



**PROJECT: Enabling Activities for the Preparation
of Belize's Third National Communication
to the UNFCCC**

United Nations Development Programme

Belize, 2007 to 2011



United Nations Development Programme

Country: Belize

PROJECT DOCUMENT

Project Title: Enabling Activities for the Preparation of Belize's Third National Communication to the UNFCCC

UNDAF Outcome(s): By 2011, national frameworks and capacities are in place enhancing the ability to adequately address adaptation to and mitigation of the impact of disasters as well as the comprehensive, equitable, sustainable and effective management of the nation's natural resources

UNDP Strategic Plan Environment and Sustainable Development Primary Outcome:

Promoting adaptation to climate change

UNDP Strategic Plan Secondary Outcome:

Expected CP Outcome(s): 3.2 An operationalized framework for the national integrated sustainable development strategy developed

Expected CPAP Output (s):

3.2.1 Strengthened national capacity in dealing with legal and regulatory frameworks under Multilateral Environment Agreements, allowing for adequate mainstreaming of these conventions into national policies and strategies.

3.2.2 Increased national capacity to effectively address vulnerability and adaptation to climate change.

Executing Entity/Implementing Partner: Ministry of Natural Resources and Environment

Implementing Entity/Responsible Partners: National Climate Change Office, PCPU (Secretariat of UNFCCC and NCCC); National Climate Change Committee, State agencies including: Forest Department, Coastal Zone Management Institute; Fisheries Department; Ministry of Agriculture, National Meteorology Department, Non state counterparts: programme for Belize, Ya' axche Conservation Trust, Southern Environmental Alliance, Belize Audubon Society.

Brief Description

This project will support the country of Belize in its preparation of its Third National Communication to the Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC).

Main components of the project are:

- (a) The national inventory of the greenhouse gases for the year 2003 and 2006 utilizing the IPCC guidelines;
- (b) Integrated vulnerability and adaptation assessments of the impacts of climate change and adaptation measures for certain development and environment sectors utilizing updated/ detailed country specific climate scenarios
- (c) Support to the elaboration of a comprehensive Climate Change Adaptation Strategy
- (d) Socialization of climate change mitigation and adaptation issues
- (e) Preparation of the Third National Communication of Belize to the Conference of the Parties.

During the period of the project, efforts will focus on improving the public's access to climate change information. Cross-cutting issues will be addressed to further the effort to achieve synergy between the UNFCCC and the UN Conventions to Combat Desertification and on Biological Diversity. By the end of the exercise, additional capacity to implement the Convention will have been gained at the systemic, institutional, and individual levels.

Programme Period:	2007-2011
Atlas Award ID:	00060605
Project ID:	00076372
PIMS #	4573
Start date:	October 2011
End Date	September 2014
Management Arrangements	NIM
PAC Meeting Date	August 25 th 2011

Total resources required	\$723,000
Total allocated resources:	\$723,000
• Regular	
o GEF	\$480,000
o Government	\$204,000
o UNDP	\$39,000

Agreed by (Government): *[Signature]* 31/10/11
Date/Month/Year

Agreed by (Executing Entity/Implementing Partner): _____
Date/Month/Year

Agreed by (UNDP): *[Signature]* 08/11/2011
Date/Month/Year

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LIST OF ACRONYMS

ACCC	Adaptation to Climate Change in the Caribbean
AIJ	Activities Implemented Jointly
BEL	Belize Electricity Limited
BSI	Belize Sugar Industries
CARICOM	Caribbean Community
CCAD	Central American Council on Environment and Development
CCCCC	Caribbean Community Climate Change Centre, or
CCC	Climate Change Centre
CCP	Country Cooperation Programme
CPACC	Caribbean Planning for Adaptation to Climate Change
CDM	Clean Development Mechanism
DNA	Designated National Authority
INC	Initial National Communication
GEF	Global Environmental Facility
GHG	Greenhouse Gas
GPG	Good Practice(s) Guidance
GWP	Global Warming Potential
IPCC	Inter-Government Panel on Climate Change
IR	Inception Report
LIC	Land Information Center
MACC	Mainstreaming Adaptation to Climate Change
MNRE	Ministry of Natural Resources and the Environment
MOA	Ministry of Agriculture and Fisheries
NCCC	National Climate Change Committee
NCSA	National Capacity Self Assessment
NEMO	National Emergency Management Organization
NFP	National Focal Point
NICU	National Implementation Coordination Unit
NMS	National Meteorological Service
NSC	National Steering Committee
PEG	Project Execution Group
PfB	Programme for Belize
PMU	Project Management Unit
RBCMA	Rio Bravo Conservation and Management Area
SIDS	Small Island Developing States
SNC	Second National Communication
TNC	Third National Communication
TOR	Term(s) Of Reference
UB	University of Belize
UNCCD	United Nations Convention to Combat Desertification (Land Degradation)

UNCBD	United Nations Convention on Biological Diversity
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
USIJI	United States Initiative for Joint Implementation
UWI	University of the West Indies

I. SITUATION ANALYSIS

Belize is located on the Central American mainland, and forms a part of the Yucatan Peninsula. Belize lies between 15°45' and 18°30' north latitude, and 87°30' and 89°15' west longitude. It is bounded on the north, west and south by Mexico and Guatemala respectively and on the east by the Caribbean Sea. The total land area is 22,960 square kilometres or (8,867 square miles) of which 95 % is mainland and five % distributed among more than 1,060 islands. Total national territory, including the territorial sea is 46,620 square kilometres (approximately 18,000 square miles). Approximately 69 % of the country remains under natural vegetation cover, and about 70 % of this comprises high broadleaf forests.

Most of the northern half and much of the southern third of the country, along with the entire coastal area and all the islands, are flat and low-lying. The central and western parts of the country are dominated by the Maya Mountains rising to 1,124m above sea level (3688 ft) at its highest point. Belize enjoys a subtropical climate characterized by marked wet and dry seasons separated by a cool transitional period. Like the rest of its Caribbean neighbours, it lies within the hurricane belt. Historically, the rate of return of tropical weather systems to Belize is once per year, with larger storms (Category 2 and above) impacting the country every 3 or so years. Between the periods of 1990-2008 Belize has experienced both human and significant economic loss as a result of Tropical Weather systems.

Belize's most recent population census was for the year 2010. The summary reports of the census indicate that the population now stands at 312,698 persons, estimated at an increase of 30.2 persons over the 2000 census. Average population growth rate of the population over the period 2000 to 2010 is approximately 3.02 % per annum. Approximately 45% of the population lives in the low-lying coastal zone, the region most vulnerable to climate change impacts.

Belize became a Party to the UNFCCC in 1992, having the status of a non-Annex 1 country. Belize also joined the Kyoto Protocol in 2003, with the status of Annex B. Belize, like other developing countries in the region, needs to continue to utilize its natural resources in the quest for sustainable development. Belize is a small, essentially private-enterprise economy. Tourism is the number one foreign exchange earner followed by exports of marine products, bananas, cacao, citrus, cane sugar, fish, and cultured shrimp, lumber which are all subject to price fluctuations and to weather related risks. 26.2% of the country's population has livelihoods directly associated with the very vulnerable agriculture sector. Modeling exercises carried out under past National Communications exercises have indicated the severe vulnerabilities of Belize's agriculture sector to the impacts of climate change.

The Belize energy sector is faced with serious challenges linked to rapid increases in demand since 1990, and a supply sector which has been unable to grow apace. Belize's vulnerability to climate change is not limited to the increasing occurrence of severe natural events like hurricanes, but is also tied into other predicted effects of climate change including sea-level rise and decreasing precipitation. For the 140,000 plus individuals residing along Belize's low lying coast sea-level rise and saline intrusion is expected to compromise water sources and will contribute to coastal erosion and inundation. It should be noted that there already exist signs of salt water intrusion within coastal aquifers and wells.

Long and unseasonal dry periods are also expected to contribute to social and economic disruptions. The implications are serious; the potential to effect sustainability of the established population centres, agricultural development, economic activity in the tourism, agriculture and aquaculture sectors all need

to be recognized and addressed. In 2010 unprecedented dries had profound impacts on Belize's livestock industry. Planning for adaptation has been prioritized among national authorities and steps are underway to understand the extent of the impact of climate change on Belize's sustainable economic and human development. Actions proposed under this initiative are expected to contribute to the country's knowledge base and to inform national planning mechanisms.

The strategy to facilitate adaptation being employed within this project context is the provision of support in the creation of an environment which enables private and public sector partnerships for the effective management and the integrating planning for climate change. Climate change is expected to be promoted as a cross cutting theme for consideration within all development sectors. The proposed enabling environment will foster wide stakeholder participation in climate change programmes and addresses the economic, physical, legal, regulatory, and institutional framework within which planning would be facilitated. Throughout, there is recognition that the government is not solely responsible for achievement of development goals. All sectors of society have the right and the responsibility to act in a concerted manner. Emphasis is therefore placed on participation by civil society in general, including NGOs and the private sector.

II. STRATEGY

The medium and long-term objective of this project is to strengthen Belize's technical and institutional capacity to assist the mainstreaming of Climate Change activities into sectoral and national developmental planning priorities. Belize, like most other countries that have not yet embarked on a comprehensive planning process for climate change, has demonstrated a tendency of positioning climate change within the environment sector which has the effect of limiting its integration into sector plans.

The project contributes to the building of information/ knowledge regarding national sources of GHGs, the impacts of climate change on sustainable social and economic development, highlighting the potential which exist for opportunities to abate the emissions, and setting priorities national adaptation measures.

The immediate objective of this project is to meet the Convention requirements by enabling Belize to prepare and submit its Second National Communication to the UNFCCC.

This project aims to address an area of growing national importance, Climate Change. UNDP Country Programme Document 2006- 2012 recognizes an increase in the country's vulnerability to climatic changes and identifies poor land use practices and increasing poverty levels of the nation's population as serving as agents exacerbating the overall impact. It is worried that climate change can contribute to a reversal of national advances against the MDG's. The CPD highlighted as a priority the need for critical capacities meant to enhance climate change governance, i.e. how the country mainstream climate change in its development planning. It is for this reason that project preparers in consultation with governmental focal points are linking closely the TNC actions with an EU supported initiative looking at national CC governance framework and the building of national knowledge base. The TNC includes support for further more detailed assessments focused on vulnerability and adaptation within priority development sectors.

Belize's vulnerability to climate change is closely linked to the country's low adaptive capacity and the country's increasing dependence on resources sensitive to changes in climate. Apart from undermining

national development efforts, there is growing concern that climate change can threaten or reverse the country's advances towards the MDG's and achievements towards human development should measures not be taken to mainstream climate change into national decision making and development planning.

In responding to the challenges of climate change, the country of Belize has committed itself to defining its institutional and legal landscape for climate change adaptation and mitigation, focusing on the roles of various actors, existing institutional capacities and governance issues relating to institutions. In essence the political and administrative systems are being adopted to handle emerging national issues of climate change mitigation and adaptation. The project will help to build additional capacity within the individuals and institutions involved in climate change activities, and conduct vulnerability assessments for certain of the development sectors in Belize. It will also increase the awareness of the impacts of climate change and enable stakeholders to participate in formulation of projects designed either to mitigate the impacts or to build capacity to adapt to the changes.

The project will enable Belize to conduct the third national inventory of greenhouse gases emissions and sinks, greater determine the country's vulnerability to climate change and allow for more effective national planning to deal with adaptation to climate change. These will provide a basis for Belize's Third National Communication to the Conference of the Parties.

