



# UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE



## NATIONAL CAPACITY SELF ASSESSMENT

# Thematic Assessment Report

# BELIZE

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## LIST OF ACRONYMS

ACCC	Adaptation to Climate Change in the Caribbean
AIJ	Activities Implemented Jointly
AOSIS	Association of Small Island Developing States
BEL	Belize Electricity Limited
BPOA	Barbados Programme of Action
BSI	Belize Sugar Industries
CARICOM	Caribbean Community
CCCCC	Caribbean Community Climate Change Centre
CPACC	Caribbean Planning for Adaptation to Climate Change
CDM	Clean Development Mechanism
CHM	Clearing House Mechanism
CSO	Central Statistical Office
CZMAI	Coastal Zone Management Authority and Institute
FNC	First National Communication
GEF	Global Environmental Facility
GHG	Greenhouse gas
GWP	Global Warming Potential
IPCC	Inter-Government Panel on Climate Change
LIC	Land Information Centre
MBRS	Meso-American Barrier Reef Programme
MNREI	Ministry of Natural Resources, the Environment and Industry
MOA	Ministry of Agriculture and Fisheries
NCSA	National Capacity Self Assessment
NEAC	National Environmental Appraisal Committee
NEAP	National Environmental Action Plan
NEMO	National Emergency Management Organization
NICU	National Implementation Coordination Unit
NMS	National Meteorological Service
PCU	Policy Coordination Unit
PfB	Programme for Belize
PMU	Project Management Unit
RBCMA	Rio Bravo Conservation and Management Area

RPIU	Regional Project Implementation Unit
SIDS	Small Island Developing States
UNCED	United Nations Conference on Environment and Development
UNCCD	United Nations Convention to Combat Desertification (Land Degradation)
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
USIJI	United States Initiative for Joint Implementation
WSSD	World Summit on Sustainable Development

## **EXECUTIVE SUMMARY**

Belize is presently conducting a National Capacity Self Assessment (NCSA) exercise to determine its capacity to implement the United Nations Framework Convention on Climate Change (UNFCCC). The NCSA is a tool being used by many of the country parties to determine their own capacity to implement and benefit from the implementation of the Convention. Important phases of the NCSA are the Stock-take and the Thematic Assessment exercises. This Thematic Assessment exercise builds on the results of the Stock-take. It analyzed the requirements that are not being met, identified the causes, contributing factors and barriers. The Thematic Assessment also provides an understanding of the capacity needs, constraints, and opportunities, and is a basis for future action to develop capacity.

The following are some of the priority needs identified through the thematic assessment:-

- Formulation and implementation of a national climate change programme which would be developed with national stakeholder participation, and be adopted at the top level of government.
- Reduction of information gaps through research and systematic observation. Availability and dissemination of reliable information would enable a wider cross-section of the population to participate in climate change activities.
- Establishment of a National System for the management of green house gas inventories.

The analysis of Belize's capacity to implement the Articles of the Convention at the systemic, institutional, and individual levels revealed that in general there was capacity at the individual and institutional levels: to conceptualize and formulate policies, legislation, strategies, and programmes; to implement policies, legislation, and strategies; to engage and build consensus; and to monitor, evaluate and report. The greatest deficiency in capacity was at the systemic level, i.e., at the level where the enabling environment is created. The absence of a national climate change programme in Belize is a major constraint to the creation of a national framework guiding policy formulation, economic development, regulatory activities, and accountability for the operations of institutions and individuals.

Strategic actions have been recommended and a draft Action Plan has been prepared to address the gaps and constraints.

This exercise was completed by using literature review; interviews with staff members of the organizations concerned such as the National Meteorological Service, Programme for Belize, interviews with independent national consultants not employed by these organizations, and participants at the national consultation workshop. Additional input was provided by some of the workshop participants who returned comments on draft documents that were shared with them.

# **1. INTRODUCTION TO THE UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE (UNFCCC)**

## **1.1 Overview of Belize's situation with regards to the Convention**

In 1990, the international community responded to the concerns raised about climate change and convened an Intergovernmental Negotiating Committee (INC) to draft a convention to address climate change. Belize signed the United Nations Framework Convention on Climate Change (UNFCCC) at the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro, Brazil in 1992 together with the leaders of the other Central American nations. This was done to show that Belize recognized that the challenges of climate change were an international matter that required concerted action. Belize ratified the Convention in 1994.

As a signatory to the Convention, Belize recognizes that it shares the responsibility to contribute to the international effort to meet the ultimate objective of the Convention: *“stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system...within a timeframe sufficient to allow eco-systems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner”*(UNFCCC). As a non-Annex I Party, however, Belize must have *“access to the resources to achieve sustainable social and economic development”* (UNFCCC) since as a developing country the overwhelming priorities of the nation are poverty alleviation and sustainable economic development. Belize is presently not obliged to limit its emissions of greenhouse gases.

## **1.2 National Requirements and Progress made under the Convention.**

### **Progress made in implementing the Convention**

Belize has made limited progress in implementing many of the Articles of the Convention, mostly with the support of project funds. These activities have not been limited to government initiatives as evidenced by Programme for Belize's continuing involvement in the carbon sequestration project. In the absence of a national climate change programme,

activities appears to be uncoordinated and at random, based on the organizations' needs, obligations, or potential to benefit. For example the National Meteorological Service (NMS) has guided the first greenhouse gas inventory of emissions and sinks and preparation of the First National Communication due to its obligation as the Focal Point. Programme for Belize (PfB) negotiated for carbon sequestration funds because it has a large tract of land to manage and this source gave the non-government organization the means to meet its objectives.

Among its obligations, Belize is required to periodically prepare a National Communication detailing what measures it is taking to address climate change. This includes a national inventory of sources and sinks of greenhouse gases. In 1998, the Global Environmental Facility (GEF) provided funds through the United Nations Development Programme (UNDP) for an enabling activity to assist Belize in preparing its National Communication.

Belize has conducted Climate Change Vulnerability Assessments in Agriculture in 1995, the Coastal Zone and Water Resources under the US Country Studies Program. In 1995, Belize became one of the first countries to host a project under the pilot phase of Activities Implemented Jointly (AIJ), the Rio Bravo Carbon Sequestration Project. Beginning in 1997 Belize participated in the implementation of the regional "Caribbean: Planning for Adaptation to Global Climate Change" (CPACC) project until the end of the four-year period. In 1998, Belize implemented the "Enabling Activity to Assist Belize in Preparing its First National Communication to the Conference of the Parties of the UNFCCC".

The National Meteorological Service (NMS) had established a website to share information on national activities related to climate change. A Project Steering Committee had been appointed for the duration of the first Green House Gas GHG Inventory and First National Communication (FNC) project, and a similar multi-disciplinary National Implementation Coordination Committee (NICU) had been established to provide support during the implementation of the (CPACC). Both of these committees met periodically, beginning in July 1998, during the implementation period of the projects. The records indicate that these two committees were meeting as one body in 2000, although it had been expanded to include other representatives of the private and business sectors. The group continued to meet periodically, although less frequently, after the projects ended.

### **1.3 Other Priority requirements include:-**

#### **1.3.1. National Programmes on Climate Change**

No single programme on climate change has been formulated and implemented. The creeping impact of climate change and the emerging issues have not yet achieved the priority at the political level to gain popular support. The main constraint is the lack of (financial) resources to launch and sustain an awareness programme. One of the outputs of the climate change project that drafted the First National Communication (FNC) was the creation of a website for the National Meteorological Service to facilitate the dissemination of information. That website proved to be less effective than anticipated, primarily because it is not nationally based, and it is difficult to update and maintain it.

#### **1.3.2. To reduce Information Gaps and Needs: Scientific Research and Systematic Observations**

Belize was one of the first countries to host a project under the pilot phase of Activities Implemented Jointly programme, the Rio Bravo Carbon Sequestration Programme that was established in 1995. That project is still in progress, with the first ten years of data collection recently completed.

The NMS was able to establish a website during the period of the first national Green House Gas (GHG) inventory. Programme for Belize (Pfb) also maintains a website. Both of these offer opportunities for dissemination of information to the public. The NMS website presently requires updating in order to share climate change data, and possibly to create hyper-links with other relevant websites. Other options exist now that the Ministry of Natural Resources has established its own website. Other public awareness efforts were effected through a number of consultation workshops, but not on a sustained or national level. During the last four years the NMS held one climate change committee meeting to update participants on the transition between the ACCC and the MACC project.

