

# National Environmental Summary

## Belize 2011



United Nations Environment Programme

The National Environmental Summary (NES) for Belize has been developed by UNEP. It serves as an information tool to support the incorporation of environment as a thematic component into the United Nations Common Country Assessment (CCA) and the United Nations Development Assistance Framework (UNDAF) initiatives. This environmental summary is intended to provide a critical analysis of gaps and opportunities that exist within policies, programmes and the national legislative framework all of which are used to address the major environmental issues within the context of poverty reduction and development.

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## ACRONYMS AND ABBREVIATIONS

AAGR	Average Annual Growth Rate
ACP	African, Caribbean and Pacific countries
APAMO	Association of Protected Areas Management Organizations
BAL	Belize Aquaculture Limited
BCPR	Bureau for Crisis Prevention and Recovery
BECOL	Belize Electric Company Limited
BEL	Belize Electricity Limited
Belcogen	Belize Co-generation Energy Limited
BET	Belize Environmental Technologies (Environmental Consultants)
BNE	Belize Natural Energy
BTB	Belize Tourism Board
CDB	Caribbean Development Bank
CDERA	Caribbean Disaster Emergency Response Agency
CFE	Comisión Federal de Electricidad (Federal Electricity Commission )
COMPACT	Community Management of Protected Areas for Conservation
CPA	Country Poverty Assessment
CSO	See SIB
CZMAI	Coastal Zone Management Authority and Institute
DOE	Department of Environment
DRM	Disaster Risk Management
DRR	Disaster Reduction and Recovery
EU	European Union
FAO	Food and Agriculture Organization
FAO-TCP	Food and Agriculture Organization Technical Cooperation Programme
FAOSTATS	Food and Agriculture Organization Statistical Database
FD	Forestry Department
GDP	Gross Domestic Product
GEF	Global Environmental Facility
GEO	Global Environmental Outlook
GFDRR	Global Facility for Disaster Reduction and Recovery
GIS	Geographic Information Systems (GIS)
GOB	Government of Belize
ha	hectares
IADB	See IDB
IBRD	International Bank for Reconstruction and Development
IDB	Inter-American Development Bank

IWRM	Integrated Water Resource Management
km	kilometers
LIC	Land Information Center
LPG	liquid petroleum gas (propane and/or butane)
m	Million(s)
MDG	Millennium Development Goal
MLF	Multilateral Fund
mi	miles
MEAs	Multilateral Environmental Agreements
MW	megawatt
NBF	National Biosafety Frameworks
NEMO	National Emergency Management Organization
NEPPoS	National Emergency Preparedness Plan for Oil Spills
NGO	Non-Governmental Organization
NMS	National Meteorological Service
NPAS	National Protected Areas System
OPIC	Overseas Petroleum Investment Corporation (Taiwan Based Company)
PACT	Protected Areas Conservation Trust (BELIZE)
PUC	Public Utilities Commission
REDD	Reducing Emissions from Deforestation and forest Degradation
RET	Renewable Energy Technologies
SIB	Statistical Institute of Belize formerly the Central Statistical Office (CSO)
SWMA	Solid Waste Management Authority
UN	United Nations
UNCCD	United Nations Convention to Combat Desertification
UNDAF	United Nations Development Assistance Framework
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
UNFPA	United Nations Population Fund
UNETT	United Nations Emergency Technical Teams
UNICEF	United Nations Children's Fund,
USAID	United States Agency for International Development

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## EXECUTIVE SUMMARY

The National Environmental Summary gives a synopsis of the environmental situation in Belize with the backdrop of economic and national development. The document provides a review of environmental issues, their trends and threats, and the impacts economic activities are having on the environment.

The report looks at the linkages that exist among Belize's natural resource base, its economy and poverty. It focuses on the major natural resources such as Belize's forest, coastal and marine resources and water resources, as areas affected by economic growth such as agriculture and tourism. Belize's vulnerability to climate change and its impact to the Belizean economy is also examined. This issue is of utmost importance in addressing Belize's disaster vulnerabilities that can severely impair the country's sustainable development.

Section two of the report looks at national responses that have been taken to counteract the threats and impacts to Belize's environment and natural resource base. Additionally, it briefly looks at the various Multilateral Environmental Agreements signed by Belize as a tool for economic development via grant funding to implement projects or programmes to ensure compliance.

The final section of the report highlights gaps and opportunities, which can aid the country's progress in areas where weaknesses have been identified. The National Environmental Summary is intended to be used as a source of information in the elaboration of the United Nations Development Assistance Programme for Belize.

## 1.0 GENERAL BACKGROUND

Located in Central America, Belize lies between 15° 52' and 18° 30' North Latitude and 87° 28' and 89° 13' West Longitude, and is bordered by Mexico in the north and west, Guatemala in the west and south, and the Caribbean Sea in the east. The only English speaking country in Central America, Belize has a land area of 22,963 km<sup>2</sup> (8,866 mi<sup>2</sup>), including approximately 1,000 small islands known as cayes. With a population of 312,698, it is the least populated country in Central America (Statistical Institute of Belize, 2011).