III. PROJECT RESULTS FRAMEWORK:

This project will contribute to achieving the following Country Programme Outcome as defined in CPAP or CPD:					
3.2.1 Strengthened national capacity in dealing with legal and regulatory frameworks under Multilateral Environment Agreements, allowing for adequate mainstreaming of these conventions into national policies and strategies. 3.2.2 Increased national capacity to effectively address vulnerability and adaptation to climate change.					
Country Programme Outcome Indicators: Identification of national vulnerabilities within various productive sectors ; Support development of National Climate change policy					
Primary applicable Key Environment and Sustainable Development Key Result Area (same as that on the cover page, circle one): 1. Mainstreaming environment and energy OR 2. Catalyzing environmental finance OR 3. Promote climate change adaptation OR 4. Expanding access to environmental and energy services for the poor.					
Applicable GEF Strategic Objective and Program: Objective 6- Support enabling activities and capacity building					
Applicable GEF Expected Outcomes: Adequate resources allocated to support enabling activities under the Convention					
Applicable GEF Outcome Indicators: Percentage of eligible countries receiving GEF funding					
	Indicator	Baseline	Targets End of Project	Source of Verification	Risks and Assumptions
Project Objective¹ To strengthen Belize's technical and institutional capacity to assist the mainstreaming of Climate Change activities into sectoral and national developmental planning priorities.	Increased capacity of the government and civil society to take informed action on climate change Level of National Adaptive Capacity level determined by: • Availability of climate change scenarios. • Availability of vulnerability assessments. • Level of stakeholder engagement.	The Government of Belize has publicly recognized the potential impacts of climate change on Sustainable human and social development. In response to this threat GoB continues to support programmes aimed at identifying and assessing the extent of the country's vulnerability and in determining its adaptive capacity. These interventions however are in their infancy. At present 46% of Government Ministries and departments cite inadequacies of current policies and strategies to address the effects of climate change	Knowledge and tools for analysis of climate change vulnerabilities and impacts on the population, key sectors and eco-regional zones are available for planning purposes 150 + people trained in global climate change including UN Framework Convention on Climate Change, greenhouse gas inventories, mitigation, and adaptation analysis	- Public service survey - Sector plans reflect findings and recommendations of vulnerability assessments.	- Tools and vulnerability studies being developed will be accepted by and socialized into line ministry and department planning - Once trained, functionaries will work to mainstream CC into work programmes
Outcome 1² Updating of National Circumstances	Existence of literature database National Circumstance document updated	National Circumstance document exist reflecting 2008 information/ data	National Circumstance document updated to reflect most current information	- Validation session minutes - Updated Document	- It is assumed that data/ information required to update national circumstance document is readily available to the Project
Outcome 2 Completed National Green House Inventory Assessments	Sector emissions determined for 5 thematic areas (Reference year – 2006)	Emission Inventory completed for base year 1994 and reported for reference years 1997, 2000	Sector Emissions assessment completed and data analyse for Energy, Industrial Processes & Solvents, Agriculture, LULUCF, Waste	- Validation session Minutes - Inventory Reports	- Data available, accessible and reliable - Capacity exists to carry out assessment exercises

¹ Objective (Atlas output) monitored quarterly ERBM and annually in APR/PIR

² All outcomes monitored annually in the APR/PIR. It is highly recommended not to have more than 4 outcomes.

<p>Outcome 3 Programmes containing measures to facilitate adequate adaptation to climate change (Integrated Vulnerability & Adaptation Assessments: Coastal development, Water, Agriculture Sector; Resilience of NPAS; National Adaptation Strategy)</p>	<p>Completed Vulnerability assessments in the areas Coastal Development, Water and Agriculture Report on resilience of Belize's Protected Areas Network to Climate change Adaptation Policy and Strategy endorsed by cabinet</p>	<p>Sector vulnerability assessment were conducted consecutively under 1st and 2nd communication processes however assessments were done pre country's capacity to prepare reliable localized scenario models</p>	<p>Detailed assessments prepared for key developmental Sectors informing National Adaptation Strategy</p>	<ul style="list-style-type: none"> - Vulnerability assessment reports - Adaptation Policy and Strategy Documents 	<ul style="list-style-type: none"> - Capacities to carry out vulnerability assessment readily accessible - Government accepts and endorses Adaptation strategy and Policy without delays
<p>Outcome 4 Public Education and awareness information Dissemination and Capacity Building Programme being supported</p>	<p># of individual trained in climate change related subjects # of Local schools participating in voluntary adaptation/ mitigation actions % of population served by new climate information management systems</p>	<p>Climate change still remains a technical subject within the Belizean setting. Failure to socialize climate change and adaptation issues within the general public have resulted in the non-participation of the sector in national planning processes and none participation in adaptation and mitigation actions. (Baseline level of awareness to be determined through KAP process during project inception)</p>	<p>Minimum of 150 representatives of the media and civil society organizations socialized on climate change adaptation Public Awareness campaign launched targeting youth and members of general public and reaching minimum of 30% of national primary school population Local knowledge of climate change issues increases by 25% above baseline levels</p>	<ul style="list-style-type: none"> - Project survey reports - Project highlight and stage plan reports - Project field monitoring reports 	<ul style="list-style-type: none"> - Project is supported by the media and the ministry of Education in a programme to disseminate and socialize Climate Change information - Population is capable of assimilating information provided
<p>Outcome 5 Compilation, Drafting, Production & Dissemination, processing for acceptance as national report.</p>	<p>Approved TNC</p>	<p>Both 1st and 2nd Communications document have been finalized and received national endorsement for submission to the UNFCCC Secretariat</p>	<p>TNC formalized into national publication Cabinet paper and summary document finalized Document launch</p>	<ul style="list-style-type: none"> - Existing document - Minuted cabinet approval 	<ul style="list-style-type: none"> - CC remains a priority on national agendas leading to fast tracking of national endorsement processes

Proposed Project Activities

Component 1: National Circumstances

The National Circumstances of Belize presented in the Second National Communication will be updated to reflect new information generated through updated national surveys and update demographic and socio-economic data.

Output 1.1- National Circumstances reviewed and updated.

Activities

- Validate the gaps of information identified under stocktaking exercise and recent and relevant publications.
- Identify the respective sources of information.
- Collect data and verify information
- Fill the gaps, and add the new information
- Draft the National Circumstances section.

The preparation of this section of the TNC will be the responsibility of the MNRE Climate Change Office under the guidance of the National Climate Change Committee (NCCC).

Component 2: National Greenhouse Gases Inventory

Belize's first and second GHG inventories covered five sectors, the Industrial Solvents sector was grouped with the Industry Sector since this sector is relatively undeveloped in Belize. It is expected that this sector will be treated as an independent sector for the third national communication. Estimates of emissions have been determined for the base year 1994. It is expected that efforts will be taken to evaluate time series of available data as in some areas the quality of data have improved.

The emission factors utilized are the default factors provided by IPCC 1996 Revised Guidelines, with analysis utilizing the most current updated values provided by the IPCC. Attempts will be made to address activity data gaps which contribute to the degree of uncertainty of the estimates (%). Data gaps are currently related to the data unavailability for regions and sectors of the country and inconsistency in reporting/ recording processes.

The third national greenhouse gases inventory is expected to benefit from the technical assistance provided under the USAID/EPA/CCAD GHG Inventory Standardization Project that has been underway in the Central American countries since late 2003. Access to the CAALU tool is still facilitated by the designers from the University of Oregon; The main objective of this project component is to improve the quality of GHG inventory by internalizing the activity into national processes and the training of national counterparts in the use of a complementary software based on the MICROSOFT ACCESS program, as a means of allowing for the comparative analysis of inventory results with the objective of refining the tools and the national processes used to estimate the emissions.

The third national GHG inventory will also capture new sources and sinks that might have arisen as a result of development activities within the sectors. A key source analysis will be completed and the results included in this report. The NFP in collaboration with the National Climate Change Committee will decide on the Reference year for this GHG inventory.

Local Consultants will be contracted to conduct the sector inventories as prescribed by the IPCC. Belize has been building national capacity through participation in the previous two national communications, and it is expected that the Third National Communication will further that process.

Output 2.1: Establishment of procedures to validate and improve national data for land-use, land use change and forestry (LULUCF) at the national level.

The TNC project will work with national counterparts in the adoption of procedures to improve activity data for LULUCF, given that past communication exercises have shown this sector as being the most important source of emissions in Belize. Working alongside the Forest Department, the Caribbean Community Climate Change Center and key NGO groups, the project will attempt to validate the biomass values of the various (predominant) forest types or classes in Belize and deforestation rates by forest types. Data improvement will focus on reserve areas where the forest types are represented, in order to obtain national biomass values that should improve the quality of the estimates of emissions and sinks.

Activities

- Definition of approaches to be adopted for data improvement
- Identification of forest categories that would be representative of forest cover at the national level
- Literature revision of comparable forest research in other countries
- Validation of data through field assessments
- Retrieval of national biomass factors and deforestation rates for use in the Inventory.

Output 2.2: The GHG inventory team assembled and contracted.

A team comprising of national counterparts and technical experts from various NGO grouping will be assembled to conduct the third national greenhouse gases inventory of emissions and sinks. The selected team members who are first time participants in an inventory exercise will benefit from the experience of the others and will be trained on the application of inventory tools and software.

Output 2.3: Methodologies for GHG inventory estimates analyzed, selected and validated.

Activities

- Introduction of the Tier level based on the decision trees as guided by IPCC Good Practices Guidance.
- Decide on the source categories to which surveys for filling data gaps will be carried out.

Output 2.4: Collect GHG inventory data and complete the IPCC workbooks.

Activities

- Sourcing and collation of new activity data for estimates of GHG emissions for 2003 and 2006.
- Incorporation of generated data collected from the Biomass generated under the validation process
- Utilization of the standardized protocols developed by the IPCC in the development of data sets for the years Reference years 2003 and 2006. These data sets includes, but are not limited to,: biomass values of different forest classes, enteric fermentation, fuel consumption from mobile sources, fuel combustion in industry, fuel wood collection in rural areas, solid wastes, land conversation, etc.
- Based on emission factors to be considered in GHG Inventory, new and continuing data gaps identified.
- Conduct exercises in the estimation of GHG emissions inventories for 2003 & 2006.
- Conduct key sources analysis for 2003 and 2006 allowing for examination of trends.
- Undertake uncertainty assessment as guided by Good Practices Guidance manual of the IPCC.
- Revision the inventory for internal review as part of QA/QC plan.
- Presentation and validation of findings through organized national workshops
- Finalization of inventory for use and submission in the TNC.

Output 2.5: GHG inventory data and estimates documented and archived

- On the basis of the above validation, develop a national inventory management system within the newly established Climate Change office within the MNRE to facilitate the updating of GHG inventories in the future and sustainability of the inventory process.
- Inventory teams are expected to produce individual theme specific report to be annexed to the TNC. These reports will collate and summarized findings will be included in the Communication document.
- The Central American Agriculture and Land Use (CAALU) tool developed under the USAID GHG Inventory Improvement Project may be applied to the relevant sectors.

Component 3: Programmes for Vulnerability Assessments & Adaptation Measures for climate change

Climate change vulnerability assessments provide valuable information necessary to guide national development management actions in response to climate change. These assessments integrate scientific information and expert-derived analysis in order to predict impacts on specific sectors and resources. Belize past communication exercises has allowed the country of Belize to conduct preliminary investigations into the growing vulnerabilities of several social and productive sectors including Coastal development, Agriculture and Fisheries, Tourism, Health and Energy generation. These key development sectors were assessed identifying opportunities of the sector as well as the possible negative impacts. The third national communication exercise will allow the country to carry out a more comprehensive assessment of three sectors, namely Coastal Development, Water and Agriculture. These new assessments are expected to utilize more accurate scenario predictions developed by the Caribbean Community Climate Change Center and Cuba's INSMET as well as place emphasis on impacts and increased vulnerabilities of local populations.

The Country is expected to utilize the expertise of the CCCCC and INSMET in developing scenarios which are "place-based" and tailored to best fit the resource or system of interest, and the geographic scale. Updated and more country relevant scenario modelling is expected to increase the accuracy of vulnerability identification and prediction.

Belize's natural resources provide the base for Belize's development. Protected areas in Belize are managed as a means of providing a range of goods and services to the country. Under the TNC, national partners will assess the resilience of Belize's protected areas Network to Climate change as a significant amount of livelihoods and national productivity is dependent on the maintenance of a robust network.

TNC processes will also allow for the elaboration of a comprehensive National Climate change Adaptation Strategy to complement the national climate change policy under development with funding from the UNDP.

Activities:

- Conduct select detailed vulnerability assessments
- Prepare vulnerability and adaptation component of TNC.
- Based on sector vulnerability exercises (Past and planned) support the elaboration of a comprehensive National Climate Change Adaptation Strategy for the country of Belize.
- Support a national Climate change Vulnerability and Adaptation Forum for purposes of validation and dissemination of information.

3.1: Vulnerability and Adaptation Assessment of Water Resources.

This consultancy will build on the work initiated under the Mainstreaming Adaptation to Climate Change (MACC) project which piloted water vulnerability assessment methodologies in the North Stann Creek River Watershed in Belize. The TNC process will be co-financed by the EU supported initiative titled, "Enhancing Belize's resilience to adapt to the effects of climate change". This initiative has water sector adaptation as its

focus as it is believed that of the many social, economic and environmental impacts and vulnerabilities to climate change, the projected effects of CC on the qualitative and quantitative status of water resources in Belize are critical for people's lives and the economies.

With TNC and EU support a national inventory of ground water stores will be conducted by applying hydrologic budget techniques to basins which support major population centres and Productive sectors in Belize. Once completed, this inventory will support the development of water resources vulnerability profiles and water safety plans. National Experts with the advice of the CCCCC, will make a determination of the most appropriate vulnerability assessment methodology to be utilized. Special consideration will be given to those tools evaluated and published by the IPCC in its, "Compendium on methods and tools to evaluate impacts of, vulnerability and adaptation to climate change".

3.2: Revised Vulnerability Assessment of the Coastline.

In 1995 under the US Country Studies Programme, a vulnerability assessment was conducted on the coastal zone of mainland Belize. The IPCC Aerial Videotape assisted Vulnerability Analysis (AVVA) methodology was utilized to map the coastline and an assessment was carried out identifying those areas most likely to be affected by sea level rise. It is expected that modern bathymetry data derived from LIDAR mapping flights will be available to development improved maps of Belize's coastline to facilitate the reassessment of its Coast under TNC processes. The actual assessment methodology to be applied will be determined by national experts on the advice of the CCCCC and information gathered through an initial screening assessment which will be undertaken utilizing existing data and the judgement of local experts. This screening assessment will provide initial information as it relates to the possible impacts of a one-meter rise in sea level; and the susceptibility of coastal infrastructure and populations to other adverse impacts of climate change. This data and information would also feed into development of flood projection maps for improved risk management and planning.