### **1.3.3. National Systems for Assessment of the Anthropogenic Greenhouse Gas Inventories**

Then First National Communication mentioned the need to establish a body with the mandate to manage climate change matters. The Inter-Government Panel on Climate Change (IPCC) requires the establishment of National Systems that operate autonomously with their own resources. This is not yet in place for Belize. The main constraints are the trained or experience personnel to create this system, and the allocation of financial resources to support its work on a continuous basis.

One of these constraints is presently being addressed through Belize's participation in the United States Agency for International Development/Environmental Protection Agency USAID/EPA GHG Inventory Project. This project being implemented throughout the seven Central American countries has as a major objective the standardization of the methodology of the GHG Inventory process throughout the region. The pilot phase focuses on Inventory of the emissions in the Land Use Change and Forestry and Soils sectors, with expectations to include the other sectors in a follow –up project.

### **1.3.4. National Communications**

As a non-annex I country, Belize is not required to submit National Communications on an annual basis.

Belize conducted its first national greenhouse gas inventory of emissions and sinks in 1998, and subsequently prepared and submitted the First National Communication to the Conference of the Parties in July 2002. The First National Communication had been drafted since 2000 and was submitted to Cabinet for approval before submission to the COP. Cabinet recommended some revisions after it was reviewed later that year. However, due to a change in government, and the usual transitional events as new ministers responsible for the National Meteorological Service taking office, it was not resubmitted to Cabinet until 2002. The Government of Belize's policy requires that Cabinet approves those documents that are submitted to international bodies as national reports.

Belize has now initiated the process to access the Global Environmental Facility's enabling activity to prepare for the next GHG inventory of emissions and sinks, followed by the preparation of the Second National Communication.

## **1.4 The Enabling Environment**

### **1.4.1 Economic Framework**

Agricultural activity is the biggest contributor to Belize's economy. The greatest proportion of the population is employed in this sector and the generation of revenue to be measured in the Gross Domestic Product (GDP). The main difference between Belize and some of the other Small Island Developing States is that the sector does not depend on one commodity only. Sugar cane, bananas, and citrus provide most of the agricultural resource base with fisheries increasingly significant due to the expansion of shrimp and fish farms.

During the last decade growth and development in the tourism industry has elevated this sector to being the second largest contributor to the GDP.

### **1.4.2 In-country approach to partnerships, delegation, governance, etc.**

Partnerships exist in all sectors of the country. Examples of partnerships include government department to government department, the multidisciplinary Land Utilization Authority that serves as an advisory body to the Commissioner of Lands and Surveys on land subdivision proposals; government with non-government, the Co-Management Agreement between Government of Belize with the Belize Audubon Society for the management of protected areas; among non-government organizations, the Association of National Development Agencies formed of non-government organizations; among village (Association of Village Councils) and community-based organizations (Southern Alliance for Grassroots Enterprises); within the private sector, in small business ventures; and between individuals.

Formal relations between government departments and/or ministries occur under arrangement of some section of their regulations, for example the National Environmental Appraisal Committee of the Department of Environment or the Land Utilization Authority of the Lands and Surveys Department. They are created to provide advisory support to the lead agency and are bureaucratic in their operations.

Non-government partnerships tend to be more informally arranged although umbrella associations are also created to formalize their relationship.

Due to the nature of the organizations involved, the few instances of private-sector partnerships have not endured for long periods, and appear to be established for special purposes. One example is the Lumber Producers' Association that was established in the early 1990s when the sawmillers and some of the craftsmen (wood carvers) joined together to lobby government to stop the export of Rosewood and Ziricote logs because of the negative impact this was causing on their trade. The association ceased to function within a few months after the ban on the exports had been imposed..

### **1.4.3. Physical infrastructure**

Belize is located on the Central American mainland, forming part of the Yucatan Peninsula. It is bounded to the north by Mexico, to the west and south by Guatemala and to the east by the Caribbean Sea. The total land area is 22,960 sq. km. (8,867 square miles) of which 95% is located on the mainland and five per cent is distributed over more than 1,060 islands. Total national territory (including territorial sea) is 46,620 sq. km. (approximately 18,000 square miles).

Most of the northern half and much of the southern third of the country, plus the entire coastal area and all the islands, are flat and low-lying. Large sections of the coastline have an elevation of less than one metre to a distance of several kilometres inland. In the north, the land rises to an elevation of approximately 250 meters above sea level in the extreme west of the country. The central part of the country is dominated by the Maya Mountains, rising to 1,124 m above sea level (3688 ft) at its highest point

Northern Belize has a subtropical climate with an annual rainfall of 1,500 mm (60 inches). Southward, the climate becomes increasingly tropical and annual rainfall increases to 3,800 mm (150 inches). The climate is characterized by marked wet and dry seasons separated by a cool transitional period. The rainy season begins in the south in the middle of May and arrives in the north in mid June. It continues through to November, but most locations experience a drier period in August. Some 60% of annual precipitation occurs during this season, produced primarily by tropical systems including tropical cyclones. The cool

transition period occurs from November through February. Rainfall declines and approximately 12 cold fronts cross the country during this period. The true dry season is from February to April and is produced by strong anticyclones in the Atlantic that generate a persistent stable south-easterly airflow across the country.

Average maximum temperatures are near 85°F and the lows are around 70°F. Summers are about 8 degrees warmer than winters. The diurnal temperature range in the interior is greater than that along the coast, where it is moderated by the sea breezes. For example, minimum temperatures in the interior are about 5 degrees lower than those at coastal locations. The mountainous regions are also cooler, exhibiting a fall in temperature of 10 degrees Celsius per km (5°F/1000 ft.). Humidity hovers around 80% throughout the year, although it is somewhat lower during the months of the dry season.

Belize lies within the hurricane belt. Historically, tropical storms and hurricanes have affected the country once every three years. Belize City, the former capital, was destroyed twice by hurricanes in the 20<sup>th</sup> century. Hurricanes can affect any part of the country but are more frequent in the north.

The geology is calcareous over the entire northern part of the country and the Maya Mountains. Granites and metamorphic rocks occur elsewhere. The natural vegetation is predominantly moist and wet subtropical broadleaf forest, including mangroves on the coast. Savannahs and open pine formations, subject to frequent burning, occur on some granites and wherever Pleistocene alluvia cover the underlying limestone. There are also large wetland areas on the lowlands and coastal plains. Offshore, the Belize Barrier Reef is the second largest in the world and the largest in the Western Hemisphere. The greater part of its extent lies within Belizean territorial waters.

#### **1.4.4. Land Use**

In 2000, approximately 121,500 people (48.6% of the population) lived in nine municipalities; 54,000 lived in the main economic centre, Belize City, and the remainder in urban centres ranging from 13,800 to 4,400 people (Orange Walk and Punta Gorda Towns respectively). Rural population densities in the districts ranged from 13.6 to 3.5 per square kilometre (Corozal and Belize Districts respectively), averaging at 5.6 per square kilometre.

This is low but disguises the fact that the population is concentrated in the better agricultural areas. Conversely, large areas are practically devoid of inhabitants due to the inhospitable terrain, difficult access, or land ownership patterns. In fact only 33% of the country is considered suitable for agriculture and half of that requires careful management. The population is distributed accordingly. This results in localized pressure, and marginal lands are being brought under agriculture in such areas.

An important characteristic of Belize is that almost 70% of the country remains under natural vegetation cover. The utilization pattern of natural vegetation is therefore a crucial part of national land use. **In 1994, protected areas with some form of legal underpinning covered 767,000 ha (33.4% of the country).** Of this area, and dividing the large privately owned Rio Bravo Conservation and Management Area into its functional national park and forest reserve components, 38% is under management regimes for biodiversity conservation, education, visitation, and research. The remainder is within forest reserves, allowing extractive use. Even here, however, some 50% of the area is treated as protected forest due to slope or soil moisture constraints. The Forest Department is actively promoting the implementation of properly designed management plans for both national and private lands. Those areas outside the protected area network comprise government and privately owned lands. Land use includes protection (often associated with eco-tourism ventures), selective timber extraction under minimal control, and some extraction of non-timber forest products. Although many areas are difficult to access, virtually none can be considered pristine although human impacts may be slight.

In terms of vegetation cover, approximately 70 % of the natural vegetation comprises high broadleaf forest formations. High mangrove formations add another percentage point. Thickets (which at least in northern Belize have been shown to carry a surprisingly high biomass content approaching that of high forest) comprise a further 3.5%. Deforestation, primarily for agriculture but also for other economic ventures especially on the coast, occurs mainly at the expense of these three vegetation classes.

