and conservation of biological diversity and the sustainable use of its components	NL	HM	M	2-3
Respect, maintain and promote appropriate knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity	NL	H	M	2
Develop or maintain necessary legislation and/or other regulatory provisions for the protection of threatened species and populations	N	H	MH	1
Where a significant adverse effect on biological diversity has been determined, regulate or manage the relevant processes and categories of activities	NL	H	ML	1
Cooperate in providing financial and other support for in-situ conservation, particularly to developing countries	GRN	H	L	1
Article 10. Sustainable Use of Components of Biological Diversity				
Integrate consideration of the conservation and sustainable use of biological resources into national decision-making	N	H	L	1
Adopt measures relating to the use of biological resources to avoid or minimize adverse impacts on biological diversity	RN	H	M	2

Protect and encourage customary use of biological resources in accordance with traditional cultural practices that are compatible with conservation or sustainable use requirements	RNL	H	ML	1
Support local populations to develop and implement remedial action in degraded areas where biological diversity has been reduced	L	M	ML	3
Encourage cooperation between governmental authorities and the private sector in developing methods for sustainable use of biological resources	GRN	H	ML	1
Article 13. Public Education and Awareness				
Promote understanding of the importance of, and the measures required for, the conservation of biological diversity, in particular through the media and educational programmes	GLNL	H	M	1
Cooperate with other States and international organizations in developing educational and public awareness programmes, with respect to conservation and sustainable use of biological diversity	GR	H	H	1
Article 17. Exchange of Information				
Facilitate the exchange of information, from all publicly available sources, relevant to the conservation and sustainable use of biological diversity, taking into account the special needs of developing countries	GRNL	H	M	1
Article 19. Handling of Biotechnology and Distribution of its Benefits				
Take legislative, administrative or policy measures to provide for the effective participation in biotechnological research activities by those Contracting Parties which provide the genetic resources for such research	GN	L	L	5
Take all practicable measures to promote and advance priority access on a fair and equitable basis by Contracting Parties to the results and benefits arising from biotechnologies based upon genetic resources provided by those Contracting Parties	GN	H	L	1
Provide any available information about the use and safety regulations required by other Contracting Parties in handling living modified organisms resulting from biotechnology, as well as any available information on the potential adverse impact of the specific organisms concerned	GN	H	H	1

Article 20. Financial Resources				
Provide financial support and incentives in respect of those national activities which are intended to achieve the objectives of this Convention, in accordance with its national plans, priorities and programmes	GRN	H	L	1
Developed country Parties shall provide new and additional financial resources to enable developing country Parties to meet the agreed full incremental costs to them of implementing measures which fulfil the obligations of this Convention and to benefit from its provisions	GN	H	H	1
Take full account of the specific needs and special situation of least developed countries in their actions with regard to funding and transfer of technology	N/A	N/A	N/A	N/A
Take into consideration the special conditions resulting from the dependence on, distribution and location of, biological diversity within developing country Parties, in particular small island States	GN	H	HM	1



Appendix 3

Terms of Reference for National Consultant for the UNCBD

National Capacity Self-assessment Project (NCSA)

Terms of Reference

For a Consultancy on the United Nations Convention on Biological Diversity

OBJECTIVES AND DELIVERABLES

1. OBJECTIVES OF THE CONSULTANCY

A. Profile of Thematic Area

The consultancy is to conduct a capacity self-assessment within the **biodiversity thematic area**. At the end of the assignment there should be a full profile on this thematic area, including, but not limited to:

- a. A review of the relevant legal instruments, policies and non-regulatory mechanisms;
- b. The responsibilities and relevant activities of ministries, agencies and other government bodies;
- c. The role of the private sector and other relevant stakeholders;
- d. The existence of relevant information and databases;
- e. Capacity development activities that have been or are being undertaken including training and human resource programmes; and
- f. Financial resources to execute action plans, monitoring, evaluation and reporting frameworks and capacity constraints and priorities for action.

B. Tasks of the Consultancy

The consultant will, under the direction of the Project Manager, and in consultation with the Inter-Ministerial Project Steering Committee, working in tandem with a lead consultant, conduct a full assessment of the capacity issues within the biodiversity thematic area. The consultant will work with the support of technical experts executing national action plans and other projects related to implementation of Belize's commitments under the UNCBD.