3.3: Vulnerability and Adaptation Assessments in the Agriculture Sector.

Agriculture accounts for a large part of income generated by the state and is the basis of livelihoods for more than 50% of rural dwellers in Belize. These would be identified during the inception stage, but there are some suggestions that vulnerability assessments should be conducted for some of the other crops (potatoes, papayas, vegetables, cacao, rain-fed rice) that have become significant since diversification of the agriculture base has been broadened.

3.4: Section on Vulnerability and Adaptation for the TNC completed

- Develop the section on Integrated Vulnerability and Adaptation Assessments using the various sector reports.
- Circulate the draft chapter of IV&AA for review and comments. .
- Organize a national workshop to discuss findings of the IV&AA studies and obtain input from stakeholders.
- Finalize the Integrated Vulnerability and Adaptation Assessment chapter for inclusion in the TNC.

- Archive and document all the Integrated Vulnerability and Adaptation Assessment related studies and estimates.

Component 4: Programmes containing measure to Abate (Mitigate) climate change.

In 1994, Belize was almost entirely dependent on the importation and combustion of fossil fuels for energy generation. That situation changed during the latter half of the decade, and even more so during the first decade of this century. Work has now been completed on the three hydro-dam systems on the Macal River system. This system generates 40+ megawatts of energy when all three are in operation. This still does not satisfy Belize's electricity needs since demand has stayed ahead of supply over the last two decades. At the time (1995) electrical demand was projected at a maximum of 27 megawatts under optimum conditions of water supply from the Mollejon facility that was the first phase of the project. This represented approximately 50 per cent of electrical energy needs at that time.

The project proposes a further study aimed at qualifying the greenhouse gas emissions that were averted by the introduction and expansion of hydropower in the national grid with the introduction of the additional dams at Vaca and HydroMaya in the Cayo and Toledo Districts respectively. This studies will also take into consideration the abatement impact of BSI Co-generation plant in operation.

The project also seeks to derive an initial estimate for the emissions of greenhouse gases from the treatment of sewage waste in Belize City, Belmopan, and waste-water treatment at the Bowen and Bowen – Ladyville plant.

This will be the second effort to estimate emissions of greenhouse gases in Belize from such waste management facilities. If this is identified as an area of priority, it may be expanded to include other activities with result in bio-degradable wastes such as logging/sawmilling sites, citrus waste, and rice milling wastes. This is part of the effort to improve the reporting on the emissions.

The EU supported CC initiative will co-finance component 4 of this intervention in the execution of practical pilots in forest rehabilitation and regeneration as well as in the development of national structures and framework to address CC mitigation.

Component 5: Public Education and awareness information Dissemination and Capacity Building

Project component 4 supports a key objective of the National Climate Change Committee. The raising of national awareness on climate change adaptation and mitigation issues is seen to be critical to the enhancement of national capacities as it is expected that the socialization of climate change will influence the perception and participation of the broader public in the implementation of climate change in the country. This component compliments socialization and awareness Programme supported under the EU GCCA initiative targeting planners, decision makers and stakeholders within the various development sectors.

Under this component, NGO capacity in education and awareness will be utilize to target children and youths and vulnerable coastal communities.

Activities:

- Build capacity of the general public, journalists and civil society organizations on climate change adaptation
- Develop and disseminate adequate information on climate change adaptation
- Document and disseminate best practices of climate change adaptation and vulnerability reduction

Component 6: Compiling, Drafting, Production and Dissemination of National Report

Under the final compilation exercise, information gathered through activities 1 through 4 will be utilized to develop the framework of Belize's national report to the UNFCCC. This activity will also be utilized in the updating of communication information, describing national achievements in the management of Climate change. It is expected that climate change splinter such as REDD, CDM, Disaster Risk reduction and Sustainable Land Management will also be addressed in the final compilation exercise.

Activities:

- Collect, synthesize and report additional information relevant to Article 6 activities.
- Collect, synthesize and provide information on how Belize is addressing activities related to the transfer of and access to environmentally sound technologies and traditional knowledge.
- Collect, synthesize and provide information on new or on-going research and systematic observation systems.
- Collect, synthesize and provide information on on-going programs and projects relevant to climate change.
- Summarize all the information and prepare for technical review.
- Prepare the revised draft for inclusion in the TNC.

Final Output: Third National Communication prepared, submitted to Cabinet for approval and submitted to the Secretariat of the UNFCCC.

- Prepare a draft of the Third National Communication;
- Circulate the draft prior to, and hold public consultation session(s).
- Revised the draft document incorporate the input from the consultations;
- Submit the revised draft to Cabinet for endorsement;
- Submit the final version of Belize's TNC to the UNFCCC;
- Prepare hard and digital copies of the TNC for distribution.
- Launch the report in a side event during the next Conference of the Parties

This task will be the responsibility of the National Focal Point with the support of the National Climate Change Committee, the Ministry of Natural Resources, and the Project Manager. The MNRE will be expected to seek government's endorsement of the TNC in order that it is adopted as a national report and policy document.

Detailed Work Plan

The outline of the Work-Plan presented below is for planning purposes. More detailed annual work-plan and stage plans will be developed during project inception phase and during the implementation period.

Outputs/Activities	Quarters (36 month Implementation Period)											
	1	2	3	4	5	6	7	8	9	10	11	12
Project Management												
National Circumstances												
National Greenhouse Gases Inventory of Emissions and Sinks												
Collect Biomass Data from other Forest Types												
Collect Inventory Data & estimate emissions available tools												
Document and Archive GHG Inventory Results												
Programmes for Vulnerability Assessments and Adaptation Measures (New studies)												
Vulnerability Assessments (Coastal development, Water (Belize River), Agriculture)												
National Adaptation Strategy												
Programmes containing measure to Abate (Mitigate) climate change.												
Assessment of Emissions averted through the expansion of hydroelectric generation and generation utilizing biomass as its base												
Initial estimates of abatement potential of wastewater treatment												
Public Education & Awareness information dissemination and capacity building												
Develop capacities of general public, journalist NGO etc on Adaptation issues												
Develop and disseminate CC mitigation, adaptation and vulnerability information												
Document and disseminate community best practices in adaptation												
Compiling Drafting, Production and dissemination of National Report												
Seek national endorsement of report												

IV. TOTAL BUDGET AND WORK PLAN

Award ID:	00060605	Project ID(s):	00076372
Award Title:	PIMS # 4573 CC EA TNC of Belize		
Business Unit:	SLV10		
Project Title:	PIMS # CC EA Third National Communication of Belize; Enabling activities for the preparation of Belize's Third National Communication to the UNFCCC		
PIMS no.4573	4573		
Implementing Partner (Executing Agency)	Ministry of Natural Resources and the Environment		

GEF Outcome/Atlas Activity	Responsible Party/Implementing Agent	Fund ID	Donor Name	Atlas Budgetary Account Code	ATLAS Budget Description	Amount Year 1 (USD)	Amount Year 2 (USD)	Amount Year 3 (USD)	Total (USD)	See Budget Note:
OUTCOME / OUTPUT 1: Updating of National Circumstances	PMU/FD	62000	GEF	71300	Local Consultants	\$5,000			\$5,000	1
				72100	Contractual services	\$2,000			\$2,000	2
				sub-total		\$7,000			\$7,000	
			GOB	71300	Local Consultants	\$3,000			\$3,000	1
				sub-total		\$3,000			\$3,000	
OUTCOME / OUTPUT 2: Completed National Green House Inventory Assessments	PMU/PCPU	62000	GEF	71200	International Consultants	\$15,000			\$15,000	5
				71600	Travel	\$5,000	\$5,000		\$10,000	4
				71300	Local Consultants	\$45,000	\$25,000		\$70,000	3
				72100	Contractual Services	\$5,000	\$3,000		\$8,000	6
				sub-total		\$70,000	\$33,000		\$103,000	
			GOB	71600	Travel	\$2,000	\$2,000		\$4,000	4
				71400	Contractual Services Individual	\$5,000	\$8,000		\$13,000	7
sub-total		\$7,000	\$10,000		\$17,000					

OUTCOME / OUTPUT 3: Programmes containing measures to facilitate adequate adaptation to climate change (Integrated Vulnerability & Adaptation Assessments: Coastal development, Water, Agriculture Sector; Resilience of NPAS; National Adaptation Strategy)		62000	GEF	71200	International Consultant		\$20,000	\$10,000	\$30,000	12
				71300	Local Consultants	\$20,000	\$40,000	\$30,000	\$90,000	8
				71600	Travel		\$3,000	\$3,000	\$6,000	10
				72100	Contractual Services		\$3,000	\$3,000	\$6,000	11
					sub-total	\$20,000	\$66,000	\$46,000	\$132,000	
			GOB (EU CC Project)	71300	Local Consultants		\$25,000		\$25,000	8
				71600	Travel		\$5,000		\$5,000	10
				72100	Contractual Services		\$124,000		\$124,000	11
					sub-total		\$154,000		\$154,000	
		00012	UNDP	71300	Local Consultant	\$15,000			\$15,000	8
				71400	Contractual Services Individual	\$8,000	\$8,000	\$8,000	\$24,000	9
					sub-total	\$23,000	\$8,000	\$8,000	\$39,000	
OUTCOME/OUTPUT 4: Programmes containing measures to abate (Mitigate) climate change.		62000	GEF	71300	Local Consultants			\$20,000	\$20,000	26
				72100	Contractual Services			\$3,500	\$3,500	27
					sub-total			\$23,500	\$23,500	
OUTCOME / OUTPUT 5: Public Education and awareness information Dissemination and Capacity Building Programme being supported	PMU/NCCC	62000	GEF	71300	Local consultants	\$10,000			\$10,000	13
				74200	Print Production	\$5,000	\$5,000	\$5,000	\$15,000	14
				71600	Travel	\$2,000	\$2,000	\$2,000	\$6,000	15
					sub-total	\$17,000	\$7,000	\$7,000	\$31,500	
			GOB (EU CC Project)	74200	Print Production		\$10,000	\$10,000	\$20,000	14
				72100	Contractual Services		\$5,000	\$5,000	\$10,000	16
			sub-total		\$15,000	\$15,000	\$30,000			
OUTCOME / OUTPUT 6: Compilation, Drafting, Production & Dissemination, processing for acceptance as national report.	PMU/NCCC	62000	GEF	71300	Local consultant			\$5,000	\$5,000	17
				74200	Print production costs			\$5,000	\$5,000	18
					sub-total			\$10,000	\$10,000	
OUTCOME / OUTPUT 7: Project Management	PMU/ NCCC	62000	GEF	71400	Contractual Services	\$40,000	\$40,000	\$40,000	\$120,000	19
				72800	IT equipment/software	\$5,000			\$5,000	21
				72200	Equipment	\$3,500			\$3,500	25
				72500	Office supplies	\$2,500	\$2,500	\$2,500	\$7,500	22
				74500	Miscellaneous	\$1,500	\$1,500	\$1,500	\$4,500	23
					Sub-total	\$52,500	\$44,000	\$44,000	\$140,500	

OUTCOME / OUTPUT 8: Monitoring & Reporting (Audit, TE)	PMU/UNDP	62000	GEF	74100	Professional fees			\$30,000	\$30,000	24
				71600	Travel	\$1,000	\$1,000	\$1,000	\$3,000	20
					sub-total	\$1,000	\$1,000	\$31,000	\$33,000	

		Total Management	\$53,500	\$45,000	\$75,000	\$173,500	
	PROJECT TOTAL		\$200,500	\$338,000	\$184,500	\$723,000	

Summary of Funds:

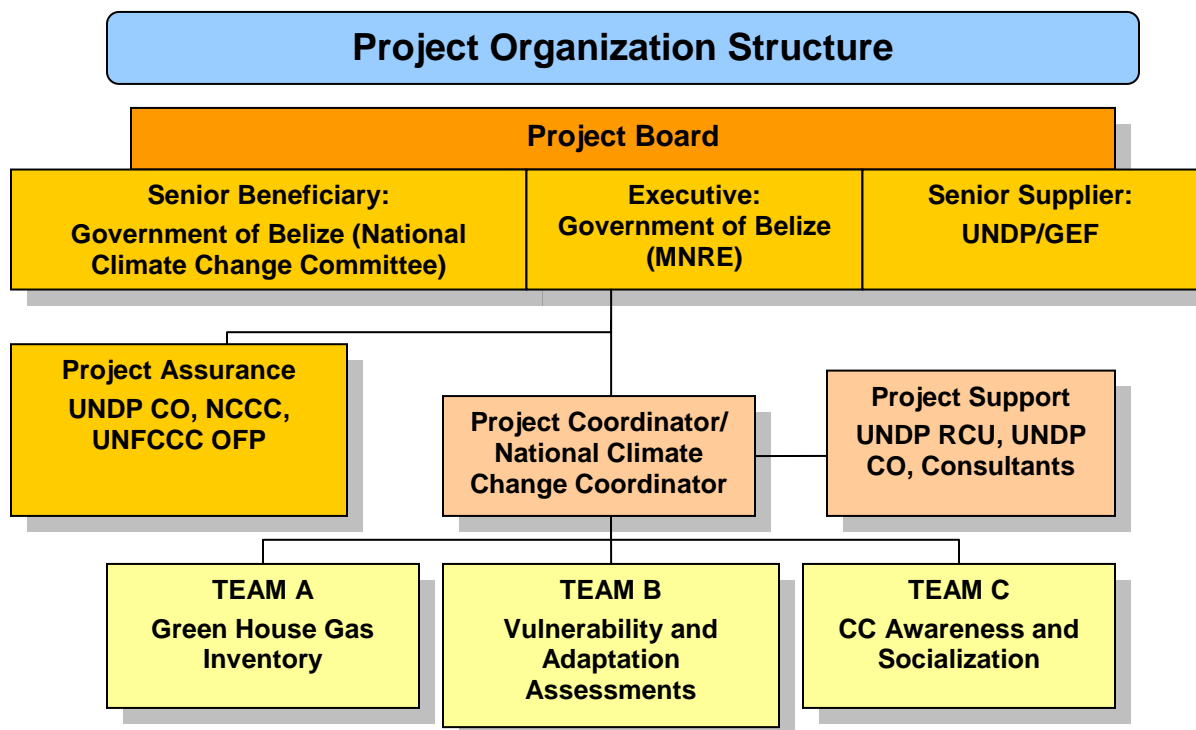
	Amount Year 1	Amount Year 2	Amount Year 3	Total
GEF	\$167,500	\$151,000	\$161,500	\$480,000
UNDP	\$23,000	\$8,000	\$8,000	\$39,000
Government of Belize (cash and in-kind)	\$10,000	\$179,000	\$15,000	\$204,000
TOTAL	\$200,500	\$338,000	\$184,500	\$723,000

Project Budget Notes

Atlas Category	Atlas Code	Budget Notes
Outcome 1: Updating of National Circumstances.		
1. Local Consultants	71300	<ul style="list-style-type: none"> Local expert to update information found within the national circumstance description: 20 person-weeks (@ \$250.00 per effort week) National Officer assigned to support National Circumstances update process and the establishment of information database (2 months @ \$1,500 per month)
2. Contractual Services - Companies	72100	<ul style="list-style-type: none"> 1 data national validation sessions (@ \$1000 per session) 4 focus group discussion forums (@ \$250 per forum) as a means of sensitizing stakeholders of process and data requirement of the project.
Outcome 2. Completed National Green House Inventory Assessments		
3. Local Consultants	71300	<ul style="list-style-type: none"> Agriculture Land Use Change Expert: Vulnerability Modelling of national staple crops- Agriculture/Landuse Change (1 person at \$250.00 per effort/day; total of 100 days) Industry Specialist: Utilize IPCC methodology to conduct Inventory Assessments- Industrial processes/Solvents (1 persons at \$250.00 per effort/day; total of 60 effort days). Energy Specialist: Utilize IPCC methodology to conduct Inventory Assessments- Energy (1 persons at \$250.00 per effort/day; total of 60 effort days). Sanitation Engineer: Utilize IPCC methodology to conduct Inventory Assessments- Waste (1 persons at \$250.00 per effort/day; total of 60 effort days).
4. Travel	71600	<ul style="list-style-type: none"> Travel includes internal travel associated with coordination, consultation and data collection requirements of Outcome 2
5. International Consultants	71200	<ul style="list-style-type: none"> International expert in Green House Inventory assessment methodologies to oversee and guide works of local assessors (1 person at \$500.00 per effort/ day; total of 30 effort days)
6. Contractual Services - Companies	72100	<ul style="list-style-type: none"> 5 national validation sessions (@ \$1,600 per session)
7. Contractual Services Individuals	71400	<ul style="list-style-type: none"> 2 National officers assigned to coordinate and assist Inventory process (4 ½ months @1.500 per month)
Outcome 3. Programmes containing measures to facilitate adequate adaptation to climate change		
8. Local Consultants	71300	<ul style="list-style-type: none"> Agriculture Manager: Vulnerability Modelling of national staple crops: implications on Food Security- Agriculture (1 person at \$250.00 per effort/day; total of 80 days) Coastal Planner/ Disaster Risk manager: Vulnerability Modelling Coastal planning and Population risk implication (Team at \$500.00 per effort/day; total of 60 effort days). Hydrologist: Hydrological Vulnerability assessment/ Water Safety Plans- Water (Team at \$500.00 per effort/day; total of 60 effort days). Climate change policy/ planning specialist: Cc Adaptation policy and Strategy- (Team at \$500.00 per effort/day; total of 50 effort days).
9. Contractual Services Individuals	71400	<ul style="list-style-type: none"> UNDP Programming staff assigned to technical backstopping activities and coordination of vulnerability assessments
10. Travel	71600	<ul style="list-style-type: none"> Travel includes internal travel associated with coordination, consultation and data collection requirements of Outcome 3
11. Contractual Services	72100	<ul style="list-style-type: none"> Services supporting to consultation and development processes
12. International Consultants	71200	<ul style="list-style-type: none"> Consultancy on resilience of MPA's (1 person at \$500.00 per effort/ day; total of 60 effort days)
Outcome 4. Public Education and awareness information Dissemination and Capacity Building Programme being supported		
13. Local Consultants	71300	<ul style="list-style-type: none"> Consultancy to design CC Education Toolkit (\$250.00 per effort/day; total of 40 days)
14. Print Production Cost	74200	<ul style="list-style-type: none"> Replication and promulgation of education materials
15. Travel	71600	<ul style="list-style-type: none"> Travel supporting outreach into schools
16. Contractual Services- Companies	72100	<ul style="list-style-type: none"> Training and education services associated with the execution of Outcome 4
Outcome 5. Compilation, Drafting, Production & Dissemination, processing for acceptance as national report		

17. Local Consultants	71300	<ul style="list-style-type: none"> ▪ Consultancy for final compilation, editing and formatting of Communication document (1 person at \$250.00 per effort/ day; total of 20 effort days)
18. Print Production Cost	74200	<ul style="list-style-type: none"> ▪ Printing and dissemination of Communication report to key national stakeholders
Project Management including Monitoring and Evaluation		
19. Contractual Services Individuals	71400	<ul style="list-style-type: none"> ▪ Project Coordinator: 36 person-months (@ \$2500 per effort month): Project planning, day-to-day management of project activities, project reporting, maintaining key relationships among stakeholders. ▪ Project Finance/ Administrative Assistant: 36 person-months (@ \$1,000 per effort month) to support overall project logistic planning and procurement processes, provision of general secretarial support.
20. Travel	71600	<ul style="list-style-type: none"> ▪ Support of Project Execution group activities and participation in project quality assurance (\$1000/year).
21. IT Equipment	72800	<ul style="list-style-type: none"> ▪ 2 desktop units for PMU (@ 2,500 per unit)
22. Office Supplies	72500	<ul style="list-style-type: none"> ▪ Support of PMU functions/ Project Execution group meetings and project M& E processes (\$2500/year).
23. Miscellaneous	74500	<ul style="list-style-type: none"> ▪ Miscellaneous support to project management
24. Professional Services	74100	<ul style="list-style-type: none"> ▪ Annual Project audits (2 @ \$2, 500). ▪ Terminal Evaluation (\$25,000)
25. Equipment & Furniture	72200	<ul style="list-style-type: none"> ▪ Work Units PMU (2 @ \$1,750 per unit)
26. Local Consultants	71300	<ul style="list-style-type: none"> ▪ Energy Expert: Consultancy to qualifying the greenhouse gas emissions that were averted by the introduction and expansion of hydropower in the national grid (40 days @\$250.00) ▪ Consultancy to derive an initial estimate for the emissions of greenhouse gases from the treatment of sewage waste (40 days @\$250.00)
27. Contractual Services-Companies	72100	<ul style="list-style-type: none"> ▪ Validation workshops associated with Component 5 products.

V. MANAGEMENT ARRANGEMENTS



This proposed initiative will be nationally executed (NEX-modality) and is an integral part of the UNDP Country Programme Action Plan (CPAP) 2007–2012 signed between the GOB and the UNDP in December 2006. The signing of the UNDP CPAP 2007–2012 constitutes a legal endorsement by the GOB.

To ensure UNDP’s accountability for programming activities and use of resources, while fostering national ownership, the appropriate management arrangements and oversight of UNDP programming activities will be established. The management structure will respond to the project’s needs in terms of direction, management, control, and communication. As the project is cross-functional and involves various stakeholders, its structure will be flexible in order to adjust to ongoing changes in the context. The UNDP Project Management structure consists of roles and responsibilities that bring together the various interests and skills involved in, and required by, the project.

The UNDP will act as the Implementing Agency/Senior Supplier for this project. As a part of the Project Board, UNDP brings to the table a wealth of experience working with the GOB in the arena of biodiversity conservation, protected areas management, and sustainable development, and is well-positioned to assist in both capacity-building and institutional strengthening. As always, the UNDP Country Office (UNDP-CO) and UNDP/GEF Regional Coordination Unit (RCU) in Panama will be answerable as the agency responsible for transparent practices, appropriate conduct, and professional auditing. Staff and consultants will be contracted according to the established rules and regulations of the United Nations and all financial transactions and agreements will similarly follow the same rules and regulations.

The project will be executed by Climate Change Office within the Ministry of Natural Resources and Environment. Implementation support will be provided by various governmental technical bodies including the Forest Department, the Coastal Zone Management Authority, the Solid Waste Management Authority, the Fisheries Department, and the Ministry of Agriculture.

The UNFCCC operational focal point will serve as Project Directors, and will be assisted by the National Climate Change Committee in the provision of general oversight to the project. The UNFCCC OFP will represent the interest of the GOB during project execution. The proposed duration of the project is three (3) years.

UNDP Support Services

The Project Support role provides project administration, management, and technical support to the Project Coordinator as required by the needs of the individual project. The project will support an Administrative/Finance Assistant position to support direct day-to-day project implementation. The UNDP Belize Environmental Programme Analyst, Finance Officer, Procurement Officer and M&E Officer will provide technical, financial, administration, and management support to the project as is required. Additional support roles will be undertaken by the UNDP HQ office.

The TNC EA will utilize dual payment modalities, direct request payment and direct cash transfers to the PMU to facilitate its timely execution of deliverables. If the PMU requires execution services support from the UNDP CO that are outside the purview of implementation services as is prescribed by the relevant program and financial manuals, standard ISS fees, using the universally assigned rates, will be charged to the Project.

The GOB will retain the rights to set rates for associated project activities such as mileage, internal daily survival allowances, consultancy fees, etc., as they relate to project staff contracted by the project.

Collaborative arrangements with related projects

Steps will be taken by the Project Board to include in its membership National Project Coordinators who are managing related projects to ensure coordination and synchronization of efforts as well as promote cross-fertilization, where possible.

VI. MONITORING FRAMEWORK AND EVALUATION

The project will be monitored through the following M& E activities. The M& E budget is provided in the table below.

Project start:

A Project Inception Workshop will be held within the first 2 months of project start with those with assigned roles in the project organization structure, UNDP country office and where appropriate/feasible regional technical policy and programme advisors as well as other stakeholders. The Inception Workshop is crucial to building ownership for the project results and to plan the first year annual work plan.

The Inception Workshop should address a number of key issues including:

- a) Assist all partners to fully understand and take ownership of the project. Detail the roles, support services and complementary responsibilities of UNDP CO and RCU staff vis à vis the project team. Discuss the roles, functions, and responsibilities within the project's decision-making structures, including reporting and communication lines, and conflict resolution mechanisms. The Terms of Reference for project staff will be discussed again as needed.
- b) Based on the project results framework and the relevant GEF Tracking Tool if appropriate, finalize the first annual work plan. Review and agree on the indicators, targets and their means of verification, and recheck assumptions and risks.
- c) Provide a detailed overview of reporting, monitoring and evaluation (M&E) requirements. The Monitoring and Evaluation work plan and budget should be agreed and scheduled.
- d) Discuss financial reporting procedures and obligations, and arrangements for annual audit.
- e) Plan and schedule Project Board meetings. Roles and responsibilities of all project organisation structures should be clarified and meetings planned. The first Project Board meeting should be held within the first 12 months following the inception workshop.

An Inception Workshop report is a key reference document and must be prepared and shared with participants to formalize various agreements and plans decided during the meeting.

Quarterly:

- Progress made shall be monitored in the UNDP Enhanced Results Based Management Platform.
- Based on the initial risk analysis submitted, the risk log shall be regularly updated in ATLAS. Risks become critical when the impact and probability are high. Note that for UNDP GEF projects, all financial risks associated with financial instruments such as revolving funds, microfinance schemes, or capitalization of ESCOs are automatically classified as critical on the basis of their innovative nature (high impact and uncertainty due to no previous experience justifies classification as critical).
- Based on the information recorded in Atlas, a Project Progress Reports (PPR) can be generated in the Executive Snapshot.
- Other ATLAS logs can be used to monitor issues, lessons learned etc... The use of these functions is a key indicator in the UNDP Executive Balanced Scorecard.