Despite its relatively small size, the country is home to the largest barrier reef in the Western Hemisphere, second in size only to the Great Barrier Reef of Australia. Belize's reef system forms part of the Mesoamerican Barrier Reef System and has seven of its sites designated as World Heritage Site status by UNESCO in recognition of the group's extremely rich biodiversity and consequent global importance. The country is also endowed with a rich and diverse flora and fauna, comprising of at least 1,014 native species of vertebrates and 3,750 species of plants. The flora and fauna form parts of various ecosystems which are characterized in 65 Terrestrial classes, 14 Marine classes, 7 Agriculture / silviculture / mariculture classes, 6 Mangrove classes, 3 Inland water classes, and 1 urban class (Forest Department, 2005).

As a measure to protect its biodiversity and ecosystems, the country has designated 94 protected areas covering 34.9 % of the country's total land area, while the marine protected areas represent 10.6% of the country's total territorial waters (Land Information Centre 2009).

### 1.0.1 Demographics

The 2010 Census revealed that Belize now has a population of 312,698 and an average population growth rate of 2.65%. Belize's rural population continues to be larger than the its urban population<sup>1</sup>. The urban population now stands at 138,796 (67,896 male and 70,900 female), while the rural population is 171,827 (88,261 male and 83,566 female). Belize like most developing nations has a population that is relatively young. Table 1.1 summarizes the population changes from 2000 to 2010.

**Table 1.1: Population Change -2000 to 2010**

	2010	% of Pop	2000	% of Pop	Absolute Change	Percent Change
Country	312,398	100	240,204	100	72,494	30
Belize	89,247	29	66,568	28	22,679	34
Cayo	72,899	23	52,290	22	20,699	39
Orange Walk	45,419	15	38,721	16	6,698	17
Corozal	40,354	13	32,666	14	7,694	24
Stann Creek	32,166	10	24,338	10	7,828	32
Toledo	30,538	10	23,249	10	7,289	31
Urban	138,796		112,663		26,633	24
Rural	171,827		125,663		46,163	37
AAGR 2000 to 2010	2.65%		AAGR 1991 to 2000	2.64%		

Source: 2010 Census –SIB.

The sixty-five years of age and older, the “retired group” has had an increase from 9,748 in 2000 to 13,194 in 2010, a 35% increase. The Average Age of the total population is 22 years. Invariable

<sup>1</sup> **Urban** and **Rural** areas are defined by parameters that vary slightly from country to country. In Belize, living within the parameters of the principal towns is defined as urban living. Any person not inhabiting an area classified as urban is counted in the rural population.

any increase in population and especially a young population, places a burden on a country by the changing needs of its people for infrastructure (e.g., schools, hospitals, housing, roads), resources (e.g., food, water, electricity), and jobs. An increase in the “retired group” also places a financial burden as more people are taken off the workforce with retirement benefits. Other important demographics statistics is included in Table 1.2.

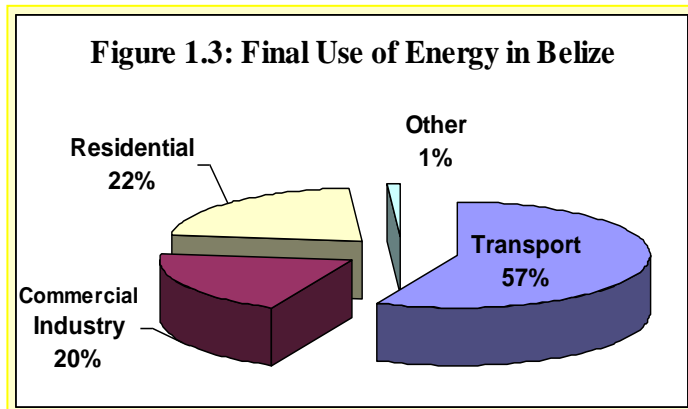
Table 1.2: Other Vital Statistics		
Average crude birth rate	27.33 per 1,000 (2009)	<b>30.46 per 1000 (2003)</b>
Average fertility rate	3.36 children per woman (2009)	<b>3.86 children per woman (2003)</b>
Life expectancy	68.2 years (2009)	
Average education	Primary Education (2000 Census)	
Literacy for population ages fifteen (15) and over who can read and write	76.9% (male: 76.7% female: 77.1%) (2000 Census)	
Labour force	130,717 persons (2010 Census)	
Unemployed (at the time they were interviewed)	<b>23.1% (30,180 persons)</b> <b>Unemployment rate for women was recorded twice that of men (16.7%) (2010 Census)</b>	<b>20.3% in 2000.</b>

## 1.0.2 The Energy Sector

The 2003 Belize diagnostic assessment of the energy sector indicated that main source of energy, was derived from imported fossil fuels, imported electricity, traditional biomass and renewable energy technologies (RET). From among these primary sources, the indigenous sources utilized for the production of electricity are hydro, biomass and bagasse, solar and wind. Belize has since then reduced its dependence on imported electricity.

Belize Electricity 2010 Annual Report reported that Belize obtained its electrical energy from hydro electric sources (52% from BECOL’s Mollejon, Chalillo and Vaca hydroelectric facilities and 3% from Hydro Maya, a total of 55%), imported electricity from Comisión Federal de Electricidad (CFE), 33%, Belcogen’s cogeneration facility, 10% and Belize Aquaculture Limited (BAL) Wartsila’s generators, 1%. BEL supplied 1% of its energy requirements from its diesel-fired generation facilities. BAL has since ceased operations.