#### **1.4.5 Approach to Environmental Protection**

The Department of the Environment (DOE) is a government agency established in 1989, and given its mandate under the Environmental Protection Act that was legislated in 1992. The

Act provided for the authority of the department, include the drafting and promulgation of laws and regulations designed to achieve protection of the environment. Important tools utilized by the department include Pollution Regulations and the National Environmental Action Plan that guide its activities. The DOE is a member of a number of national advisory committees (to the minister responsible for environmental matters) which function to guide development in various sectors. It chair's the multidisciplinary National Environmental Appraisal Committee which provides technical support to the DOE in evaluate developmental project proposals. The objective is to ensure that such projects are sustainable while mitigating or minimizing the negative impacts on the environment.

One important task of the DOE is to enforce the preparation of Environmental Impact Assessments/Studies for development projects which meet the criteria, and then to monitor the implementation of the compliance plans prepared by the department once the proposal has been approved.

#### **1.4.6. Approach to Implementing the Convention**

The Government of Belize has designated its National Meteorological Service (NMS) as the agency responsible to provide it with technical advice on climate change. The Chief Meteorologist of the NMS is the government's chief technical negotiator on matters related to climate change, and has been appointed as the national Focal Point since signing the Convention. Belize participates in Sessions of the IPCC, Conferences of the Parties of the UNFCCC and sessions of its Subsidiary Bodies, regional meetings on climate change and other meetings at which issues related to climate change are addressed.

## **2. CAPACITIES AFFECTING THE REQUIREMENTS**

### **2.1 Systemic Capacity**

A national policy on climate change has not yet been developed, even though a National Climate Change Adaptation Policy has been drafted. At this time it cannot be stated that there is a satisfactory policy environment to deal with climate change concerns, but the NMS does have a policy to guide its operations.

The National Meteorological Service obtained its mandate under the 1974 “Twenty-Five year Development Plan” that was crafted for the operation of a Meteorological Unit within the Civil Aviation Department. That plan was adopted and the unit eventually evolving into an independent Meteorological Department that monitors weather and climate data and provides related services to the public and interested agencies. This department is not a regulatory body, although it is a member of bodies which have the potential to be regulatory, such as the Pro Tem Water Commission. The Hydro-Meteorology unit of the department is also involved in the management and monitoring of water resources.

Like all government departments in Belize, the NMS suffers the constraints of inadequate financial resources. Most of the equipment is nearing the end of their useful life, and the offices are occupied with many pieces of equipment that are already obsolete. One of the major accomplishments of the department is its precipitation data collection that covers more than three decades, while some other categories of data even predates this. This provides opportunities to analyze and predict trends weather behavior or patterns.

The NMS does provide weather forecasts on a daily basis, with projections covering three day periods. Other climate data is provided to other agencies such as the Forest and Agriculture Departments, while some farmers use the forecasts to plan their activities.

Since the lowered operational level of the CZMAI, involvement of agencies in climate change activities has been considerably reduced. Any relationships in this field that had been previously established are presently almost non-existent. The NMS, however, still maintains the country-wide network of climate data collectors inputs from which contribute to the daily weather reports.

## **2.2 Institutional Capacity**

There are a few agencies in Belize which directly or indirectly are engaged in activities related to climate change and its impacts. Such agencies operate within and outside the government service.

Since signature and ratification of the UNFCCC, the National Meteorological Service (NMS) has been designated as the agency responsible to provide the government with technical

advice on climate change. The Chief Meteorologist is designated the National Focal Point for climate change.

Belize's involvement in climate change matters has not been limited to the person of the NFP, as other members of the staff of the National Meteorological Service have also participated in regional and international meetings related to climate change. Of a staff totaling twenty-eight members, five have been involved in the process. All are required to submit reports of the meetings, or workshops upon return to office, ensuring that information is shared. Staff members of the Fisheries Department have also participated in international climate change meetings.

Additional capacity is presently being developed through Belize's participation in the Central American Project funded by the United States Agency for International Development. This project is being implemented by the Environmental Protection Agency EPA through a partnership established with the Central American Commission on Environment and Development (CCAD). Additional support is provided by the National Agency for Space Administration (NASA) and other institutions such as the Oregon State University. One of the outputs of this project is the standardization of the GHG inventory process throughout Central America. The NFPs and consultants who participated in the first GHG are involved in the testing of soft-ware intended for use in the GHG inventories, while improved access to updated satellite imagery is being provided to the countries. Each country should also receive some computer equipment to be used by the agency responsible for climate change activities.

The relation between climate change and natural hazards and disasters has been recognized at the political and technical level. Legislation has been enacted and resources have been provided for the establishment and operation of the National Emergency Management Organization. The NEMO was established under the Disaster Preparedness and Response Act of 2000. The NEMO was given the mandate to prepare a Disaster Response Preparedness Plan for Belize. The first such plan was for hurricanes to which the country is particularly prone. The entire population of Belize is aware of the threat posed by these extreme climatic events. The NEMO, with the support of the Caribbean Disaster Emergency Response Agency (CDERA) and the Caribbean Development Bank (CDB), has completed the preparation of Belize's National Hazard Mitigation Policy. This policy should advocate for the adoption of intervention methods and preparedness measures aimed at reducing or decreasing existing

risks and minimizing losses and damages resulting from the occurrence of dangerous phenomenon.

Belize was also a participant in the Caribbean Planning for Adaptation to Global Climate Change (CPACC) project, implemented locally by the Coastal Zone Management Authority and Institute (CZMAI). The CZMAI was established through legislation in order to try to achieve integrated management of Belize's Coastal Zone. This statutory body was funded by the Global Environmental Facility and had been operated by a full cadre of trained staff. This project contributed to compilation of an inventory of the nation's coastal resources. An economic valuation was determined for these resources, resulting in a quantification of their vulnerability.

A similar exercise is required for the terrestrial resources on a national scale. Some information and data are available for some forest resources, or agricultural crops, but only for isolated and discontinuous areas. At best the data/information can be described as incomplete.

Programme for Belize (PFB) is a non-government organization that has been managing an area of land measuring more than a quarter of a million acres located in the northwest of the country since 1989. The Rio Bravo Conservation and Management Area originated with a 45,000 acre block and has grown to 266,000 acres through a number of grants and purchases. This organization has just completed ten years of participation in a carbon sequestration project negotiated under the United States Initiative for Joint Implementation Programme. PFB has committed to multiple use management of a portion of the area for a forty-year period, and was able to benefit from financial resources provided by certain power producing companies in the United States. This work is ongoing and the collection of new data provides additional potential for the improvement of the mechanism for carbon credits trading.

As a member of the Caribbean Community (CARICOM) Belize is also a member of the Association of Small Island Developing States (AOSIS). Belize's coordinated its negotiating position within this body. As a member of the Central American Commission on Environment and Development, Belize has attempted to use its dual membership to reconcile the negotiating position of these regional bodies into a stronger voice in the

international negotiation sessions working towards achieving the objectives of the Convention.

### **2.3 Individual Capacity**

Since signature and ratification of the UNFCCC, the National Meteorological Service (NMS) has been designated as the agency responsible to provide the government with technical advice on climate change. The Chief Meteorologist has been designated the National Focal Point for Climate Change since signature of the Convention.

Capacity for the implementation of the Convention exists within the lead agency, the NMS, and to a lesser degree within a small sector of the civil society. The NMS has utilized the services of a number of national consultants to conduct the GHG inventory and the follow-up Mitigation and Adaptation Assessment exercises. The experiences gained enable these consultants to be considered resource persons. Most of the consultants are still available in the country, and some have indicated their interest in the second exercise.

About twenty-five percent of the staff of the NMS have received academic training to the level of a Bachelor's degree in the field of or fields related to meteorology. Three of these have completed post-graduate courses, also in fields related to weather and climate. One officer has completed a master's course in climate change, an accomplishment that is specifically a capacity building measure to assist in implementing the Convention. Two members of the department's staff are currently pursuing post graduate studies at the doctorate level. The Staff of the National Meteorological Service comprise other levels of officers designated as Class 3 and 4 Technicians. Some have received in-house training, which is later supplemented by ex-country short courses of between six to 18 months duration at the Caribbean Institute of Meteorology and Hydrology (CIMH) in Barbados. The National Meteorological Service can be described as well equipped to implement Climate Change activities, although the NFP has indicated that another body might have to be institutionalized if other initiatives like the Clean Development Mechanism come on stream, or as the implementation of the Convention is increased by additional activity between preparations of the National Inventories.