Specifically the National Consultant will:

a. Collate and compile reports on activities and projects carried out in regards to the Convention on Biodiversity (UNCBD);

b. Carry out a stocktaking review of:

Relevant convention reports and national communications, including but not limited to the National Biodiversity Strategy and Action Plan (NBSAP), the first and second National Reports to the CBD, and the Biodiversity Enabling Follow-on Project;

Biodiversity related programs and projects, including The Belize Protected Areas Systems Plan, Northern Belize Biological Corridor Project, the Mesoamerican Biological Corridor Program, the PACT Co-management Project, The National Protected Areas Policy and Systems Plan Initiative, The Mesoamerican Barrier Reef System Project, and the Conservation and Sustainable Management of Biologically Diverse Coastal Resources Project;

National environmental documentation, including the Belize's National Environmental Action Plan (NEAP), the Belize Report to the UN Conference on Environment and Development (Rio-1992), the Belize Report to the WCSSD (Johannesburg-2002), Belize Report to the Barbados Plan of Action-SIDS (2004), the Belize Report to the World Congress on Protected Areas, the National Protected Areas System Plan; Belize Environmental Profile by World Bank; Country Environmental Analysis-IDB, etc;

General countrywide planning documents, such as the Public Sector Investment Program, the Medium Term Economic Strategy Paper, and the Poverty Alleviation Strategy and Action Plan; National Human Development Report;

Existing reports with analysis of capacity issues in Belize, including evaluation reports on existing GEF projects (Community Co-managed Park System for Belize, Conservation and Sustainable Use of the Belize Barrier Reef Complex), the report on Effectiveness of Management Systems for Marine Resources, and the Belize Audubon Society Environmental Agenda 2002 and Beyond;

(The Stocktaking Assessment is expected to feed into the national analysis and prioritization phase to be headed by a lead consultant)

- c. Participate in a situational analysis exercise aimed at identifying:
 - i. national priorities, capacity constraints at individual, institutional and systemic levels;
 - ii. needs as well as gaps in information and actions; and
 - iii. implementation bottlenecks with reference to the specific thematic area.
- d. Participate in the categorization of opportunities in terms of a) creating new capacity, b) mobilizing or redeploying existing capacity, and c) enhancing existing capacities;
- e. Identifying and recommending necessary corrective actions;
- f. Assist the Project Manager in the organization of the workshop to share the findings of the thematic assessment;
- g. Liaise with relevant members of the IMPSC and report to the IMPSC on the progress of the work on an as needed basis as well as with other thematic assessment consultant(s); and
- h. Participate in the preparation of the final report on the biodiversity thematic assessment, including the results of the workshop and the prioritization of issues, which should be addressed in an action plan.

Note: Points “c” through “h” will be done in collaboration with a Lead Consultant to be contracted by the PMU.

C. *Possible Table of Contents of the NCSA Final Report or Document*

In the “*Guide for Self-Assessment of Country Capacity Needs for Global Environmental Management*” (page 34), a sample Table of Contents is presented as follows:

Executive Summary

Introduction and Background.

Identified Thematic Priority Issues.

Summary of Capacity Constraints and Opportunity for Capacity Building in the Three Thematic Areas.

Opportunities for Synergistic and Cross-cutting Capacity Building Approaches and Projects.

Elements of a Strategy for Capacity Building to Protect the Global Environment.

Proposed Next Steps and Follow-up.

Monitoring and Evaluation.

Annexes

This sample Table of Contents can be improved and adapted to the Belize situation by the Consultants in consultation with the Project Management Unit.

2. EXPECTED OUTPUTS/DELIVERABLES

A. The Lead Consultant

The Lead Consultant will guide the NCSA process and produce the final report to the Project Management Unit once the National Consultant has endorsed in writing his/her approval of the said final reports.

B. The National Consultant

The expected outputs from the National Consultant are as follows:

- a. Attendance at all team meetings;
- b. Attendance at IMPSC meeting as required;
- c. Attendance at the relevant thematic workshop and final national workshop;
- d. Facilitation of the relevant thematic workshop;
- e. A list and copies (electronic and hard copies) of materials reviewed supplied to the PMU library; and
- f. Participation in the preparation of the final report detailing the evaluation of capacity issues within the thematic area including the prioritization of issues.
- g. Prepare a Terminal Report on his/her consultancy (Get format from PMU).