According to the Public Service Commission (PUC) in 2009 the transport sector was the largest consumer of energy using 57% of the overall energy consumption. This was followed by both Residential and Commercial Industry sectors with 22% and 20% energy consumption respectively (see Figure 1.3).





Petroleum was discovered in commercial quantities in 2005 by Belize Natural Energy (BNE). BNE currently estimates it has 20 million barrels of recoverable oil reserves in its portfolio. BNE was extracting roughly 4,130 barrels of crude oil per day from its Spanish Lookout field in 2010; this has fallen to 3,500-4,000 barrels per day in 2011. A small amount of the petroleum crude being sold locally is used primarily as replacement of Bunker C Oil. No local refining of crude oil is presently taking place. Blue Sky, which commenced refining operations in 2007, abruptly ceased production after being acquired by BNE in early 2010. In addition, BNE began utilizing approximately 66 % of its production gases to produce three output streams: (i) a natural gas mixture of methane and ethane used to fuel its 1MW gas turbine, (ii) LPG (propane and butane) sold in the local market as cooking fuel (production 4,268,750 kg of LPG per year or 30 of LPG consumption, and (iii) heavier hydro-carbons which are re-injected back into the crude oil production train.

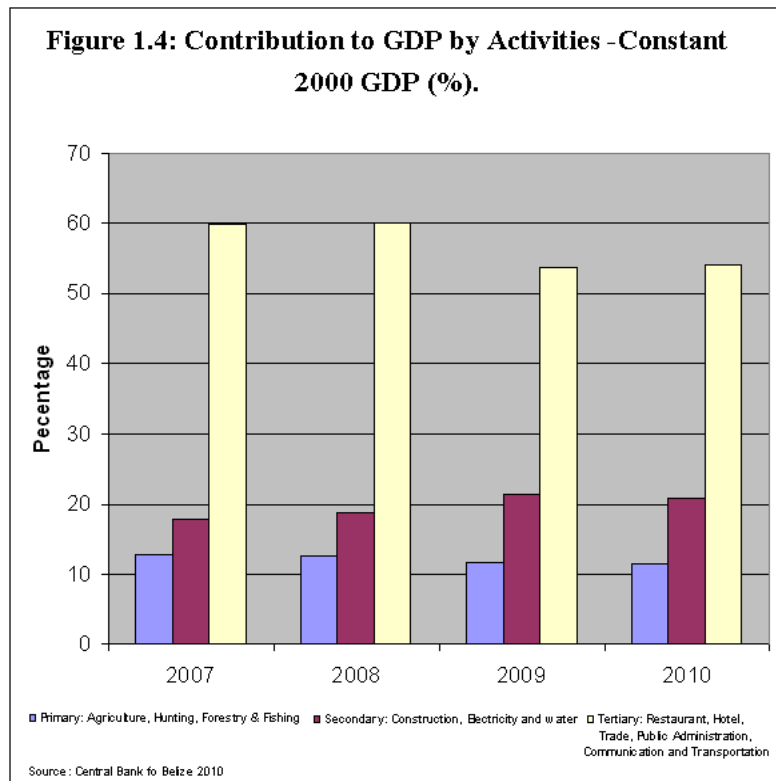
### 1.0.3 Economy

Belize has a small open economy with a GDP at current market prices of US\$1.4 billion in 2009. The open economy and its dependence on exports and tourism earnings were especially impacted during 2009 as the effects of the global recession and financial crisis impacted employment and growth levels. Its principal sectors are currently (i) agriculture, (ii) agro-processing and (iii) services, primarily tourism.

The primary sector consists of agriculture, forestry and logging, and fishing and mining, while the secondary consists of the manufacturing sector, electricity, water, and construction, and the service sector (tertiary) involves trade, restaurants, hotels, transportation, communication, finance, insurance, real estate, business services, public administration and other services.

Although all 3 sectors have grown proportionately with the national economy, the most important has been the service or tertiary sector. The increase of the service sector is attributed mainly to the healthy growth of the tourism industry,

which took off during the late 1980's and was still growing until the impact of the global recession took effect in 2008 and 2009. Tourism inflows brought US\$118.85 million as foreign exchange for Belize in 2008 and US\$111.5 million in 2009.