A few representatives of civil society sector involved in the implementation of the Convention have also been exposed to training sessions in the field of climate change. These are some of the consultants earlier involved in the first greenhouse gases inventory are presently in the process of receiving training under the USAID EPA GHG Central American inventory standardization project.

The NFP represents the Government of Belize as the chief technical negotiator on matters related to climate change. He has participated in the negotiating sessions of the Intergovernmental Negotiations Committee, several sessions of the Inter-government Panel on Climate Change, and has attended almost all of the Conferences of the Parties, some sessions of the Subsidiary Bodies, and a number of regional meetings related to climate change.

At the individual level, in the capacity of National Focal Point, Belize is well experienced in the participatory and negotiation processes. This level of participation has contributed to capacity building and to some degree of continuity in the process of implementing climate change in Belize. This experience has also contributed to the value of the NFP's participation in other international meetings such as the recently completed ten-year review of the Barbados Programmes of Action for Small Island Developing States, at which Belize was represented.

The demands placed on the National Focal Point requiring his absence from the country indicates a need for delegation of duties to build additional capacity within the organization. This would ensure continuity and sustained implementation of climate change matters.

As mentioned elsewhere, if provided with adequate justification, the Government of Belize may allocate funds to support a mechanism or institutional arrangement to coordinate and manage a national programme on climate change. The decision could depend on a determination of the cost/risk of not doing anything versus investing in climate change mitigation and adaptation programmes.

## 2.4 CAPACITY AT THE THREE LEVELS REQUIRED TO PERFORM THE KEY FUNCTIONS OF THE CONVENTION

Capacity requirements	Systemic	Institutional	Individual
<p><b>Conceptualize and formulate policies, legislations, strategies and programmes.</b></p> <ul style="list-style-type: none"> <li>- Analyze global, regional, and national socio-economic conditions</li> <li>- Visualize and develop long-term strategies</li> <li>- Conceptualize sectoral and cross-sectoral policies</li> <li>- Prioritize, plan, and formulate programmes.</li> </ul>	<p><b>Contextual framework</b></p> <p>National reporting is done on demand</p> <p><b>Institution and laws</b></p> <p>Legislation is in place</p> <p>Penalties are enforced occasionally</p> <p>Disputes are resolved in the courts</p>	<p><b>Departmental Governance</b></p> <p>The NMS has a Mission statement that describes its purpose.</p> <p><b>Departmental Strategy</b></p> <p>Strategy is based on the operational plan</p> <p><b>Resources management</b></p> <p>Resources are allocated by government in the form of Annual Recurrent Expenditures</p> <p>Financial control is maintained by the Accounts Section of the Ministry of Natural Resources</p>	<p><b>Job requirements</b></p> <p>Job descriptions and requirements are well defined for the participating staff members</p> <p><b>Monitoring performance</b></p> <p>Reporting and accounting is established through the organizational structure</p> <p>Periodic performance appraisals are conducted</p>
<p><b>Implement policies, legislations and strategies</b></p> <ul style="list-style-type: none"> <li>- Mobilize and manage human, material, and financial resources</li> <li>- Execute and manage programmes and projects effectively</li> <li>- Select effective technologies and infrastructure</li> </ul>	<p>Opportunities exist for the public to contest and influence legislation</p> <p>Stakeholders/clients are not always involved in the decision-making process</p>	<p><b>Operational management</b></p> <p>Operational procedures are guided by government regulations and practices</p> <p>Targets are set out in the Annual</p>	<p><b>Incentives</b></p> <p>Salaries and benefit packages are provided</p> <p>The NMS is the head of the department so career advancement may necessitate a move</p>
<p><b>Engage and build consensus among all stakeholders</b></p> <ul style="list-style-type: none"> <li>- Identify and mobilize stakeholders</li> <li>- Create partnerships</li> <li>- Raise awareness</li> </ul>	<p><b>Authority level</b></p>		

<ul style="list-style-type: none"> <li>- Find win-win approaches</li> <li>- Appropriately involve all stakeholder groups in decision-making and implementation</li> <li>- Accept sharing arrangements and resolve conflicts</li> </ul>	<p>Authority over natural resources is shared among a number of government departments, and with some village level bodies</p>	<p>Work Plans</p> <p>Communication within the department appears to be less than adequate</p>	<p><b>Skill development</b></p> <p>Training to gain skills has been provided</p> <p>Information is accessible</p>
<p><b>Mobilize information and knowledge.</b></p> <ul style="list-style-type: none"> <li>- Gather, analyze, and synthesize information</li> <li>- Identify problems and potential solutions</li> </ul>	<p><b>Property rights and tenure</b></p> <p>Insecure property rights and tenure have been described as the main contributor to poverty, this is now being addressed through the Land Management Programme being implemented by the Lands and Surveys Department</p>	<p><b>Quality Assurance</b></p>	
<p><b>Monitor, evaluate, report, and learn.</b></p> <ul style="list-style-type: none"> <li>- Monitor and measure progress</li> <li>- Identify and distribute lessons learnt</li> <li>- Use lessons learnt for policy dialogues and planning</li> <li>- Report to donors and global conventions.</li> </ul>	<p><b>Markets and financial flows</b></p> <p>Prices of most commodities are influenced by demand and supply</p> <p><b>Science and risks</b></p>	<p><b>Staff Quality</b></p> <p>Recruitment is done by the appropriate government ministry</p> <p>Promotion is based on training and performance</p>	

<b>3.1 Capacity to Prepare National Communications</b>			
<b>Capacity requirements</b>	<b>Systemic</b>	<b>Institutional</b>	<b>Individual</b>
Conceptualize and formulate policies, legislations, strategies and programmes.	Exists	Exists	Exists
Implement policies, legislations and strategies	Exists	Exists	Exists
Engage and build consensus among all stakeholders	Exists	Exists	Exists
Mobilize information and knowledge.	Exists but is not coordinated	Exists	Exists
Monitor, evaluate, report, and learn.	Exists but is not practiced.	Exists	Exists
<b>3.2 Develop National Climate Change Programmes</b>			
Conceptualize and formulate policies, legislations, strategies and programmes.	The general public education and awareness about climate change is not at a level to encourage and require/demand that national climate change programmes be developed and implemented.	This capacity has been developed in the appropriate institutions as determined by their special functions.	The key staff members of the NMS have the capacity to be involved in this process.
Implement policies, legislations and strategies	Exists, but relevant information is not well disseminated	Exists	Exists
Engage and build consensus among all stakeholders	Exists	Exists, but not applied.	Exists
Mobilize information and knowledge.	Exists	Exists, but not applied.	Exists

Monitor, evaluate, report, and learn.		Exists	Exists
<b>3.3 Prepare and manage greenhouse gas inventories, include emissions database management</b>			
Conceptualize and formulate policies, legislations, strategies and programmes.	The process is guided by the decisions of the Conferences of the Parties	Available	Available
Implement policies, legislations and strategies	Priority has to be identified.	Available within the NMS.	Available
Engage and build consensus among all stakeholders	The Need has to be recognized.	Limited capacity exists.	Available
Mobilize information and knowledge.	No national framework exists.	Exists.	Available
Monitor, evaluate, report, and learn.	National databases do not exist.	Exists.	Available
<b>3.4 Assess Vulnerability and Adaptation</b>			
Conceptualize and formulate policies, legislations, strategies and programmes.	The absence of the public education and outreach programme means that an environment has not been created to recognize or prioritize such needs	Available within government and non-government organizations through participation in relevant projects	Available
Implement policies, legislations and strategies	National priorities have not yet been identified.	Previously attempted by NMS in collaboration with MOA.	Limited
Engage and build consensus among all stakeholders	National survey has not been conducted to advocate for consensus.	Not apparent.	Limited.