Annually:

- Annual Project Review/Project Implementation Reports (APR/PIR): This key report is prepared to monitor progress made since project start and in particular for the previous reporting period (30 June to 1 July). The APR/PIR combines both UNDP and GEF reporting requirements.

The APR/PIR includes, but is not limited to, reporting on the following:

- Progress made toward project objective and project outcomes - each with indicators, baseline data and end-of-project targets (cumulative)
- Project outputs delivered per project outcome (annual).
- Lesson learned/good practice.
- AWP and other expenditure reports
- Risk and adaptive management
- ATLAS QPR
- Portfolio level indicators (i.e. GEF focal area tracking tools) are used by most focal areas on an annual basis as well.

End of Project:

An independent Final Evaluation will take place three months prior to the final Project Board meeting and will be undertaken in accordance with UNDP and GEF guidance. The final evaluation will focus on the delivery of the project's results as initially planned (and as corrected after the mid-term evaluation, if any such correction took place). The final evaluation will look at impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental benefits/goals. The Terms of Reference for this evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-GEF.

The Terminal Evaluation should also provide recommendations for follow-up activities and requires a management response which should be uploaded to PIMS and to the [UNDP Evaluation Office Evaluation Resource Center \(ERC\)](#).

The relevant GEF Focal Area Tracking Tools will also be completed during the final evaluation.

During the last three months, the project team will prepare the Project Terminal Report. This comprehensive report will summarize the results achieved (objectives, outcomes, outputs), lessons learned, problems met and areas where results may not have been achieved. It will also lay out recommendations for any further steps that may need to be taken to ensure sustainability and replicability of the project's results.

Audit

Audit will be conducted in accordance with applicable UNDP Financial Regulations and Rules and applicable audit policies.

Learning and knowledge sharing:

Results from the project will be disseminated within and beyond the project intervention zone through existing information sharing networks and forums.

The project will identify and participate, as relevant and appropriate, in scientific, policy-based and/or any other networks, which may be of benefit to project implementation through lessons learned. The project will identify, analyze, and share lessons learned that might be beneficial in the design and implementation of similar future projects.

Finally, there will be a two-way flow of information between this project and other projects of a similar focus.

Communications and visibility requirements:

Full compliance is required with UNDP's Branding Guidelines. These can be accessed at <http://intra.undp.org/coa/branding.shtml>, and specific guidelines on UNDP logo use can be accessed at: <http://intra.undp.org/branding/useOfLogo.html>. Amongst other things, these guidelines describe when and how the UNDP logo needs to be used, as well as how the logos of donors to UNDP projects needs to be used. For the avoidance of any doubt, when logo use is required, the UNDP logo needs to be used alongside the GEF logo. The GEF logo can be accessed at: http://www.thegef.org/gef/GEF_logo. The UNDP logo can be accessed at <http://intra.undp.org/coa/branding.shtml>.

Full compliance is also required with the GEF's Communication and Visibility Guidelines (the "GEF Guidelines"). The GEF Guidelines can be accessed at: [http://www.thegef.org/gef/sites/thegef.org/files/documents/C.40.08 Branding the GEF%20final 0.pdf](http://www.thegef.org/gef/sites/thegef.org/files/documents/C.40.08%20Branding%20the%20GEF%20final%200.pdf). Amongst other things, the GEF Guidelines describe when and how the GEF logo needs to be used in project publications, vehicles, supplies and other project equipment. The GEF Guidelines also describe other GEF promotional requirements regarding press releases, press conferences, press visits, visits by Government officials, productions and other promotional items.

Where other agencies and project partners have provided support through co-financing, their branding policies and requirements should be similarly applied.

VII. M&E WORK PLAN AND BUDGET

Type of M&E activity	Responsible Parties	Budget US\$ <i>Excluding project team staff time</i>	Time frame
Inception Workshop and Report	<ul style="list-style-type: none"> ▪ Project Manager ▪ UNDP CO, UNDP GEF 	Indicative cost: 5,000	Within first two months of project start up
Measurement of Means of Verification of project results.	<ul style="list-style-type: none"> ▪ UNDP GEF RTA/Project Manager will oversee the hiring of specific studies and institutions, and delegate responsibilities to relevant team members. 	To be finalized in Inception Phase and Workshop.	Start, mid and end of project (during evaluation cycle) and annually when required.
Measurement of Means of Verification for Project Progress on <i>output and implementation</i>	<ul style="list-style-type: none"> ▪ Oversight by Project Manager ▪ Project team 	To be determined as part of the Annual Work Plan's preparation.	Annually prior to ARR/PIR and to the definition of annual work plans
ARR/PIR	<ul style="list-style-type: none"> ▪ Project manager and team ▪ UNDP CO ▪ UNDP RTA ▪ UNDP EEG 	None	Annually
Periodic status/ progress reports	<ul style="list-style-type: none"> ▪ Project manager and team 	None	Quarterly
Final Evaluation	<ul style="list-style-type: none"> ▪ Project manager and team, ▪ UNDP CO ▪ UNDP RCU ▪ External Consultants (i.e. evaluation team) 	Indicative cost : 25,000	At least three months before the end of project implementation
Project Terminal Report	<ul style="list-style-type: none"> ▪ Project manager and team ▪ UNDP CO ▪ local consultant 	0	At least three months before the end of the project
Audit	<ul style="list-style-type: none"> ▪ UNDP CO 	5,000	TO be determine based

Type of M&E activity	Responsible Parties	Budget US\$ <i>Excluding project team staff time</i>	Time frame
	<ul style="list-style-type: none"> ▪ Project manager and team 		on UNDP Audit requirements for CO
Visits to field sites	<ul style="list-style-type: none"> ▪ UNDP CO ▪ UNDP RCU (as appropriate) ▪ Government representatives 	For GEF supported projects, paid from IA fees and operational budget	Yearly
TOTAL indicative COST Excluding project team staff time and UNDP staff and travel expenses		US\$ 43,000 (+/- 5% of total budget)	

VIII. LEGAL CONTEXT

Standard text has been inserted in the template. It should be noted that although there is no specific statement on the responsibility for the safety and security of the executing agency in the SBAA and the supplemental provisions, the second paragraph of the inserted text should read in line with the statement as specified in SBAA and the supplemental provision, i.e. “the Parties may agree that an Executing Agency shall assume primary responsibility for execution of a project.”

This document together with the CPAP signed by the Government and UNDP which is incorporated by reference constitute together a Project Document as referred to in the SBAA [or other appropriate governing agreement] and all CPAP provisions apply to this document.

Consistent with the Article III of the Standard Basic Assistance Agreement, the responsibility for the safety and security of the implementing partner and its personnel and property, and of UNDP’s property in the implementing partner’s custody, rests with the implementing partner.

The implementing partner shall:

- a) put in place an appropriate security plan and maintain the security plan, taking into account the security situation in the country where the project is being carried;
- b) assume all risks and liabilities related to the implementing partner’s security, and the full implementation of the security plan.

UNDP reserves the right to verify whether such a plan is in place, and to suggest modifications to the plan when necessary. Failure to maintain and implement an appropriate security plan as required hereunder shall be deemed a breach of this agreement.

The implementing partner agrees to undertake all reasonable efforts to ensure that none of the UNDP funds received pursuant to the Project Document are used to provide support to individuals or entities associated with terrorism and that the recipients of any amounts provided by UNDP hereunder do not appear on the list maintained by the Security Council Committee established pursuant to resolution 1267 (1999). The list can be accessed via <http://www.un.org/Docs/sc/committees/1267/1267ListEng.htm>. This provision must be included in all sub-contracts or sub-agreements entered into under this Project Document.

IX. ANNEXES

ANNEX 1: Summary Report of the Stock/stakeholder -Assessment Exercise

Process and approach adopted for the stocktaking exercise

The following tools have been used for the stocktaking: (i) desk top review of relevant documents; (ii) electronic communication with resource persons; (iii) interviews with select stakeholders; (iv) focus-group queries; (v) consultation sessions. Public institutions, non-government organizations, academia, regional/international organizations with representatives in Belize, and the private sector participated in the exercise. The list of persons/organizations interviewed was included in the stakeholders report. The experiences gained and lessons learnt during the first National Capacity Self-Assessment project were applied for this exercise.

This exercise is considered as a necessary step in preparing the project proposal document for the TNC to the UNFCCC. The report was used as a basis for the TNC proposal, which provided input to *identify* and *validate* priorities for further surveys /studies and new areas of work to be carried out in the course of the TNC preparation. In addition, it provided an assessment of the gaps, uncertainties, constraints and lessons learnt during previous and ongoing activities. The TNC thus builds upon previous activities, studies, experiences, and institutional arrangements established for the first two national communications. The stocktaking exercise is *focused on all thematic areas* related to National Communication as indicated by Decision17/CP8.

A purpose-designed survey instrument was prepared and applied to 75 individuals across 24 organizations (Both state and non state). The approach used in this survey could be described as a **Cluster (Block)** or **Judgmental Sampling** depending on the objective. The stakeholder population of Belize comprises many sectors which should or participated in the previous national communications. Groups such as government departments or ministries, civil society organizations, and the representatives of the private sector (business, etc.), were clustered based on their potential to participate in the process. The cluster survey attempted to obtain the opinion of the various stakeholders about their participation in the NC process. This sampling method could also be described as Judgmental since the surveyor(s) used personal knowledge and experience to determine the type of information to be solicited. A few of the responses were particularly interesting since some of the respondents were invited to be part of the Project Executing Group but had failed to take advantage of the opportunity.

The questionnaires were mostly completed through one-on-one interviews with the respondent. The stated purpose of the survey instrument was “to ensure that the Third National Communication builds on the activities, studies, outcomes, experiences and institutional settings of the previous National Communications”.

The Stock-taking exercise addressed works undertaken in previous National Communications; the identification of new studies and areas of work; the identification of Synergies with related programmes; agreement on priorities for Third National Communication; selection of methodologies and identification of expected results; analysis of institutional arrangements; and good practice and lessons learnt among other themes.

Summary of the main findings of the stock-take exercise

Repetitive

Personal (individual) interviews were utilized for this survey.

1. *Role and Contribution of your organization in the National Communication Process:* Respondents felt that they could contribute by generating data, compiling and making reports available and accessible ; engage in research; share cc information; that they were a necessary part of the process; participate in reviewing documents, in consultations, in public awareness and education programmes; downscale climate models;
2. *The perceptions about the Constraints and Gaps of the NC process were varied.* These ranged from lack of accurate and reliable data (15 %); lack of public knowledge about the process (15 %); limited human resources; limited access to relevant reports; stakeholders' lack of commitment to the process; and limited technical capacity. 24 % offered no comment.
3. While 24 % of the respondents offered no Ideas for *Building on the previous National Communication & or other on-going activities*, other suggestions ranged from reviewing the status of recommendations made in previous NCs; integrating NC reporting into those of the Conventions on Land Degradation and Biological Diversity; disseminating lessons from pilot demonstration activities; strengthening institutions, data collection, and monitoring and evaluation processes; conducting more vulnerability studies; and the observation that government should play a more catalytic role.
4. About 24 % did not identify any *Lessons from the previous NC exercises*. Others recommended *increased literature review for validation* information; a longer preparation period; alternative member composition of the PEG/PSC; input from more stakeholders (a wider range) was required; and a longer period to take the document to Cabinet acceptance.
5. One person (12 %) thought that *Additional studies* were not needed since they duplicate work already done but not applied. 24 % indicated that new studies were needed. Some of the recommendations are listed: -impact of sea-level rise on coastal aquifers and surface *freshwater resources*; *feasibility studies* on renewable energy production; the impact of climate change on livestock production, coral bleaching, plant pests & diseases, and on disaster risk management; study on the role of forest in carbon stocks; and to identify incentives for avoiding emissions among others.
6. *Adequacy of the institutional framework:* The majority, about forty-five % of the respondents thought the institutional arrangements for the national communication to be inadequate; less than forty percent thought it satisfactory, and one offered no comment.
7. *Effectiveness of the Climate Change or Project Steering Committee/Project Executing Group.* The question specific to the effectiveness of the PSC/PEG evoked less cause for concern. Four of thirteen described it as being relatively effective but with potential for improvement. Greater representation of stakeholders was needed along with more active engagement, planning, review, and greater commitment on the part of the representatives.