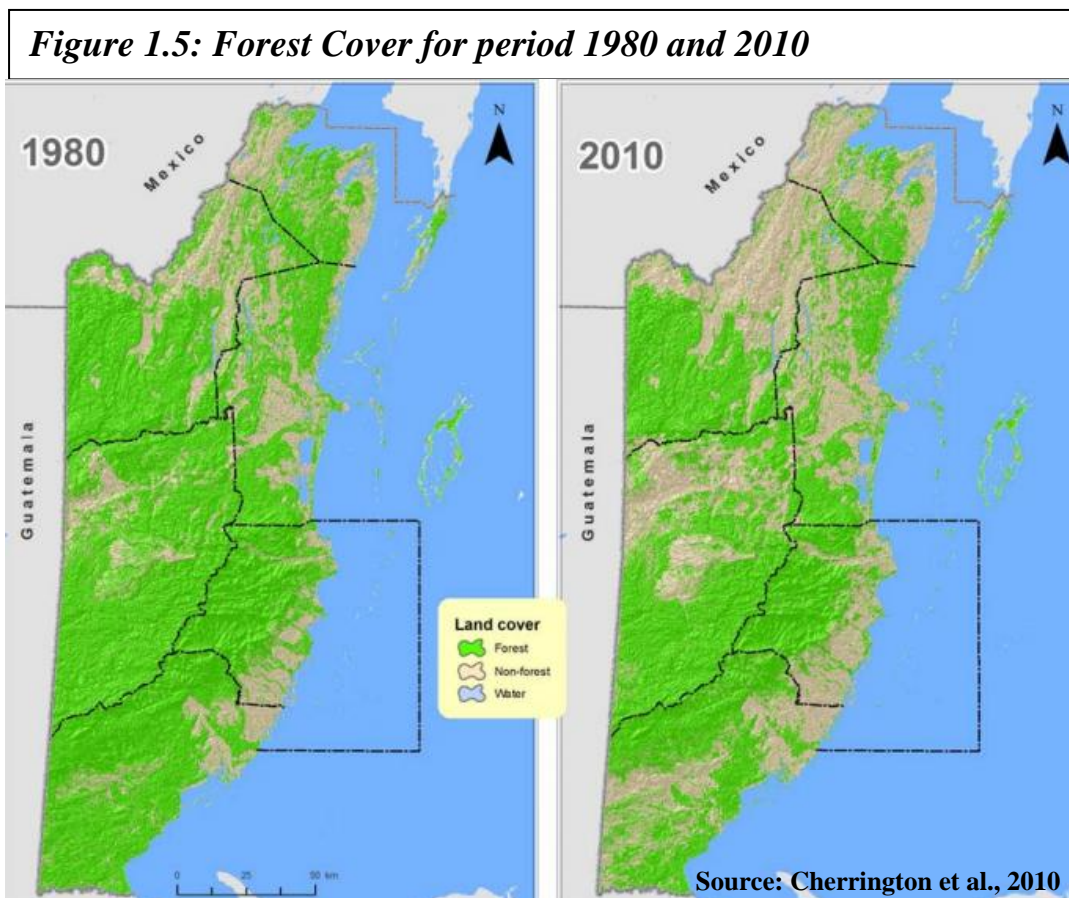


The sector contributions have moved from being primarily agricultural-based to one that is more service-oriented. In 2007, the service sector contributed 59.9% to GDP, while the primary sector contributed 12.8%. In 2010, the service sector remained the largest GDP contributor at 54.1%, however, the primary sector saw a further decline in its GDP contribution to 11.4%. The secondary sector saw an increase contribution from 17.7% in 2007 to 20.9% in 2010 (see Figure 1.4). Petroleum exports, which have provided a boost to the economy since 2006, increased sharply from US\$71.6 million in 2007 to US\$115.5 million in 2008 before declining to US\$60.32 million in 2009.

## 1.1 ENVIRONMENTAL ISSUES AND TRENDS

### 1.1.1 Forest Sector

Belize boasts the highest overall percentage of forest cover of any of the Central American countries (Vreugdenhil et al., 2002). Although, Belize has approximately 62.7% of the total land area under some form of forest cover, only about 14% of the forests (about 303,000 hectares) are available or appropriate for sustainable forest management for timber production.



These forests are located within Forest Reserves and other Protected Areas, public and private lands (Cherrington et al., 2010). Several of the legislations governing the management of Forest,

wildlife and protected areas are old and outdated and are not entirely responsive to present needs and trend.

The loss of 17.4% of forest area over a 30 years (1980-2010) span represents an annual rate of deforestation of 0.6%. In absolute numbers this translates to 725,173 acres of forest cover loss with an average forest loss per year of 24, 835 (Cherrington et al., 2010).

Presently one of the greatest threats and challenges to this sector is illegal logging, looting, hunting, and poaching from Guatemalan incursions into Belizean territory especially in the Chiquibul National Park and Bladen Nature Reserve. Additionally, private forested lands are being converted to agricultural lands and/or being used for urban expansions or simply over exploitation; the rates however have not been fully quantified. Notwithstanding these challenges, the forestry sector can still be considered as healthy due to 62.7% of forest cover.

### **1.1.2 Mangrove Cover**

In terms of Belize's mangrove cover - which assumes the form not only of mangrove 'forest' but also of scrubs and savannas, among others, was reported to be 3.4% of land cover (78,133 ha) of which 25.5% of this occurred in the offshore areas (Zisman, 1990). In 2006, Cherrington reported that 3.3% remained accounting for 67,194 ha. The areas offshore had the larger decrease in population (3.79%) while on the mainland the decrease in population was 1.07%. In total, there was an approximately 11,939 ha loss with almost equal amounts (50%) resulting from human activity and storm damage. Analyzing Landsat images from various sources in 2010, Cherrington et al., determined that 74,684 ha of mangroves were still intact, these were later validated by Cho-Ricketts and Cherrington in 2011. Thus the average annual loss of mangroves from 1980 – 2010 is estimated at 135 acres of mangrove per year lost due to human activity, much of which is associated with tourism developments occurring in coastal areas.

### **1.1.3 Coastal and Marine Resources**

A recent commissioned diagnostic study indicated that the coastal and marine ecosystems, [in particular the Belize Barrier Reef system], are very important to the Belize Economy (BTB 2010). The reef is functionally integrated into the social and macro-economic picture of the nation where it contributes significantly to employment, food security, GDP, foreign exchange earnings, and it's really the basis of the national fishing industry and in a large measure tourism, accounting for 22% of all tourist visitations.