Mobilize information and knowledge.	National Framework is needed.	Limited.	Limited.
Monitor, evaluate, report, and learn.	National Framework is needed.	Exists.	Exists.
<b>3.5 Develop and implementation Adaptation Plans and measures</b>			
Conceptualize and formulate policies, legislations, strategies and programmes.	A National Climate Change Adaptation Policy has been drafted but follow-up has not been initiated.  The NEMO has drafted a National Hazard Mitigation Policy	Capacity is available within the institutions to carry out these activities	Available
Implement policies, legislations and strategies	Exists.	Limited to key institutions.	Limited.
Engage and build consensus among all stakeholders	Exists.	Exists in key agency.	Exists.
Mobilize information and knowledge.	Exists.	Exists in involved agencies.	Exists.
Monitor, evaluate, report, and learn.	Exists.	Exists in involved agencies.	Exists.
<b>3.6 Assess Mitigation Options</b>			
Conceptualize and formulate policies, legislations, strategies and programmes.	This has been done to a limited degree.	Limited capacity is available	Limited capacity is available
Implement policies, legislations and strategies	Needs have to be identified.	Such policies do not yet exist.	Limited.
Engage and build consensus among all stakeholders	Need has not yet been demonstrated.	Not required.	Limited.
Mobilize information and knowledge.	Need has not been identified in	Not required.	Limited.

	the absence of vulnerability assessments.		
Monitor, evaluate, report, and learn.	Need has not been identified in the absence of vulnerability assessments.	Not required.	Limited.
<b>3.7 Research and Systematic observation of climate change and other functions</b>			
Conceptualize and formulate policies, legislations, strategies and programmes.	The vulnerability of the country to hurricanes has created an environment ensure that climate is observed, and that data is collected and analyzed and shared with the public.	The NMS has been recording climate data for more than thirty years.	Available
Implement policies, legislations and strategies	Not nationally prioritized.	Capacity exists within participating agencies.	Limited.
Engage and build consensus among all stakeholders	Not yet demonstrated.	Technology has not yet been shared locally.	Limited.
Mobilize information and knowledge.	Not demonstrated.	Limited.	Limited.
Monitor, evaluate, report, and learn.	Not demonstrated.	Limited.	Limited.
<b>3.8 Develop and transfer technology</b>			
Conceptualize and formulate policies, legislations, strategies and programmes.	This is limited by the absence of facilities, resource persons and financial resources.	This has not been demonstrated.	Capacity to develop technology has not been demonstrated.

Implement policies, legislations and strategies	The Copyright Law has been passed to protect ownership of technology	Government and non-government agencies have such capacity.	Exists.
Engage and build consensus among all stakeholders	Development of technology has not been demonstrated.	Available.	Exists.
Mobilize information and knowledge.	Not available.	Exists.	Exists.
Monitor, evaluate, report, and learn.	Not available.	Exists.	Exists.
<b>3.9 Improve decision making and participation in negotiations</b>			
Conceptualize and formulate policies, legislations, strategies and programmes.	Limited	Limited	Available but limited
Implement policies, legislations and strategies	Limited	Limited	Limited
Engage and build consensus among all stakeholders	Limited	Limited	Limited
Mobilize information and knowledge.	Limited	Limited	Limited
Monitor, evaluate, report, and learn.	Limited	Limited	Limited
<b>3.10 Formulate and implement projects under the Clean Development Mechanism</b>			
Conceptualize and formulate policies, legislations, strategies and programmes.	Programmes have not been launched to disseminate information and encourage participation in the CDM	Private sector companies who could benefit lack the capacity and the awareness about the opportunities.	Potential exists but opportunities have not been sought
Implement policies, legislations and strategies	The value of CDM opportunities is not widely recognized.	Not demonstrated.	Not demonstrated.
Engage and build consensus among all	Not available.	Not demonstrated.	Not demonstrated.

stakeholders			
Mobilize information and knowledge.	Presently being addressed by the NMS	Limited capacity demonstrated in the private sector.	Exists.
Monitor, evaluate, report, and learn.	Presently being addressed by the NMS	Being developed.	Exists.
<b>3.11 Education, Training, and Public Awareness raising</b>			
Conceptualize and formulate policies, legislations, strategies and programmes.	No integrated or sustained public education and outreach programmes have been implemented.	Institutions exist in the country which could be involved in a national public education and outreach programme.	There are some individuals who could participate in such programmes
Implement policies, legislations and strategies	Should be created after the completion of the Public Education and Outreach programme.	Exists	Exists.
Engage and build consensus among all stakeholders	Recently initiated.	Exists within some government and non-government institutions.	Exists.
Mobilize information and knowledge.	Recently initiated.	Exists.	Exists.
Monitor, evaluate, report, and learn.	Recently initiated.	Exists.	Exists.
<b>3.12 Information and Networking including databases</b>			
Conceptualize and formulate policies, legislations, strategies and programmes.	A national policy on data management would ensure quality assurance and quality control	Limited information and data management (include networking) capacity is available.	Individual capacity for information and data management exists in some government departments and non-government

			organizations
Implement policies, legislations and strategies	Not yet developed.	Not yet required.	Exists.
Engage and build consensus among all stakeholders	Need has been recognized but environment for establishment does not exist.	Limited.	Exists.
Mobilize information and knowledge.	Not demonstrated.	Limited.	Exists.
Monitor, evaluate, report, and learn.	Not demonstrated.	Exists.	Exists.
<b>3.13 Institutional Capacity building through Secretariats and Focal Points</b>			
Conceptualize and formulate policies, legislations, strategies and programmes.	No national secretariat is in place to guide the implementation of national climate change programmes	Available	Available
Implement policies, legislations and strategies	Need has recently been identified.	Limited by involvement of few staff members.	Exists.
Engage and build consensus among all stakeholders	None exists.	Limited by involvement of few staff members.	Exists.
Mobilize information and knowledge.	None exists.	Limited by involvement of few staff members.	Exists.
Monitor, evaluate, report, and learn.	None exists.	Limited by involvement of few staff members.	Exists.
<b>3.14 Enhancing the Enabling Environment</b>			
Conceptualize and formulate policies, legislations, strategies and programmes.	A national climate change programme incorporated into	Constrained by limited human resources and lack of public	Constrained by limited participation.

	national development strategies would serve to provide the enabling environment	awareness.	
Implement policies, legislations and strategies	Not possible without national programme.	Constrained by limited information sharing.	Constrained by limited participation.
Engage and build consensus among all stakeholders	Need has not been identified.	Constrained by limited information sharing.	Constrained by limited participation.
Mobilize information and knowledge.	Need has not been recognized or acknowledged.	Constrained by limited information sharing.	Constrained by limited participation.
Monitor, evaluate, report, and learn.			

#### **4. ROOT CAUSE ANALYSIS OF FAILURES TO MEET CERTAIN REQUIREMENTS OF THE CONVENTION**

This analysis of the Root Causes of the failures to meet certain requirements of the United Nations Framework Convention on Climate Change (UNFCCC) complements the situational analysis done by the Consultant and presented in the UNFCCC Thematic Assessment Report. It further analyses the capacities to implement the Convention, in order to identify the reasons why the requirements were not met.

The reports on the Stock-take and Thematic Assessment for the United Nations Framework Convention on Climate Change revealed some effort to meet most of the requirements under the Convention. The reports also revealed where capacity have been gained, and areas where capacity was inadequate. The consultation workshop held to gain stakeholder input to the reports and to prioritize the remaining requirements resulted in the identification of some gaps (failures to meet requirements) in the implementation of the Convention.

The gaps are:

- Article 4.1(b):  
The formulation, publication, implementation and regular update of National Programmes to Mitigate and Adapt to Climate Change.
- Article 4.1(c):  
To promote and cooperate in the development, application, diffusion, and transfer of technologies that control, reduce or prevent emissions of greenhouse gases (GHGs).
- Article 4.1(e):  
To cooperate in preparing for adaptation to the impacts of climate change, develop integrated plans for coastal zone management, water resources and agriculture, and for the protection and rehabilitation of areas affected by drought and floods.
- Art 4.1(g):  
To promote and cooperate in scientific, technological, technical, socio-economic and other research, systematic observation and development of data archives related to the climate system and intended to further the understanding and reduce or eliminate the

remaining uncertainties related to climate change and the economic and social consequences of response strategies.

- Art 5(b):  
To support international and intergovernmental efforts to strengthen systematic observation and national scientific and technical research capacities and capabilities and to promote access to and exchange of data and analyses obtained from areas beyond national jurisdiction.
- Article 6:  
To promote and facilitate at the national, sub-regional and regional levels public access to information on climate change and its effects.
- Article 6(a)(iii):  
To promote and facilitate at the national, sub-regional and regional levels public participation in addressing climate change and its effects and developing adequate responses.
- Article 6(a)(iv):  
To promote and facilitate at the national, sub-regional and regional levels training of scientific, technical and managerial personnel.
- Article 6(b)(i):  
To cooperate in and promote at the international level the development and exchange of educational and public awareness material on climate change and its effects.
- Article 6(a)(i):  
To promote and facilitate at the national, sub-regional and regional levels the development and implementation of educational and public awareness programmes on climate change and its effects.
- Articles 7.6; 9.1; and 10.1:  
Effective participation in the Conference Of the Parties, sessions of the Subsidiary Body for Scientific and Technological Advise, and sessions of the Subsidiary Body for Implementation
- Article 12.4:  
To propose projects for financing, including specific technologies, materials, equipment or practices that would be needed to implement such projects along with an estimate of incremental costs for mitigating climate change as well as an estimate of the consequent benefits

- Other requirements:

The Parties established and maintained a National System for Assessment of the Anthropogenic Greenhouse Gas Inventories.