8. Some proposed *Priorities in allocation of efforts and resources included* Improved public participation and political will, increased climate change education, adaptation options/strategies for high risk buffer communities, introduction of a National climate change strategy, and increased allocation of funds.
9. *Challenges to mainstreaming climate change:* stimulating public awareness, interest, and ownership in planning and adaptation to climate change; communication issues exist; the impacts of climate change must be seen as a people issue instead of environmental; lack of strategic planning; lack of political will and the failure of government departments to prioritize climate change in planning.
10. *Improving access to information:* Most of the suggestions made were already being implemented but the results of the survey indicate that the effort was not enough. Publication of a newsletter; use village meetings and public events; web-based clearing-house; use of NGOs to disseminate information were some of the expected responses, except for the somewhat radical recommendation that government gives a mandate to all sectors to collect and share data.
11. Need for international consultants: Responses were about evenly divided. The value of international consultants was thought to be in the areas of capacity building (training), technology transfer, and sharing experiences.
12. Greater utilization of the CCCCCs and the UB/ERI: Almost all respondents recognized the potential of the CCCCC to facilitate and collaborate with research; mobilize resources; function as a source of information; as a mentor to the ERI; provide consultancy services; and to provide technical support for capacity building. The ERI was in its infancy so could benefit from support from a variety of sources.

Table 1: Update on Actions Proposed under SNC.

Stakeholders (Potential and/or Actual)	Proposed Project /Programme/Activity	Impact (Mitigation, Adaptation, or other)	Status
Land Information Center (LIC), Coastal Zone Management Institute and Authority (CZMAI)	Mapping in greater detail utilizing smaller contours (coastal zone mapping) required for vulnerability projections of sea-level rise, etc.	Planning, Management,	Not yet initiated (Proposed under UNDP BCPR supported DRR Initiative)
GALEN University	Comprehensive study of the economic impacts of CC that would the affect all economic sectors,	Planning	In planning Phase UNDP Cost of Inaction developed in 2009 which addressed priority development sectors, the Galen study is expected to expand on this process and on the sectors assessment.
Related to UNCBD	Ecological impact affecting sectors of the economy. CC will have impact on biodiversity.	Research & Analysis for mitigation & adaptation	Studies on Protected Areas Resistance (Marine and Terrestrial) being undertaken by Local eNGOs
Ministry of Health	Impact of CC on	Mitigation &	Health vulnerability (Dengue)

(MOH); National Emergency Management Organization (NEMO)	Health/Environmental health issues, vulnerability, study of risk to coastal health service facilities.	Adaptation	assessed for SNC Facility assessment undertaken with support of PAHO.
Belize Tourism Board (BTB) National Meteorological Services (NMS) MACC	Tourism sector - national carrying capacity [infrastructural] MACC pilot vulnerability study for tourism (three to six month project)	Mitigation Adaptation	Tourism vulnerability study done for SNC (Proposed UNDP support for the integration of CC considerations in the Tourism Master Plan currently under development)
Forest Department (FD), Lands And Survey Department (LSD), CZMAI	Impact of forest fire on forest/vegetation cover, Land conversion	Research, biomass & carbon sequestration	Not yet initiated
GHG Inventory Consultants	Residential energy usage – biomass / firewood use	Inventory data	Study initiated by Forest Department
GHG Inventory Consultants	Waste-water sewage treatment pollution associated with flooding, GHG emissions from solid waste disposal facilities and technologies being utilized in Belize. Emissions associated with transport industry and the agricultural sectors.	Research for GHG emissions & sinks	Waste-water study done for the SNC
Ministry of Agriculture (MOA)	Agricultural / aquaculture sector vulnerability - indirect effect by pest, drought, and impacts of salt water intrusion into aquifers, etc.	Impact on food security and economy	Aquaculture vulnerability assessed for the SNC (Agricultural policy being revised to include CC Considerations with support from FAO; Livestock adaptation project to be piloted under EU supported GCCA initiative)
MOA	Vulnerability study: rice under irrigation impact on reduction in forest cover, shrimp waste emissions		Rice previously studied, shrimp not yet done
NMS	Mapping storage capacities and recharge potential in aquifers.	Determination of water resources vulnerability	One watershed studied as a pilot.
(CDM), Public Utilities Commission (PUC)	Use of waste for energy generation and reduction of GHG emissions	Mitigation and adaptation	Based study conducted under the SNC (Follow-up Landfill Gas generation and recovery Report develop for national land fill with the support of UNDP MGD Carbon Facility)
NMS, FD, MAF,	Watershed management (downstream effects on coral reef impacts)	Research for Mitigation measures	Some programmes initiated

Recommended new areas of work for the Third National Communication

Some recommendations for new areas of work that were proposed to enhance climate change management in Belize:-

1. Complete the process of operationalizing the National Climate Change Committee. Two prioritized tasks are already identified; completing the review and adoption of the National Policy on Adaptation to Climate Change, and developing a National Climate Change Adaptation Action Plan.
2. Adopt and apply the newly crafted Wildland Fire Management Policy which would assist in the protection of Belize's forest resources, essential for the country's long term sustainable development.
3. Complete the development of the CDM Manual, and the establishment of the DNA office to facilitate emissions trading.
4. Belize should continue to use its strategic position to foment the relationship between CARICOM and the Central American Commission on Environment and Development (CCAD) with a view to fostering collaboration, and strengthening the negotiating positions of the two groups into a larger unified voice to achieve the objectives of the Convention.

Some other suggested study areas include:-

- impact of sea-level rise on coastal aquifers and surface freshwater resources
- feasibility studies on renewable energy production (wind, solar and biofuels), and a national transition to small battery-powered vehicles
- the impact of climate change on coral bleaching, plant pests & diseases
- climate change & disaster risk management
- disaster risk reduction in agriculture, and
- study on the role of forest in carbon stocks
- pilot projects for carbon banking, and
- mapping of wind potential for energy generation
- vulnerability studies of natural ecosystems to identify potential interventions for building resilience

ANNEX 2: Stakeholder Involvement Table

Table 1: Stakeholder Groups consulted in TNC Preparation:

No.	Organization/Institution
1	National Meteorological Service
2	Department of the Environment
3	Fisheries Administrator
4	Forest Department
5	Environmental Research Institute/University of Belize
6	Ministry of Economic Development
7	Ministry of Foreign Affairs and Foreign Trade
8	Water and Sewerage Authority
9	Ministry of Tourism
10	BELTRAIDE
11	Caribbean Community Climate Change Centre
12	Belize Tourism Industry Association
13	Ministry of Health
14	Belize Chamber of Commerce
15	Public Utilities Commission
16	Programme for Belize
17	Belize Enterprise for Sustained Technology
18	Policy and Coordination Unit/MNRE
19	National Protected Areas Secretariat
20	National Emergency Management Organization
21	Ministry of National Security
22	Solid Waste Management Authority
23	World Wildlife Fund (Belize)
24	Belize Red Cross

Table 2: Summary of Stakeholder Roles in Project Implementation:

Stakeholders	Form of participation in Project Implementation (roles and responsibilities)
National Climate Change Office and the Policy Coordinating and Planning Unit of the ministry of natural Resources	These Units within the MNRE represent the government agencies responsible for programming, implementation and monitoring of project activities.
Forest Department , Solid Waste Management Authority, Department of Environment, Agriculture and Fisheries Department and Policy Coordinating and Planning Unit of the Ministry of Natural Resources	These entities will participate directly in the gathering of base information and the execution of greenhouse inventory models. As the project's Executing Entities, the Forest Department and the Fisheries Department They are responsible for all technical decisions and the effective and efficient use of resources to achieve the goals established in the annual work plans and project objective.
Coastal Zone Management Authority and Institute (CZMAI)	The CZMAI will advise on Coastal Vulnerability Assessment, ensuring synergies among project components and ongoing national efforts in coastal development through its monitoring and research programs.

Stakeholders	Form of participation in Project Implementation (roles and responsibilities)
National Climate Change Office and the Policy Coordinating and Planning Unit of the ministry of natural Resources	These Units within the MNRE represent the government agencies responsible for programming, implementation and monitoring of project activities.
The Caribbean Community Climate Change Center (CCCCC)	The 5C's will provide technical backstopping to the national process. The Center will lend its expertise to the country of Belize in the identification of appropriate process methodologies and providing oversight and guidance to the assessment processes
The National Emergency Management Organization (NEMO)	The NEMO will participate directly in the national vulnerability assessments. As advisors NEMO will work with experts to adequately demonstrate linkages between Climate Change and Disaster Risk Management within developed knowledge products.
National Climate Change Committee (NCCC)	The NCCC will play a crucial role in advising on the execution of Vulnerability and mitigation Assessments and in the execution of the Public Awareness Component of the project. This group will facilitate coordination of project activities and ensure mainstreaming of project actions within on-going national efforts of formalizing national structures for climate change governance as well as advising on national planning efforts.
Ministry of Natural Resources and Environment (MNRE)	The MNRE is the Responsible Partner for reporting and coordination of efforts between the GOB and GEF. The MNRE will play a major role, together with the MAF, to provide guidance for the development of the regulatory framework for a sustainable NPAS.
United Nations Development Program (UNDP) Belize	UNDP Belize will serve to ensure transparency and accountability in project delivery and comply with all the commitments and duties in its capacity as the GEF Implementation Agency. The UNDP CO will provide technical support and assistance to the project's Executing Entities.

ANNEX 3: Summary of the Second National Communication

National Circumstances

Economic Profile

Belize is a small, essentially private-enterprise economy. Tourism is the number one foreign exchange earner followed by exports of marine products, bananas, cacao, citrus, cane sugar, fish, and cultured shrimp, lumber which are all subject to price fluctuations and to weather related risks. The largest industries based on the value of annual output are: garment production, food processing, tourism, construction and crude oil. The extraction of petroleum from an estimated 10 million barrel reserve in western Belize commenced in December 2005. In 2006, approximately 811,199 barrels of crude oil were extracted from this location, 80% of which was exported to the US.

While tourism and agriculture contribute significantly to the economy, the growth of tourism and remittances has slowed significantly due in part to the global economic crisis. In 2008 received remittances from abroad were estimated to be USD 78 million per year; inflows fell to 5.8% of GDP while the output of sugar, the principal export, is falling, and reduced export demand has hurt citrus and shrimp production and depressed prices.

The government's expansionary monetary and fiscal policies, initiated in September 1998, led to sturdy GDP growth averaging nearly 4% in 1999-2007, though growth slipped to 2.1% in 2008 and -1.5% in 2009 as a result of the global slowdown, natural disasters, and the drop in the price of oil. Major concerns continue to be the sizable trade deficit and sizable foreign debt. In February 2007, the government restructured nearly all of its public external commercial debt, which helped reduce interest payments and relieve some of the country's liquidity concerns. A key short-term objective remains the reduction of poverty with the help of international donors.

Belize imports one and a half times more goods than it exports. In 2006, goods valued at US \$660 mn were imported, while US \$427 mn were exported. The top imports were machine and transportation equipment (17%), fuels and lubricants (16%), manufactured goods (12%), and food (9%).

Greenhouse Gases Inventory of Emissions and Sinks

The second greenhouse gases inventory for Belize was based on Reference years 1997 and 2000. This second inventory similarly covered the Energy, Industrial Processes, Agriculture, Land Use, Land Use Change and Forestry (LULUCF), and Waste sectors. The high proportion of natural vegetation cover of the country gave it the capacity to absorb more Carbon Dioxide than it emitted, but Belize was determined to be a net emitter of greenhouse gases due to the quantity of methane emissions and the Global Warming Potential (GWP) attributed to that greenhouse gas. The inventory revealed that the highest quantity of GHG emitted was CO₂. The major source of methane emissions identified in the second GHG inventory was the Waste sector, although the Agriculture, and Land Use Change and Forestry Sectors were also sources of this gas.

Belize's two main sources of **Energy** during the study period were from imported fossil fuels, and biomass. Biomass includes the burning of bagasse in the sugar industry, consumption of fuel wood for domestic use, and the production of white lime.

Activities within the **Industrial Processes and Solvents** Sectors occurred in only two areas: the Mineral Products, and the Food Production and Drink subsectors. Lime production and road paving with asphalt are the principal activities in the Mineral Products sub-sector. Beer, wine, and spirits, meat, fish, poultry, bread, and animal feed are the products of the Food and Drink production sub-sector. This second inventory

revealed that emissions within the Industrial Processes sector remained unchanged compared to those of the first.

Emissions within the **Agriculture** sector were from the same sources as those for the first inventory. Emissions increased from 54.8876 Gg in 1994 to **66.9793** and **100.44** Gg for reference years 1997 and 2000 respectively. Agricultural soils and prescribed savannah burning were the two main sources of GHG emissions. The agriculture sector was a net emitter of GHGs but accounted for less than 2 % of the total national emissions.

Recalculation of the results for 1994 showed that the total emission of CO₂ from the **Land Use Land Use Change and Forestry** sector of 7,483 gigagrams was mainly from deforestation and soil carbon from agriculturally impacted soils. Carbon sequestration from forest growth following logging and the regrowth of abandoned lands reduced this quantity by 2,891 Gg to a net emission value of 4,592 Gg. For Reference year 1997, carbon dioxide emissions from this sector amounted to 9,803 gigagrams, similarly from deforestation and from soil carbon in agriculturally impacted soils, with carbon sequestration reducing this quantity by 3,225 Gg to yield a net emission value of 6,578 Gg. The Reference year 2000 displayed the same trends yielding emissions of 11,950 Gg from deforestation and from soil carbon in agriculturally impacted soils. Carbon sequestration from forest growth following logging and natural reforestation on abandoned lands reduced the volume of the emissions by 3,862 Gg to a net emission value of 8,088 Gg.