"In 2007, the value of the reef and mangrove related fisheries, tourism and shoreline protection services, was estimated around USD 395 to USD 559 million. Also, in terms of national employment, it is estimated that the reef related tourism employs 20 percent of national workforce." (Wade 2012).

Species such as the spiny lobster, shrimp, and queen conch are in demand both on the local and foreign markets. The harvest of these delicacies species is the main targeted species for local fishermen and is the main source of income. These species, although sold locally, are primarily

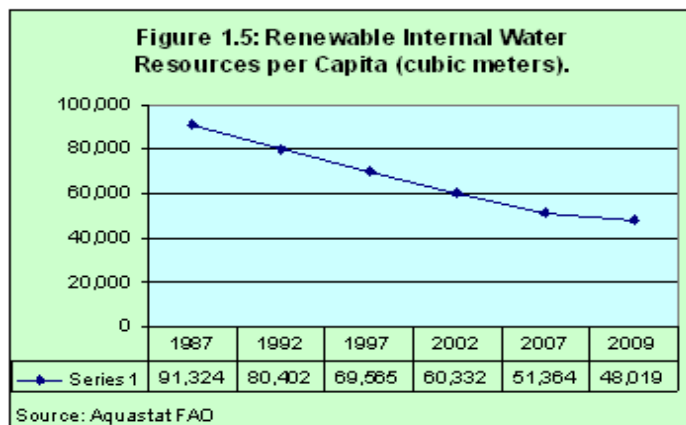
harvested for the export markets. Export statistics are indicating that the spiny lobster, shrimp, and queen conch are possibly being exploited beyond sustainable thresholds. However, there is a need to amend existing legislation to properly address the issues of dwindling stocks and smaller sizes.

Recently, oil exploration has raised various issues of concern about possible impacts to the marine environment, namely Belize’s most precious natural resource - the Belize Barrier Reef. Much concern has centred on the possible devastating impacts an oil spill could have on Belize’s very sensitive marine ecosystem whereby it could destroy the tourism and fishing industry and by extension the entire Belizean economy. The Belize Coalition to Save Our Natural Heritage, a recently formed group of organizations is advocating “a ban on all offshore oil drilling and a ban of all oil exploration and exploitation in protected areas”.

### 1.1.4 Water Resources

Due to its geographic location, low population, relatively high level of forest cover, and 18 different water catchment areas, Belize is said to have one of the highest volume of freshwater availability per capita in Latin America (National Meteorological Service, 2010). However the value for renewable internal freshwater resources per capita (cubic meters) in Belize stood at 48,019 as of 2009. Over the past 22 years this indicator reached a maximum value of 91,324 in 1987 and a minimum value of 48,019 in 2009, indicating a steady decline over the years (See Figure 1.5).

Presently however, increases in demand due to expansion in the agricultural, industrial and tourism sectors along with a growing population and accompanying water pollution and watershed destruction make it imperative that urgent attention be given to the proper management, use and understanding of the freshwater resources. The National Integrated Water Resource Management Policy, 2008, highlights that there



is a need to conduct a proper and comprehensive assessment of water resources and develop baseline of water quality for the various uses of water.

### 1.1.5 Land and Agriculture Resources

Over the last several decades agriculture had been the most dominant sector contributing to the economic development of Belize. An issue of major concern in the agriculture sector is that even though it is second largest industry with respect to foreign exchange earnings, this industry

continues to grow and diversify. This industry is perhaps the single most important industry in Belize related to the control and prevention of pollution. Next to the transport sector, the agriculture sector is the second largest importer and user of chemicals in Belize (pesticides and fertilizers) and its related production and processing activities are the largest generators of industrial effluent and solid waste.

In 2002-2007, the sugar industry alone produced 5,074,261 to 5,950,123 gallons of liquid waste per year. The increased levels in BOD and nutrients are the parameters of main concern. The banana industry draws approximately 460 million gallons of water from South Stann Creek, Swasey, Trio and Bladden rivers each year with this supply being augmented by well water. Most of it is used for irrigation and fruit processing. Other uses include aerial spraying, airplane cleaning, and mixing herbicide. Wash waters and irrigation run-off ends up contaminating the watershed in the two southernmost districts, Stann Creek and Toledo. The banana and citrus industries use the highest estimated amounts of fertilizer per acre. The use of pesticides is also relatively high in the banana industry which compounds the concerns with surface runoff and chemical pollution of adjacent water bodies.

**Table 4.4: Estimated Fertilizer Use Intensity<sup>1</sup>, pounds/acre**

Agricultural Sector	1999	2000	2001	2002	2003
Banana Industry	4,042	4,720	3,427	1,992	2,398
Citrus Industry	297	232	393	664	744
Rice, Corn, Beans, etc.	213	219	220	258	236
Sugar Industry	91	85	114	97	123
Others	192	332	372	300	467
Average	289	296	332	338	391

<sup>1</sup> Estimated Fertilizer Use Intensity was derived using fertilizer sales and area under main crops.  
Source: Land Information Center-MNRE 2006

An inference that can be made from import statistics and practices is that the agricultural sector is one the largest, if not the largest, non-point sources of water and soil pollution associated with “siltation from erosion and chemical run off from the use of fertilizers”.