All of the above were given high priorities with using the prioritization matrix developed for the UNFCCC Stock-take.

### **Analyses of the UNFCCC requirements**

*Article 4.1(b): The formulation, publishing, implementation and regular update National Programmes to Mitigate and Adapt to Climate Change*

Strengths	<p><b>Individual:</b></p> <p>The NFP has the capacity to lead the formulation of the required National Programmes. There are other individuals in the private sector who have participated in project formulation and implementation who can bring these skills and experience to climate change projects.</p> <p><b>Institutional:</b></p> <p>The NMS is staffed with more than one member who can be involved in the formulation of National Programmes.</p> <p><b>Systemic:</b></p> <p>Partnerships between government and non-government organizations have already initiated to facilitate implementation of climate change projects, eg. CPACC and MACC involving the NMS, Fisheries Department, and the Coastal Zone Management Authority and Institute.</p>
Weaknesses	<p><b>Individual:</b></p> <p>Few trained or experienced individuals outside the NMS available for involvement.</p> <p><b>Institutional:</b></p> <p>Other agencies who should be involved do not have the capacity to contribute to such programmes at this time.</p> <p><b>Systemic:</b></p> <p>No policy has been adopted to create an enabling environment to encourage the formulation of these National Programmes to mitigate and adapt to climate change.</p>

*Article 4.1(c): To promote and cooperate in the development, application, diffusion, and transfer of technologies that control, reduce or prevent emissions of GHGs*

Strengths	<p><b>Individual:</b> Employees of institutions like BEST and HFP have shared technology to reduce GHG emissions in the form of fuel efficient wood burning Lorena stoves.</p> <p><b>Institutional:</b> The Sugar production company (BSI) has successfully negotiated with the electricity producing company (BEL) to form partnership for the supply of electrical energy to the national grid. The Ministry of Agriculture had introduced biogas technology to farmers in the Cayo District. BEST &amp; HFP have also promoted solar energy use for cooking.</p> <p><b>Systemic:</b> The government has actively supported the application of GHG reducing technology in the area of energy as demonstrated by the construction of hydro-dams for electricity generation, and introduction of solar panels in remote Toledo district villages. The PUC has adopted a strategy to encourage adoption of clean energy technology as in the case of the co-generation scheme between BSI and BEL.</p>
Weaknesses	<p><b>Individual:</b> The limited human resources with the skills and knowledge are not readily available to those who need the technology.</p> <p><b>Institutional:</b> The few institutions (like BEST and HFP) that have been participating in technology transfer have extremely limited resources to share the technology or to sustain the diffusion of the technology.</p> <p><b>Systemic:</b> Enabling legislation is needed to create a supporting environment for technological innovation.</p>

*Article 4.1(e): To cooperate in preparing for adaptation to the impacts of climate change, develop integrated plans for coastal zone management, water resources and agriculture, and for the protection and rehabilitation of areas affected by drought and floods*

Strengths	<p><b>Individual:</b> There is a cadre of trained and experienced persons who have worked in coastal zone management, are working in the agriculture and water resources sector. These persons with capacity are available in the public and private sector.</p> <p><b>Institutional:</b></p>
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	<p>The NEMO has been established to deal with disaster and hazard situations that may arise from the effects of climate change.</p> <p><b>Systemic:</b></p> <p>Various government and non-government institutions have collaborated to form the climate change committee, draft the coastal zone management plans and establish the coastal zone technical advisory committee, and draft water resources management legislation.</p>
Weaknesses	<p><b>Individual:</b></p> <p>There is no demonstrated capacity to rehabilitate drought and flood affected areas.</p> <p><b>Institutional:</b></p> <p>The coastal zone management authority is presently understaffed and under resourced to operate effectively.</p> <p><b>Systemic:</b></p> <p>The draft policy for adaptation to climate change has not yet been adopted.</p> <p>Coastal Zone Management Plans have to be completed and implemented.</p> <p>No assessments have been conducted to determine needs for protection and rehabilitation of drought and flood affected areas.</p>

*Art 4.1(g): To promote and cooperate in scientific, technological, technical, socio-economic and other research, systematic observation and development of data archives related to the climate system and intended to further the understanding and reduce or eliminate the remaining uncertainties related to climate change and the economic and social consequences of response strategies*

Strengths	<p><b>Individual:</b></p> <p>Belize has some professionals or technicians in various fields who have potential to engage in scientific research. Members of the technical and professional staff of the NMS are experienced in systematic observations, and maintenance of weather data records.</p> <p><b>Institutional:</b></p> <p>The NMS has accumulated over 35 years of weather data that is analyzed and used to assist the Aviation and agricultural sectors with forecasts for planning purposes.</p> <p>Belize has opportunity to engage in such research through the CCC that is based here.</p> <p>The Central Statistical Office manages data collected from many sources, and make compilations available and accessible to the public and decision makers.</p> <p><b>Systemic:</b></p> <p>Public and private institutions recognize the need for these activities and contribute their specific input to the processes. Some socio-economic research, such as poverty analyses, has been conducted, and vulnerability analyses have been initiated.</p>
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Weaknesses	<p><b>Individual:</b> Very few individuals in Belize can participate in this requirement.</p> <p><b>Institutional:</b> None of the stakeholder organizations have the human or financial resources to meet this requirement.</p> <p>The data retained by the NMS is not complete enough to facilitate thorough analysis, and reduce uncertainties about perceived trends in climate change.</p> <p><b>Systemic:</b> The country does not have the resources to dedicate to scientific, technological, or technical research related to climate change.</p>
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*Art 5(b): To support international and intergovernmental efforts to strengthen systematic observation and national scientific and technical research capacities and capabilities and to promote access to and exchange of data and analyses obtained from areas beyond national jurisdiction*

Strengths	<p><b>Individual:</b> Some of the technical staff of the NMS staff are trained to make climate and weather observations. The Chief Meteorologist is appointed to certain international organizations in which he can contribute to meeting this international requirement.</p> <p><b>Institutional:</b> The NMS collaborates with regional and international agencies in sharing, exchanging, and analyzing weather and related data obtained from outside sources. There are other institutions (such as the CSO) that have the human resources to make and record systematic observations, as well as the means to access and exchange data and analyses.</p> <p><b>Systemic:</b> The Belize NMS is a member of certain regional and international organizations (WMO) which facilitates the exchange of data and information.</p> <p>The seasonal threat posed by storms has created awareness that Belize needs to be involved and have access to any information that is available.</p>
Weaknesses	<p><b>Individual:</b> There is only one individual with the capacity to participate in the international effort.</p> <p><b>Institutional:</b> The NMS itself is not equipped to handle scientific research of this magnitude.</p> <p><b>Systemic:</b> A national policy does not exist to ensure commitment to this process.</p>

*Article 6: To promote and facilitate at the national, sub-regional and regional levels public access to information on climate change and its effects*

Strengths	<p><b>Individual:</b> NMS staff respond to requests for presentations to school groups at all levels as well as private sector organizations within the country.</p> <p><b>Institutional:</b> As an institution the NMS facilitates public access to information through privately owned radio and television media houses.</p> <p>Occasional climate change symposia sponsored by the NMS with international donor support facilitates access to climate change information to organizations from all parts of the country.</p> <p><b>Systemic:</b> The political decision makers recognize the need to disseminate climate related information countrywide. The NEMO has the mandate to ensure safety of the population from hazards arising from climate and weather phenomenon.</p>
Weaknesses	<p><b>Individual:</b> The staff members are dedicated to other tasks and can afford to spend very little time to develop information packages for ready and easy access.</p> <p><b>Institutional:</b> The NMS, as the responsible agency, is unable to provide general public access to climate change information.</p> <p><b>Systemic:</b> This service is elevated to higher priority only during the hurricane season.</p>

*Article 6(a) (iii): To promote and facilitate at the national, sub-regional and regional levels public participation in addressing climate change and its effects and developing adequate responses*