The emissions for the 1994 reference year were re-calculated, resulting in lower than previously reported GHG emissions from the **Waste** sector. The main sources of emissions were from domestic and commercial wastewater handling. Net emissions (without emissions from industrial waste water handling) amounted to 0.51 Gg for 1994, 0.69 in 1997 and 1.02 in 2000. There was an increasing trend over the three years. The data showed that the primary factors influencing change in the emissions from the waste sector were decreases in waste water production resulting in emissions of 225 Gg in 1994, and about the same levels of 169 Gg in 1997 and 2000.

Table 1: Summary of 1997 GHG Emissions by gas

Greenhouse Gases	Gg	% of Total	GWP Factor	CO ₂ Equivalent
Carbon dioxide	7524.873	92.3	1.0	7524.873
Methane	23.995	0.3	24.5	586.898
Carbon monoxide	199.232	2.4	...	...
Nitrogen oxide	8.567	0.1	...	...
Non-Methane Volatile Organic Compounds	3.988	0.1	...	...
Nitrous Oxide	0.314	0.0	320	100.384
Sulphur Dioxide	387.898	4.8	...	...
Total	8,148.826	100.0	...	8,212.155

Table 2: Summary of 2000 GHG Emissions by gas

Greenhouse Gases	Gg	% of Total	GWP Factor	CO ₂ Equivalent
Carbon dioxide	12,349.582	93.3	1.0	12,349.582
Methane	43.110	0.1	24.5	1056.193
Carbon monoxide	363.599	1.0	...	...
Nitrogen oxide	13.672	0.0	...	...
Non-Methane Volatile Organic Compounds	4.515	0.0	...	...
Nitrous Oxide	0.872	0.0	320	279.034

Sulphur Dioxide	462.677	1.3	...	...
Total	13,238.026	100.0	...	13,684.709

Vulnerability Assessments

For the Second National Communication these included:-

Vulnerability and Adaptation Assessments in the Agriculture Sector

The assessment conducted for the Initial National Communication (INC) focused on three staple crops - rice, beans and corn. This second study expanded the range of crops, but concentrated on two of the major trade commodities, sugar cane and citrus. The assessment concluded that with appropriate response measures adopted in a timely manner, the overall sustainability of the sugar and citrus subsector and the overall agricultural sector would probably not be at a significant risk

Vulnerability Assessment of the Coastal Zone

The vulnerability assessment conducted for the coastal zone of Belize for the INC utilized the Intergovernmental Panel on Climate Change (IPCC) Aerial Videotape Assisted Vulnerability Analysis (AVVR) methodology to map the coastline, in order to determine those areas most likely to be affected by sea level rise. A more comprehensive assessment was conducted for the Second National Communication that took into consideration the social, economic, and environmental impacts that would result from a rise in sea level and other climate change related phenomena.

Conclusions emerging from the vulnerability assessment indicated that Belize needs to focus on those actions that will reduce direct impact and help to build resilience within the natural environment.

Vulnerability and Adaptation Assessment of the Fisheries and Aquaculture Industries

This sector of agriculture is very important for food security and revenue generation. A significant proportion of the population is employed in this industry. The assessment focused on both capture fisheries and the aquaculture industry. The assessment concluded that proper adaptation included building capacities which will help to better inform decisions and enable use of information that will lead to enhanced ability to cope with climate change. One important strategy that would help to build capacity is to take immediate action which would minimize stress to those ecosystems that support fisheries and aquaculture. Preserving the physical integrity of critical marine and fresh water environments was also considered to be an essential first step towards the minimization of stress in this environment.

Recommendations included increasing the monitoring of selected environmental factors such as sea surface temperatures, inland temperature, rainfall or precipitation in order to improve our understanding of the dynamics of fisheries/aquaculture climate change issues, and lead to more efficient, effective planned strategy for sustainable development.

Vulnerability and Adaptation Assessment of the Health Sector

In collaboration with the Ministry of Health, this initial study focused on Dengue and Dengue Haemorrhagic Fever and the conditions that would favour outbreaks or increases in incidents. All three elements required for the transmission of dengue were found to be present in Belize and for that reason the disease has become endemic showing periodic epidemics when characteristics of these elements are such that transmission is enhanced. Since the environmental conditions as it relates to temperature, humidity, rainfall and altitude are within the ideal ranges in all districts, the entire country is considered to be at risk of dengue transmission.

Vulnerability and Adaptation Assessment of the Tourism Sector

The Tourism Industry has become the largest revenue generator for Belize, directly and indirectly involving the greatest proportion of the labour force, and affecting all other sectors. The study examined the impact of a changing climate on the economy.

The assessment of the tourism sector of Belize highlighted several areas of supply- and demand-based economic vulnerability to climate change, including the risks to coastal land and infrastructure, exposure to resource damages such as coral bleaching, and an associated reduction in demand because of resource

changes or risks to personal health and safety. A preliminary assessment of Belize's tourism sector suggests that it is highly vulnerable to the effects of climate change through both its exposure to climate impacts and its weak capacity for adaptation. Adaptation measures that reflect these specific sources of vulnerability should be considered in light of the country's limited capacity to moderate the harmful effects of climate change.

Vulnerability and Adaptation Assessment of Water Resources

This study was undertaken under the Mainstreaming Adaptation to Climate Change (MACC) Project to address climate change in Belize's water sector. The study incorporated activities such as a technical review that addresses climate change issues and threats related to freshwater resources of Belize. Other products of this study included a National Adaptation Strategy and a Water Resources Management Policy.

Recommendations emerging as a result of the assessment of this sector suggested that measures to improve efficiency should be applied by the commercial water suppliers, in extraction from the sources, storage, and delivery to customers. This will be important in the context of reduced water availability occasioned by climate change. Another recommendation is to conserve the country's water resources. The study estimated that the agriculture sector was the country's single largest user accounting for marginally in excess of 43% of the over 15 B gallons used in 2007. A sizeable portion of the water used in this sector is used in low efficiency surface irrigation systems that cause high water losses.

Mitigation and Adaptation Measures

The SNC identified two programmes undertaken by the Government of Belize to alleviate poverty while at the same time assist with mitigation of greenhouse gases. These were the conversion to using hydropower for the generation of the greater proportion of Belize's electrical energy needs; and mass utilization of compact fluorescent tubes for lighting instead of incandescent tubes. Both strategies would lead to lower imported energy consumption, allowing a smaller percentage of income being spent on energy.

The second greenhouse gas inventory also provided relevant data needed to calculate the impact of the introduction and utilization of renewable energy on national emissions. Studies were conducted to calculate the greenhouse gas emissions that were averted by the introduction of hydropower into the national grid since 1995. Projections for future energy needs also indicated continued increases in demand, so the exercise included assessment based on the completed facility. These exercises also took the opportunity to determine the impact of the avoided GHG emissions resulting from the application of solar panels at an entire village level for electrical power generation, and the impact of replacing thousands of incandescent bulbs with compact fluorescent tubes. This study also undertook to determine the potential for energy generation derived from waste through development and management of properly designed landfill projects.

Constraints and Gaps.

The National Capacity Self-Assessment conducted in 2004/2005 had identified some gaps and constraints that affected Belize's ability to properly implement the Convention. That exercise helped to identify certain needs and priorities such as:-

- Formulation and implementation of a national climate change programme which would be developed with national stakeholder participation;
- Reduction of information gaps through research and systematic observation, and increased availability and accessibility to reliable data and information; and
- Establishment of a National System for the management of greenhouse gas inventories.

Some advances made include strategic alliances among government and non-state stakeholders to facilitate research in sectors including climate change (eg.WWF research in climate change impacts on the Belize

Barrier Reef, rehabilitation of mangrove ecosystems, etc). The establishment of the Caribbean Community Climate Change Centre, headquartered in Belize, is a regional initiative to conduct research, formulate strategies and plans, and generally address climate change issues for the CARICOM member states. Some of the constraints previously identified would also be mitigated through the measures applied and mentioned elsewhere under capacity building.

Human and financial resources are still limited, but some small positive changes have been achieved as a result of broader participation in climate change events and programmes, which includes government, and the private sector. Enhancement of public (government) capacities continues with the reactivation of the National Climate Change Committee, and the establishment of office of the Designated National Authority.

Other information relevant to the achievement of the Convention Objectives

Systematic Observation and Research

Belize's Activities in the Implementation of Global Climate Observing System (GCOS)

The National Meteorological Service (NMS) of Belize is the leading governmental authority in providing the nation with climate-based products derived from systematic and accurate monitoring and data collection and data analysis. The Service collaborates and provides technical support and training to our systematic climate observing network partners across the country.

The NMS is the focal point for GCOS related activities and is committed to meeting its observational requirements to address national, regional and global climate change issues. It recognizes the importance of adequate high quality, systematic and comprehensive observations to effectively assess climate change and its potential impacts, to develop effective mitigation and adaptation strategies, as well as to assess risk and vulnerability. The NMS is also aware that to achieve the level of observations required, considerable effort is necessary from all stakeholders. However, not much progress has been made in implementing GCOS related activities. The greatest obstacle is budgetary constraints and other more urgent national priorities that lower the priority of systematic observation programs.

Quality Control, International Data Exchange and Data Analysis

- a) Quality control is undertaken in keeping with World Meteorological Organization standards where manual observations and coding practices are monitored and data quality checked, including homogeneity.

However, errors caused by inaccurate transcription, evaporation loss, loss during measuring and general exposure can go undetected especially for older records. For older records, systematic errors may also arise due to changes in the measurement techniques before the World Meteorological Organization standard of observations was implemented.

- b) There are no policy barriers with respect to international exchange of essential climate variables. Climate data are transmitted on a monthly basis to the International Data Centers.

Atmospheric Essential Climate Variables

The NMS operates a network of 1 synoptic station, climate stations, and rainfall stations including the Synoptic and Climate stations.

The Philip SW Goldson International Airport (PSWGIA) is the location of the only synoptic station and is operated by the National Meteorological Service. Hourly observations are conducted during the day and every three hours in the night. Datasets for hourly observations include temperature, humidity, wind speed

and direction, atmospheric pressure, cloud types, amounts, and occurrence of rain/showers, thunderstorms and fog.

Climate data from suitable stations were used to construct climate projections for temperature and rainfall. This information was used to conduct vulnerability assessments in Tourism, Agriculture, and Coastal Zone, Fisheries, Health and Water Resources sectors and to design adaptation strategies.

Belize has one radiosonde station located at the PSWGIA which is a part of the GCOS Upper Air Network (GUAN). Upper air observations are performed once a day outside of the hurricane season and twice a day during the hurricane season from mid-July to mid-October. The data are analyzed by trained operators and then stored and sent to the National Climate Data Centre (NCDC) in Asheville, USA. Effective data quality control is a multi-tiered process involving the upper air observer, National Centres for Environmental Prediction (NCEP), NCDC and the administrative officer. Measurements are in compliance with WMO coding requirements. Metadata records are submitted to the appropriate international data centre.

Oceanic Essential Climate Variables

There were three (3) tide gauges and marine meteorological stations in Belize. One station was destroyed by Hurricane Mitch in 1998. The other two deteriorated due to lack of maintenance and are now non-functional. As a result, there is no continuous sea level and sea surface temperature data. One tide gauge was reinstalled at the end of February 2009.

Terrestrial Essential Climate Variables

The Hydrology Unit within the National Meteorological Service of Belize currently manages and maintains 27 hydrological observation sites in all but two of the country's 18 major watersheds. The Unit is responsible for collecting and analyzing data on the quantity, quality, and variability of Belize's water resources.

Capacity building to manage Climate Change

Belize has made efforts to build capacity to address climate change issues in both the public and the private sector. The National Meteorological Service has sought to enhance its staff capacity through further education of staff members. The upgrade and expansion of the headquarters of the NMS, in conjunction with the installation of a new Doppler 500 KM Radar (completed in late 2008) and training of the technicians, also enhanced the capacity of the NMS in the delivery of services.

Representatives of the private sector were also provided opportunities to learn by participating in regional and international meetings and training workshops. For example, the training of three Belizean delegates in the use of Agricultural Modeling Tools was made possible under the SNC. The two consultants were those engaged in conducting the vulnerability assessments of the agriculture sector. A private-sector consultant and Fisheries Department NMS staff were also trained in vulnerability assessment methodologies. Environmental NGO's in country has also made extensive investments in building their local capacities particularly to support CC education and localized adaptation programmes.

Apart from past exercise in capacity development, Government of Belize, with the support of EU is expected to launch a national Programme on CC capacity development in second half of 2011. The action titled, "Enhancing Belize's resilience to adapt to the effects of climate change" aims to enhance national capacities related to climate change governance and will support the strengthening of climate change monitoring, planning and decision making processes. The project is expected to address the fractured/ non coordinated approach observed in the rolling out of CC related interventions and set in place a national framework for CC governance.