There have been instances of unsustainable agricultural practices which have been primarily responsible for riparian and steep slope deforestation and degradation (BET 2010). Almost a third of the roughly 1 million acres of agricultural land in Belize occurs on land classified as marginal or unsuitable for agricultural activity. More than a third of all agricultural land in Belize is on acidic soils particularly sensitive to land degradation

A study on land degradation in Belize indicated that in 2004, approximately 405 square kilometers of Classes 4 and 5 lands were under cultivation<sup>2</sup>. The study also indicated that an area of over 1600 square kilometers which combined steep slopes with high rainfall was under cultivation. This represented approximately 38% of the land been used for agricultural purposes. The implication is that about 38% of the land under cultivation is prone to erosion. It is also important to note that 4% of all agricultural land is located in areas at *extreme* risk of erosion located primarily in central and southern Belize. There is therefore a great need for the practice

<sup>2</sup> The USDA’s Natural Resources Conservation Service in its National Soil Survey Handbook, classifies Class IV (4) soils as having very severe limitations that restrict the choice of plants or require very careful management, or both and Class V (5) soils as having little or no hazard of erosion but have other limitations, impractical to remove, that limit their use mainly to pasture, range, forestland, or wildlife food and cover (<http://soils.usda.gov/technical/handbook/contents/part622.html>).

of appropriate soil conservation practices on this area (Belize Manual of Soil Conservation and Slope Cultivation, 2009).

In addition, aquaculture, in particular shrimp farming, is a growing threat to coastal ecosystems. Nutrient pollution, physical alteration of habitat, such as the destruction of mangrove forests, and sedimentation are all impacts of aquaculture experienced in Belize's coastal areas.

### **1.1.6 Poverty and the Environment**

For most developing countries poverty is the greatest threat to their ability to maintain a healthy resource base and environment. This is noticeable in the west and southern parts of Belize, where there exist degradation of our natural resources and the environment closely linked with illegal hunting, illegal logging and deforestation. Invariably, the status and health of the natural resources is greatly affected by economic growth and high rates of poverty. Thus, with a poverty rate of 43% (2010 est.), a GINI coefficient of 0.42 in 2009 and a slow economic growth rate coupled with a population growth rate approaching 3.7% per annum, there is a serious need for action to be taken to ensure economic growth and the creation of employment opportunities. The unemployment rate stood at 13.1% in 2009, but most recently the Statistical Institute of Belize released its Main Results of the 2010 Population and Housing Census which indicated that the national unemployment rate of 23.1% compared to 20.3% in 2000" (SIB 2011).

In addition, the country faces increased threats of land degradation and environmental degradation primarily associated with the expansion of agriculture, housing, and tourism; the current economic situation poses even greater challenges in maintaining a healthy environmental and natural resource base.

### **1.1.7 Climate Change**

The *United Nations Framework Convention on Climate Change* (UNFCCC) has identified that Belize is one of those countries most vulnerable to the adverse impacts of climate change due to: (i) its long, low-lying coastline; (ii) its over 1,060 small islands; (iii) its second-longest barrier reef in the world and 17,276 km<sup>2</sup> of forest cover, each of which support fragile ecosystems; and (iv) the fact that it is very prone to natural disasters, especially hurricanes (GOB, 2002). Belize is ranked 8<sup>th</sup> from 167 countries for climate risk (World Bank). Its relatively small population is exposed to the impacts of major storm systems on an average of once every three years equating to over 50 strikes since formal record keeping began in 1871 (Belize CPR profile- UNDP, 2009).

Given that approximately one half of Belize's population are concentrated in coastal population centers, and that the country's economy is highly dependent on commodity exports and tourism, the nation's economic and social exposure becomes significantly increased when one considers the compounding effects of climate change. While tropical cyclones have historically inflicted the greatest damage, a major threat is recurrent flooding due to storm surge, heavy and /or persistent rainfall and the altering of natural drainage and sink systems. Recent hydrometrological events have resulted in significant losses to the country's productive sectors. The vulnerability of concentrated populations in exposed areas such as in Belize City (Belize

City is home to approximately one third of the country's population) is exacerbated by inadequacies in housing and support infrastructure, and environmental fragility, in part a result of its location, climate, and topography

The 2007 *Vulnerability Assessment of the Belize Coastal Zone* detailed a range of possible effects, based on the scenario developed by the National Meteorological Service (NMS). According to the study, the major impacts predicted on biophysical resources “will be from sea level rise, increased sea surface temperatures, changes in weather patterns and increased storm activity. Corals are the most susceptible to increased sea surface temperature and frequent storm events. Corals will be lost due to bleaching, disease and physical damage. Mangroves and sea grass beds will be most susceptible to changes in weather patterns and storm events that will result in physical damage and changes in biological processes such as reproduction. Mangroves are expected to retreat sequentially to maintain their position within the ecosystem. Coastal areas, beaches and cayes will be most susceptible to increasing sea levels and increase in storm events. These areas would suffer from inundation, erosion and storm surges. The socioeconomic impacts will be from loss of habitat and coastal areas which in turn will directly affect the tourism and fisheries industries (p.9).”