Strengths	<p><b>Individual:</b> The NMS has capacity among its staff members to encourage public participation in programmes to address climate change.</p> <p><b>Institutional:</b> The NEMO has developed considerable capacity to respond to hazards caused by climate events.</p> <p><b>Systemic:</b> The Ministry of Natural Resources, Local Government and the Environment, which currently houses the NMS, provides the most appropriate avenue to foster national participation in climate change programmes.</p>
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Weaknesses	<p><b>Individual:</b></p> <p>The need to involve public participation in climate change matters is not yet generally recognized.</p> <p><b>Institutional:</b></p> <p>The strategy of involving public participation in climate change matters has not yet become common practice or routine.</p> <p><b>Systemic:</b></p> <p>Vulnerability assessments have not been conducted for all sectors to enable development of mitigation or adaptation responses.</p>
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*Article 6(a) (iv): To promote and facilitate at the national, sub-regional and regional levels training of scientific, technical and managerial personnel*

Strengths	<p><b>Individual:</b></p> <p>The lecturers at the three levels of educational institutions are mostly well trained and motivated.</p> <p><b>Institutional:</b></p> <p>Educational institutions at the primary, secondary, and tertiary levels exist in all political districts of the country to facilitate training.</p> <p><b>Systemic:</b></p> <p>The Ministry of Education, with country-wide responsibility, promotes curriculum development to include new educational needs if required.</p> <p>Education tends to focus on management and administration.</p>
Weaknesses	<p><b>Individual:</b></p> <p>National capacity to train in sciences at the tertiary does not exist.</p> <p><b>Institutional:</b></p> <p>National educational institutions have focused on training in the fields of business, tourism, and agriculture. There is not much capacity in the applied sciences.</p> <p><b>Systemic:</b></p> <p>No comprehensive assessment of educational needs related to climate change has been conducted.</p>

*Article 6(b) (i): To cooperate in and promote at the international level the development and exchange of educational and public awareness material on climate change and its effects*

Strengths	<p><b>Individual:</b></p> <p>Individuals within the NMS have demonstrated skill and knowledge in the delivery of climate change educational material.</p>
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	<p><b>Institutional:</b> Participating institutions like PfB and the Forest Department already have some experience and infrastructure to deliver public awareness programmes.</p> <p><b>Systemic:</b> The execution of the MACC project out of the CCCCC affords Belize with the opportunity to benefit from the PEO material that has been developed already.</p>
Weaknesses	<p><b>Individual:</b> Only few staff members of the NMS have been exposed to these materials, but they have not participated in international sessions to develop material. .</p> <p><b>Institutional:</b> The NMS has neither the structure nor the mechanism in place to allow promotion and exchange of climate change educational and public awareness material. The media houses have the equipment but not the substance to deliver.</p> <p><b>Systemic:</b> The knowledge about, attitude towards the impacts, and behavior in adapting to the impacts of climate change is unknown, so little effort is expended in this initiative.</p>

*Article 6(a) (i): To promote and facilitate at the national, sub-regional and regional levels the development and implementation of educational and public awareness programmes on climate change and its effects*

Strengths	<p><b>Individual:</b> The Public Education and Outreach Officer who has this skill is attached to the MACC project and is based in Belize.</p> <p><b>Institutional:</b> The CARICOM Climate Change Centre (CCCCC) with the needed assets is based in Belize.</p> <p><b>Systemic:</b> The Climate Change Centre is available to assist with climate change public awareness programmes through the MACC project.</p>
Weaknesses	<p><b>Individual:</b> Few individuals outside the NMS have capacity to assist with development of climate change educational programmes.</p> <p><b>Institutional:</b> No other national institution is equipped for this purpose. The Ministry of Education has other priorities in education to focus on.</p>

	<p><b>Systemic:</b></p> <p>The national educational and public awareness needs related to climate change is not yet identified.</p>
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*Articles 7.6; 9.1; and 10.1: Effective participation in the Conference Of the Parties, sessions of the Subsidiary Body for Scientific and Technological Advise, and sessions of the Subsidiary Body for Implementation*

Strengths	<p><b>Individual:</b></p> <p>The NFP has been a regular participant in the Conferences, and in the sessions of the Subsidiary Bodies.</p> <p><b>Institutional:</b></p> <p>Other staff members of the NMS, besides the NFP, have attended COPs and sessions of the Subsidiary Bodies.</p> <p><b>Systemic:</b></p> <p>Belize has the opportunity to access the cadre of experts within the Caribbean that is provided by membership in the CARICOM Climate Change Centre.</p>
Weaknesses	<p><b>Individual:</b></p> <p>Belize’s single participant is not able to attend the separate sessions underway simultaneously at these international working meetings.</p> <p><b>Institutional:</b></p> <p>National institutions do not have the financial resources to allow more than one participant in the COPs or the sessions of the Subsidiary Bodies.</p> <p><b>Systemic:</b></p> <p>The value of participation is not recognized at the decision making level probably due to a lack of knowledge about the impacts of climate change.</p>

*Article 12.4: To propose projects for financing, including specific technologies, materials, equipment or practices that would be needed to implement such projects along with an estimate of incremental costs for mitigating climate change as well as an estimate of the consequent benefits*

Strengths	<p><b>Individual:</b></p> <p>There are persons with the capacity within the public and private sectors to develop these project proposals.</p> <p><b>Institutional:</b></p> <p>One non-government organization (Programme for Belize) has over ten years of involvement in climate change projects.</p> <p><b>Systemic:</b></p>
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	Project proposals for international assistance is generally accepted as the means of accessing grants (or loans) to satisfy needs that the national budget cannot support.
Weaknesses	<p><b>Individual:</b> Access to the opportunities is not widely accessible to individuals.</p> <p><b>Institutional:</b> Other institutions with the potential have not taken advantage of the opportunities that exist to submit proposals for climate change projects.</p> <p><b>Systemic:</b> Access to information about benefits derived form climate change projects appear to be limited.</p>

*Other requirements: Establishment and maintenance of National Systems for Assessment of the Anthropogenic Greenhouse Gas Inventories*

Strengths	<p><b>Individual:</b> The NFP recognized the need for a body to manage climate change matters since the completion of the First National Communication (FNC).</p> <p><b>Institutional:</b> The NMS has the potential to form the nucleus of the National System of the GHG Inventories.</p> <p><b>Systemic:</b> Government can formulate the legislation, terms of reference, and has the infrastructure for accountability in place to facilitate the establishment of the National System.</p>
Weaknesses	<p><b>Individual:</b> The opportunity to access Top-up mechanism that supplemented the first GHG inventory and FNC was not seized.</p> <p><b>Institutional:</b> As a Non-Annex 1 country, Belize is not required to carry out annual GHG inventories, there was no urgent demand to establish a National System. None of the existing institutions is capable of fulfilling this function on its own.</p> <p><b>Systemic:</b> A National Climate Change Programme with appropriate funding does not exist to provide a framework for the establishment of the National System.</p>

### Reasons why the requirements were not met

The government of Belize has designated the National Meteorology Service as the agency responsible to advise it on climate change. A representative of the NMS, the Chief Meteorologist, is the national Focal Point and the government's chief technical negotiator for matters related to climate change. He carries out the duties of a full time Meteorologist, in addition to those responsibilities accompanying the designation as the National Focal Point. This wide range of responsibilities leads to constraints in delivering fully in all the areas demanding attention.

The First National Communication, completed in 2000, identified certain requirements that were not met at that time:

- Educational campaigns to sensitize the public and politicians on the potential impacts of climate change, and opportunities presented by the mechanisms to address climate change impacts.
- Additional vulnerability assessments in other economic development commodities like bananas, sugar cane, forestry, biological diversity, and tourism.
- Analysis of data and modeling to make forecasts.
- National inventory of terrestrial ecosystems/resources was required in order to derive an economic evaluation which would enable quantification of their vulnerability and their potential to act as sinks.
- No establishment of a National System to institutionalize the management and coordination of GHG inventories; management of CDM proposals; or to be responsible for activities under the Kyoto Protocol.

### CONCLUSIONS

Grouping of the unmet requirements point to four areas requiring attention:

- Climate change programmes for mitigation and adaptation;
- Scientific research, data collection and sharing
- Public education and outreach, and
- Drafting and submission of Climate Change Project Proposals.

The failure to establish the National System is due to the failure or inability to access the Top-up opportunities that was available to supplement the provisions for the first GHG inventory and First National Communication.

The NMS, as one institution does not have the capacity to fully implement the Convention while carrying out its normal routine. Other agencies have to be involved. It requires a holistic approach to address climate change issues, translated into sustained commitments and dedicated efforts formalized in partnerships and processes between institutions to collaborate in the implementation of programmes and activities designed to achieve the objectives of the Convention.