Lessons Learnt

An important lesson learnt was that since vulnerability assessments and modeling/scenario building require considerable time if done completely with all possible source data, more time and resources need to be allocated to such studies. The national communication process could utilize a period of thirty to thirty-six months. A longer preparation period would enable more time for some focused (supplementary) studies such as would gather data to improve the quality of the GHG Inventories. The limited participation of some members of the PEG was noted and the remedy for this was the appointment of alternate members to represent each organization!

The validation sessions were useful in providing quality assurance and control, and this should be continued. The survey revealed other values of the longer preparation period such as the opportunity for the project team to take the document through to a higher level of completion; review following broad public and technical consultation which would also enable input from a broader group of stakeholders, then acceptance by Cabinet in order that it could be submitted to the UNFCCC Secretariat/COP as the national report. It was also recommended that dissemination of drafts and the final document should be countrywide and timely.

ANNEX 4: Terms of References Project Team

National Project Manager

In consultation with the Project Execution Group (PEG)/ Project Board (PB), the Project Manager (PM) is responsible for day-to-day management, co-ordination and supervision of the implementation of the preparation of Belize's Third National Communication to the UNFCCC. Specifically, his\her responsibilities are but not limited to the following:

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- To supervise and ensure the timely implementation of the project relevant activities as scheduled in the work plan;
 - Prepare a detailed work plan for the project and draft terms of reference for the subcontracts (in consultation with the NCCC and PEG/PB);
 - Draft the scope of the work and TOR and other procurement documentation required for the identification and the recruitment of experts and consultants contributing to the assessment processes;
 - Compile the various section reports and content of the overall SNC document in consultation with Consultants;
 - Provide technical assistance and administrative support to national experts and institutions in the execution of required deliverables inclusive of the GHG Inventories, the updating of the national circumstances document;
 - Coordinate the work of the Vulnerability Assessment and Adaptation Consultants;
 - Organize the validation of project products through training workshops and sensitization sessions
 - Liaise directly with the National Climate Change Committee (NCCC) and with the relevant ministries, national and international research institutes, NGOs, and other relevant institutions in order to ensure national involvement in project actions as well as to facilitate the gathering of information required for analysis
 - Prepare quarterly progress reports to the PEG/PB for distribution to the NCCC;
 - Summarize and synthesize the results of the project;
 - Support the drafting of the TNC in collaboration with the National Focal Point, national counterparts/ experts and consultants
 - Identify necessary follow-up activities to ensure synergies between TNC activities and other ongoing initiatives
 - Assist in the mobilization of additional resources to the extent available;
 - Ensure that the SNC process is in the line with guidance provided by the COP of the UNFCCC;
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Qualifications and Experience

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- An advanced degree (at least M. Sc. or equivalent) in energy, environmental management or other field relevant to the project
 - Minimum of 5 yrs experience working on climate change and/ or related issues
 - Understanding of Belize's environment/development issues as and Climate Change activities in Belize;
 - Excellent communication (Written and Oral) Skills;
 - Demonstrated experience in project management;
 - Demonstrated experience working with government structures at local levels, and working with NGOs and private sector;
 - Past involvement in National Communication processes will be considered an asset
 - Knowledge of methodologies for inventories (IPCC Revised 1996 Guidelines and Good Practice Guidance, etc)
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Project Administrator/Finance Assistant

The Project Administrator/Finance Assistant is responsible for the financial and administrative management of the project activities and assists in the preparation of quarterly and annual work plans and progress reports for review and monitoring by the PEG/PB. This position also provides support to the Project Manager for the day-to-day management of the project.

Principal activities include:

Financial management:

- Responsible for providing general financial and administrative support to the project.
- Take own initiative and perform daily work in compliance with annual work schedules.
- Assist project management in performing budget cycle: planning, preparation, revisions, and budget execution.
- Assist the Project Manager in all project implementation activities.
- Provide assistance to partner agencies involved in pilot initiatives, performing and monitoring general administrative and financial aspects of pilots to ensure compliance with budgeted costs and in line with UNDP/GOB policies and procedures.
- Monitor project expenditures, ensuring that no expenditure is incurred before it has been authorized.
- Assist project team in drafting quarterly project progress reports concerning financial issues.
- Ensure that UNDP procurement rules are followed in procurement activities carried out by the project and bear the responsibility for the inventory of the project assets.
- Perform preparatory work for mandatory and general budget revisions, annual physical inventory and auditing, and assist external evaluators in fulfilling their mission.
- Provide assistance in all logistic arrangements concerning project implementation.

Administrative management:

- Make logistical arrangements for the organization of meetings and round tables.
- Draft contracts for international/local consultants.
- Draft correspondence related to project actions; clarifies, follows up, responds to requests for information.
- Assume overall responsibility for administrative matters of a more general nature, such as registry and maintenance of project files.
- Perform all other administrative and financial related duties, upon request.
- Provides support to the Project Manager in coordination and arrangement of planned activities and their timely implementation.
- Assist the Project Manager in liaising with key stakeholders from the GOB counterpart, donor community, civil society, and NGOs as required.

Qualifications and skills:

- At least an Associate Degree in finance, business administration or related fields.
- Experience in administrative work, preferably in an international organization or related to project execution.
- A demonstrated ability in financial management of development projects and in liaising and cooperating with government officials, NGOs, mass media.
- Ability to develop and interpret financial statements.
- Self-motivated and ability to work under the pressure.
- Team-oriented, possesses a positive attitude and works well with others.
- Flexible and willing to travel as required.
- Excellent interpersonal skills.
- Excellent verbal and writing communication skills in English.
- Good knowledge of Word, Outlook, Internet Explorer, and Excel is necessary.
- Problem solving and conflict resolution
- Ability to work towards specific goals and objectives
- A professional demeanor in undertaking all aspects of the position and with project personnel.

Project Execution Group

As indicated in the management arrangements described in the Project Document, a Project Execution Group/ Project Board (PB) will be established to oversee the implementation of the TNC Project and will be tasked with ensuring that activities and outputs are in line with the approved proposal document. The Project Execution Group will meet during the PIP phase in order to clarify implementation arrangements, including the specific reporting and execution responsibilities and requirements. Subsequently, the Committee will meet at least once per quarter, consistent with the UNDP reporting (calendar) quarter, and may call ad hoc meetings as become necessary.

Proposed Composition:

Representatives of:

- Ministry of Natural Resources and the Environment- Climate Change Office
- Ministry of Natural Resources and the Environment - GEF Operational Focal Point
- UNFCCC Operational Focal Point
- Ministry of Economic Development (CC Desk)
- National Climate Change Advisory Committee (Mitigation/ Adaptation Sub- Committee)
- Caribbean Community Climate Change Center
- United Nations Development Programme (UNDP) - Belize
- Ministry of Agriculture and Fisheries

Meeting Schedule: Quarterly

Responsibilities:

The Project Execution Group will:

- provide general policy guidance and technical advice on implementation
 - review progress of the implementation of project activities and participate in annual project reviews
 - ensure consistency of activities with the project proposal and work plan as well as ensure timely and effective implementation of project activities
 - ensure that procurement of good and services are consonant with relevant procedures and guidelines
 - approve work plans as well as quarterly and annual narrative reports
 - make recommendations to the PMU for modifications to the project, to the work and to the implementation arrangements including work plans as the project evolves, provided these are consistent with project objectives
 - approve all revisions in project document inclusive of financial revisions
 - make recommendations to the relevant authorities on policy matters which are likely to have an impact on project results
 - assist in facilitating collaboration among the relevant non committee stakeholders
 - review and approve terms of reference for consultants
 - champion the progress of project activities within the PEG member's institution / government department;
 - provide strategic direction on the work plan;
 - support resource mobilization action undertaken by the PMU
 - disseminate lessons learned and encourage replication of best practices among the PEG member's institution/government department and relevant constituent
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Generic terms of reference for scoping and implementing the Integrating Vulnerability and Adaptation Assessment component of the National Communication

These generic terms of reference for the preparation of the V&A studies identify the basic set of activities that the V&A expert/consultant will be responsible for under the supervision of the National Communication's Coordinator. It is important to note that these generic terms of reference do not intend to limit the work of the expert but to guide countries on the general profile of the V&A expert and on the activities generally expected to be carried out.

Profile of the V&A expert/consultant

The V&A expert should be very knowledgeable and with hands-on experiences on V&A issues, have a solid understanding of the gaps and needs for developing/improving vulnerability assessments, and have technical expertise in the formulation of adaptation options. The V&A expert should be able to scope technical studies in the V&A area and design an implementation strategy to carry out the different V&A activities within the framework of the NC. He/She should also have a solid understanding of the institutional arrangements and resources required to carry out the V&A work, and some experience utilizing Integrated Vulnerability Assessment methodologies.

Although the NC project document provides the framework for the V&A studies, the expert should be able to advise on any adjustments if needed, both at the organizational and technical levels, for a successful implementation of the V&A studies.

Activities

In general, the V&A expert/consultant should be responsible for ensuring that the following set of activities is carried out. Emphasis on different activities will depend on the scope of the work already described in the NC project document and/or on the specific activities the V&A expert would be assigned to.

Policy and institutional issues

1. Identify the key policy issues the V&A study of the SNC project aims to address, e.g.,
 - a. to scope the scale of risks associated with projected climate change;
 - b. to aid in the identification of priorities for adaptation;
 - c. to support the development of a national adaptation strategy.

2. Identify the expected output of the V&A study of the SNC project on the basis of the project document, e.g.,
 - a. impacts assessment at the sectoral level for the given priorities identified in the project document;
 - b. a national adaptation strategy, including policies, programs and projects.

3. Develop a clear strategy to link the V&A outputs to national development planning. This would include, among others:
 - a. assessment of institutional arrangements/stakeholders engagement required to facilitate linking the outcome of the V&A studies to sectoral or national planning;
 - b. framework for assessing how the above linkage can be monitored and measured in the short and long terms, for instance through the development of practical indicators.

Technical issues

Scope of the V&A study

4. Elaborate on the scope (geographic, thematic, sectoral coverage, time horizon) of the V&A study, e.g.,
 - a. designing a strategy to build on but advance what was done within INC, and while applicable, NAPA project;
 - b. elaborating on the scope of studies to address sectors/regions not covered by INC, sectors/regions identified as sensitive/vulnerable to climate change, as per the NC project proposal;
 - c. preparing a detailed workplan for each of the study to be carried out, including a strategy to involve the relevant stakeholders, timeline, etc.;
 - d. designing a strategy, as applicable, to link the V&A studies with previous and ongoing related projects/activities (e.g., land degradation, biodiversity, international waters.)

Methodological framework

5. Elaborate on the overall methodological framework for the V&A study as per the project document and in consultation with the project coordinator. In doing so, the V&A expert should ensure that:
 - a. The proposed methodological framework is the most appropriate given the policy questions to be addressed, the characteristics of the study (e.g., sectoral focus, spatial and temporal scales, stakeholders involved, and data requirement, etc.), and data availability;
 - b. In-country expertise required for such a methodological framework is available. If needed, the V&A expert should develop a strategy to address technical capacity gaps. For instance, by exploring the possibility of applying another framework in which more in-country expertise exists, or by designing a training/technical backstopping strategy, etc.

Scenarios development

6. Identify the types of scenarios required to conduct the V&A assessment, e.g., climate, socio-economic, sea level, adaptive capacity, technology, land-use land-cover.
7. Identify the temporal and spatial resolution needed for these scenarios (e.g., national, sub-national, watershed, community, farm level, multi-decadal average, annual, monthly, daily, mean conditions, extreme events, etc.). In doing so, the expert should justify the choices.
8. Develop the strategies for developing such scenarios, e.g., model-based, expert judgment, etc.

In the preparation of the scenarios development strategy, the expert should assess the feasibility of the scenario needs and the methods for developing these scenarios, given the characteristics of the studies, and data availability. For instance, the expert would be expected to advice on alternative options to running regional climate models or other resource intensive and time consuming exercises. The V&A expert would also assess whether there is enough in-country expertise to develop such scenarios and/or identify options to address the needs for additional expertise.

Sectoral assessment (to be considered by each of the sectors to be covered in the IV&A study)

9. Elaborate on the methods and tools, as per the project document, chosen to undertake sectoral assessments, e.g., numerical models, elicitation of expert views, stakeholder consultations, focus groups, etc. In doing so, the expert will advise on any adjustments needed to the options identified in the project document.
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10. Provide justifications for the selection of the methods/tools considering the research questions, characteristics of the study, and requirements of data and technical expertise of these methods/tools.

11. Assess in-country expertise required to apply the selected methods/tools and prepare training/technical backstopping strategy as required.

12. Develop a strategy to integrate findings from sectoral assessment, as needed. For instance, by applying an integrated model, synthesizing sectoral information, etc.

Technical assistance needs

13. Develop a technical backstopping/training strategy to strengthen the national capacity needed to carry out the different V&A studies, This would include details on the type of support needed (training courses on particular methodological frameworks/tools, guidance material, technical documents and good practice) and the, timeline for such support.