## **1.2 ENVIRONMENTAL DRIVERS AND PRESSURES OF CHANGE AND NATIONAL PRIORITIES**

The Government of Belize in consultation with its stakeholders have prioritized the following environmental issues and have included these in their national environmental strategies and plans primarily the National Environmental Action Plan and the Belize Medium Term Development Strategy 2010 – 2013:

- a. Need to ensure the sustainable management of environmental resources so that the needs of future generations are not compromised by the current levels of resource use, including the strengthening of standards, quality of management and enforcement.
- b. Need to address unsustainable practices such as milpa farming, cultivation of steep slopes, pesticide use and unsustainable extraction of timber and other plant species as a means of mitigating against deforestation and erosion.
- c. Need for review and strengthening of existing institutional management systems with emphasis placed on Belize's national chemical management framework and legislation to allow for greater coordination and collaboration among agencies and a need to ensure the enforcement of the occupation safety and health (OSH) Act.
- d. Need to increase capacity building and information sharing to promote sound management of natural resources, and the establishment of national policies with thematic foci that would assist in the negotiation of country and regional positions.

- e. Need to ensure that Belize’s planning process recognizes the economic value of the natural resources and environmental goods and services and provide for greater incentives for the adoption of “green” technologies.
- f. Need to guard against adverse effects of petroleum production in this still relatively new industry.
- g. Need to address Belize’s vulnerability to climate change in particular the impacts of tropical cyclones and sea level rise by focusing on the need for increased readiness and mitigation, and emphasis on an ex-ante, risk management approach to disasters rather than an ex-post, reactionary approach and Belize’s ability to adapt to climate change.
- h. Need to integrate environmental education within the school system to allow Belizeans to develop an appreciation for Belize’s Natural resources and its environment so that they could become involved in sustainable development practices.
- i. Need to invest in technology and irrigation and provide technical support to farmers while promoting the use of greener pesticides. Provide “Go Green” Incentives to businesses, schools and society e.g.: for recycling products.

The above priorities were supported by the following drivers:

- Lack of enforcement of environmental laws and regulations;
- Poor environmental governance structure;
- Inadequate coordinating mechanisms to ensure full participation of all stakeholders in the planning and implementation process;
- Limited capacity – financial, human and training
- Limited economic option and job opportunities
- Over exploitation of and degradation of resources in particular the fishing and marine resources, timber and other forest products;
- Policies are outdated, lacking or inadequate;
- Environmental management and natural resources planning remain sectoral although the results of this type of planning framework remains extremely limited;
- Lack of incentives for the adoption of “green” policies and practices;
- Lack of awareness and education;
- Lack of recognition of the significant economic value of the natural resources and environmental goods and services;
- Belize’s vulnerability to climate change and its adverse impacts.

## 2.0 NATIONAL POLICY RESPONSES

The drivers of economic growth and prosperity and the pressures they exert on the natural resources and the environmental integrity of a country are normally counteracted via national policies and institutional responses, which aim to strike a balance between both.



## 2.1 Sustainable Development, Poverty Reduction and Environment

The cycle of poverty, environmental degradation and vulnerabilities must be closely examined in the Belizean context. The 2009 CPA cited the frequent recurrences of natural disasters in northern Belize as being a key trigger to the dramatic increases in poor and indigent households as communities coping capacities are constantly eroded with insufficient recovery period between events. Reducing urban and rural poverty becomes a critical part of a viable strategy to effective disaster risk reduction. Integrating development, environmental policies, environmental health and education for effective DRR provides an opportunity for a joint response by UN and non UN partners.

Belize has been making progress toward integrating the MDGs into national development frameworks by creating MDG-based national, sectoral and local development strategies, and by using the MDGs to guide monitoring efforts. The MDGs are also being addressed through Belize's national efforts to reduce poverty and indigence included in its national development plans.

The *Belize Scorecard and Outlook Report 2010* reported that poverty and indigence have been increasing in Belize, “evidenced by the pursuit of an unrealistic and vulnerable debt-led, consumption-promoting and import-intensive growth strategy. This has also discouraged domestic savings and resulted in underinvestment in the core ingredient of development —the type of domestic capacity-building and ownership required to achieving the MDGS and thus improving the capacity of the national stakeholders to compete for entrepreneurial opportunity, income and consumption opportunities in an increasingly open global trade and financial system.”

A summary of the achievements and related challenges of the MDGs, contained in the Belize Scorecard and Outlook Report 2010, is provided in Annex 4. The scorecard indicates that Belize is on track and may exceed four (4) of the eight time- bound MDGs set for 2015. The MDGs in which Belize is presently performing well are all related to Health and Environment.

## 2.2 Forest and Land Sectors

Curbing the current deforestation rates (see Section One) can be addressed with proper monitoring and evaluations (Cherrington et al, 2010). The Forest Department has embarked on a process to revise the Forest Act and some of its subsidiary regulations including the Protection of Mangroves Regulation based on a participatory approach where all sectors of society (especially rural and indigenous communities) will be involved.

The new Forest legislation will take into account the importance of collaboration between the Forest Department and other governmental agencies, private sector agencies, NGOs, and communities adjacent to forest reserves. This effort is also intended to highlight the important linkage between the management of biodiversity and the management of forest resources.

Presently, management of Belize's Forest has focused only on major timber and non-timber forest products. To address this deficiency, national criteria and indicators for sustainable management of the forest resource (timber, flora, and fauna) are being developed.