A common thread through the unmet requirements is the lack of capacity at the systemic level. The Stock-take and Thematic Assessment indicated that limited capacity has been gained at the institutional and individual levels. However, inadequate information about the threats and vulnerability of the development sectors to the impacts of climate change do not foster an attitude of “need for action”. Thus the overall policy, economic, regulatory, and accountability framework to address climate change in Belize has not been established.

#### RECOMMENDATIONS

1. Belize should take advantage of the systemic capacity provided by the CARICOM Climate Change Centre, located in this country to address the above four areas of concern.
2. A National System should be established or the Terms of Reference of the National Climate Change Committee should be revised to enable that body to provide advice and technical support for continued implementation of the Convention. .

## **5. STRATEGY**

The following strategic actions are recommended to address the identified Gaps and Constraints:

1. Establish, through legislation or Cabinet authority, a national coordinating committee on the Environment with the mandate to develop synergies and maximize resources among the institutions involved, and with specific terms of reference that include formalized requirements for meetings and distribution of minutes, recommendations, and action plans. The committee will include the focal points for existing MEAs as well as representatives of the private and voluntary sectors.
2. The roles and responsibilities of Focal Points must be formalized through TORs that incorporate of the performance, relationship, and reporting requirements. In cases where incumbents of existing posts are selected to be the focal points, there must be some institutional arrangements in place to ensure that the officer can carry out the functions efficiently and effectively, as well as put in place arrangements for succession planning and institutional memory.
3. Launch an integrated public awareness and education programme that would help to mainstream the Conventions into National Development Planning.
4. The ideal national situation would be to develop an integrated national plan for the environment that would be used as the basis for future engagement with donor agencies and countries. There would be a specific monitoring and evaluation process in place as well as an annual review of the plan by the national coordinating committee.
5. Mainstream the national plan to the national budgeting process so that activities or commitments under the plan will be the basis for mobilizing additional resources, internally and externally.

6. Priority must be given to identifying personnel and/or a mechanism, as well as a process, for the continuous mobilization of resources consistent with the national needs under the plan.

## **6. ACTION PLAN FOR IMPROVED IMPLEMENTATION**

The design and implementation of an Action Plan, incorporating input of stakeholders at all levels, would serve as a framework to describe and coordinate opportunities to:

- (1) Create new capacity
  - through a public awareness campaign, either in collaboration with or utilizing provisions for such support built into the MACC project, linking the impacts of climate change on economic and infrastructural development, the resulting land degradation or poor land use practices and biodiversity issues.
  - Reactivate the website that had been established under the first GHG inventory and FNC project, providing that a local agency retains ownership and maintenance of the site. Increased awareness about the threats posed by sea-level rise should empower community level stakeholders to participate in the bottom-up approach to incorporate climate change issues into national development planning.
  - Share experiences and lessons learnt by Programme for Belize in implementing the carbon sequestration project with other land owners/managers who may have potential to benefit from “activities implemented jointly” and the Clean Development Mechanism.
  - Draft a national policy for Data Collection and Management.
  - Establish local institutional arrangements to participate in the Clean Development Mechanism of the Kyoto Protocol, e.g. Co-generation projects like that presently being evaluated for the sugar industry.

- Formulate a programme to enable representatives of other institutions to participate in climate change projects.
- (2) mobilize or redeploy existing capacity by
- evaluating the input of those department staff engaged in implementing the conventions at the technical level with a view to formalizing their institutional relationships. Staff may need to be reassigned in order to optimize their involvement. Appointing staff members from other departments or organizations who have participated in regional or international climate change workshops/meetings as alternates to the climate change committee would strengthen that body will ensuring some level of broader involvement and continuity. Reassigning staff with particular training or skill that may be underutilized, such as data management, to another department where such skill would be more useful with ensure retention of the skill and capacity building within the recipient department.
- (3) enhance existing capacity by
- establishing the National System to conduct greenhouse gases inventories with the necessary financial mechanism to support its work, including data collection and management...
  - procuring, installing, and maintaining equipment for monitoring of sea-level rise, and for the development of early warning systems.
  - ensuring that Belize takes advantage of the MACC project and the fact that the CCCCC is located in Belize to conduct further vulnerability assessments in selected fields such as water resources, agriculture, and tourism.
  - Ensure that Belize takes greater advantage of existing opportunities.

## **7. PROCESSES USED IN THE THEMATIC ASSESSMENT**

The Thematic Assessment was conducted as part of the on-going National Self Capacity Assessment to evaluate Belize's capacity to meet its obligations as a signatory to the United Nations Convention Framework Convention on Climate Change (UNFCCC).

Like the Stock-take exercise that served as a basis for this phase of the assessment, a literature review was conducted to obtain information. The literature review was supplemented by interviews with staff members of the National Meteorological Service, a few from the Department of the Environment, and from the Programme for Belize.

The National Consultation Workshop on the NCSA was held on the 5 and 6 May 2005, and a session was allocated for discussions of the consultants outputs on the UNFCCC. The participants contributed to prioritization of the identified gaps and needs (still requiring implementation) and their inputs have been incorporated into this report. Follow-up contact was maintained with the members of the UNFCCC workgroup (formed for the duration of the workshop) to obtain their further input to the prioritization matrix derived for the required activities.

A contact list has been established to share information with the members of that workgroup in response to their request to be kept informed and their expressed desire to be involved in future activities.

## **APPENDIX 1: Members of the GHG and FNC Committees**

### **Project Steering Committee**

Ministry of Public Utilities, Energy and Communication

National Meteorological Service

Coastal Zone Management Institute

ESSO Standard Oil

Belize Electricity Limited

Geology and Petroleum Unit

Department of the Environment

Programme for Belize

University College of Belize

Forest Department

United Nations Development Programme

### **Project Team**

Project Coordinator

Administrative Assistant

National Climate Change Consultant

International Climate Change Consultant

### **National Green House Gas Inventory Team**

National Climate Change Consultant – Team Leader

International Climate Change Consultant - Facilitator

National Consultants for the sectors:

- Land Use Change, Land Use Change and Forestry
- Waste
- Agriculture
- Industrial Processes
- Energy.

## **Vulnerability Assessment and Adaptation and Mitigation Team**

International Climate Change Consultant - Facilitator

National Consultants for

- Energy
- Transportation
- Coastal Zone
- Water Resources
- Agriculture
- Biodiversity
- Land Use Change, Land Use Change and Forestry
- Waste
- Disaster Preparedness.

**APPENDIX 2: Institutions comprising the National Implementation Coordination Unit  
Caribbean Planning for Adaptation to Climate Change (NICUCPACC) -1998**

Meteorology Department – Chair

Ministry of Economic Department

Coastal Zone Management Authority and Institute

United Nations Development Programme

Belize Association of Conservation Non-Government Organizations (PFB)

Organization of American States

University College of Belize

Climate Change Project

Fisheries Department

Department of the Environment

Tertiary Level Education Institutions

Ministry of Natural Resources

**Later appointees include representatives of:**

Ministry of Foreign Affairs

Public Health Bureau

Office of Electricity Supply

Environment, Social, and Technical Assistance Project

Geology and Petroleum Unit

Usher Enterprises

The CPACC Regional Project Implementation Unit /Barbados also attended the meetings.

### **APPENDIX 3: Terms of Reference for the National Consultant**

The Terms of Reference for a Consultancy on Belize's Capacity to Implement the United Nations Framework Convention on Climate Change requires the National Consultant to:-

- a. Collate and compile reports on activities and projects carried out in regards to the United Nations Framework Convention on Climate Change (UNFCCC);
- b. Carry out a stocktaking review of:
  - i. Relevant convention reports and national communications, in particular the First National Communication to the Conference of the Parties (COP);
  - ii. Climate change related programs and projects, including the Carbon Sequestration Pilot Project, Caribbean Planning for Adaptation to Climate Change (CPACC) Project, Central American Climate Change Project, and the Forest and Climate Change in Central America Project, Mainstreaming Adaptation to Climate Change (MACC) Project, etc;
  - iii. 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 WCSD (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;
  - iv. 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, etc;
  - v. Existing reports with analysis of capacity issues in Belize, including energy policy, NEMO documents and reports, PUC documents and evaluation reports; other UNDP/GEF and GOB climate change-related reports, other existing GEF projects (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 and others;

**The National Consultant is also expected to**

- c. Participate in a situational analysis aimed at:
  - i. identifying national priorities, capacity constraints at the individual, institutional and systemic levels;
  - ii. identifying needs as well as gaps in information and needs; and
  - iii. improve or reduce bottlenecks with reference to the thematic area;
- d. Participate in the categorizing 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 climate change 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 the Lead Consultant.