The Ministry of Natural Resources and the Environment with assistance from the Global Environment Fund and the United Nations Development Fund launched two projects aimed at addressing policy gaps and outdated legislation.

1. The project entitled Mainstreaming and Capacity Building for Sustainable Land Management in Belize, now completed, aims to develop a comprehensive National Land Use Policy, a National Integrated Planning Framework for land resource development and a suitability mapping system for Belize. Both the Land use policy and the planning framework have been endorsed by Cabinet.
2. The project entitled Strengthening National Capacities for the Operationalization, Consolidation, and Sustainability of Belize's Protected Areas System aims to aid in the sustainable land use and to develop legal, financial, and institutional framework to ensure the sustainability of the existing protected areas.

## 2.3 Coastal and Marine Resources

The Fisheries Department is the primary national authority responsible for the monitoring and management of Belize's coastal and marine resources and is responsible for the administration of The Fisheries Act which focuses on ensuring the sustainable management of the fishing industry and allows for the establishment and management of marine and coastal protected areas. To ensure the conservation and sustainable exploitation of the spiny lobster, shrimp, and queen conch, the Fisheries Department apply restrictions as they relate to size, harvesting seasons, production quota. The Fisheries Department has also introduced recent legislation to improve and enhance the status of key species identified as being threatened. Regulations were enacted to totally protect herbivores such as the *Scaridae* and *Acanthuridae* families. These species were deemed as being extremely vulnerable to fishing and are very important to the general health of the barrier reef and species associated with it. The Fisheries Department is also working along with the World Conservation Society to revamp its empowering legislation. The proposed Aquatic Living Resources Bill will repeal the existing Fisheries Act and is aimed to improve the long term conservation, management and sustainable use of fisheries in Belize.

Belize is also participating in the Gulf of Honduras project. This project is a tri-partite project also involving Guatemala and Honduras and has as its focus the use of technologies to combat environmental degradation from maritime transport and improve navigational safety to avoid casualties in the area.

The Coastal Zone Management Authority and Institute (CZMAI) has been revitalized to complement these ongoing activities. Currently, the CZMAI is revising and advancing its coastal zone planning guidelines and has revitalized the Coastal Advisory Committee to ensure environmental sustainability in coastal areas. Moreover, the Department of the Environment is

also in the process in the development of legislation for the protection of the marine environment from marine pollution other forms of negative impacts from shipping and other activities conducted at sea. Government has also made slow but significant strides to quell concerns regarding offshore drilling, for instance Cabinet recently endorsed the establishment of an Environment Common Fund which will provide the Government access to funds in case of an event representing a significant threat to the Belize environment and related to the petroleum activities. Government also issued a release in February 2011 that it will not reissue at this time the 1.4 million acres of offshore oil exploration licence relinquished by OPIC in October 2010.

## 2.4 Water Resources

The Integrated Water Resource Management Policy has been accepted by Cabinet. In 2011 the Government enacted the National Integrated water Resources Act which will require much support in the implementation of its objectives. This law provides for the management, controlled allocation and the sustainable use and protection of the water resources of Belize. It also provides for the establishment of a National Integrated Water Resources Authority to coordinate and assist in regulating the water sector.

Support will be required in the strengthening of the institutions to more adequately address the objectives of the integrated water resources policy and legislation and to better manage this most important resource which in Belize is often taken for granted and is very much undervalued. It is expected that in 2012 the framework of the IWRM-UNDP EU project will be operationalized. During this process, assistance will be to achieve equitable allocation, develop capacities and implement integrated approaches to water resources management through adaptive water governance to reduce poverty and vulnerability, sustain and enhance livelihoods and protect environmental resources.

Under a FAO-TCP project and with additional funding from UNDP, a national irrigation policy has been drafted as well as a 5 year plan for the development of irrigation and drainage in Belize. This policy, however, awaits final drafting to incorporate stakeholders concerns.

## 2.5 Disaster Risk and Climate Change

Responding to Belize's climate vulnerabilities requires making simultaneous advances on adaptation, disaster risk reduction, environmental sustainability and poverty reduction. This requires an integrated approach which addresses the underlying causes of disaster risk, seeks to improve preparedness for future disasters, and ensures integration and alignment with national developmental programmes and MDGs goals with respect to the environment. Belize's disaster risk management framework is principally framed by the *Disaster Preparedness and Response Act of 2002*, which established the National Emergency Management Organization (NEMO). NEMO's formal mandate is to "coordinate the general policy of the government related to the mitigation of, preparedness for, response to and recovery from emergencies and disasters".

Both the IDB and the GFDRR analysis of risk management practice suggest that the policy framework is fragmented, and that public sector organization approach has been predominantly

focused on the emergency management cycle. An important step was the *2004 National Hazard Mitigation Policy*, an effort which sought to formulate an integrated approach to hazard risk management and sustainable development, with a national, sectoral and community dimension. This effort was undertaken by the Government of Belize, the Caribbean Disaster Emergency Response Agency (CDERA) and the Caribbean Development Bank (CDB) to seek to address hazard reduction issues within a broader national development framework. In 2007, Belize adopted a 10-year *National Hazard Mitigation Plan* to implement the policy, which sought to ensure a more integrated, coordinated and multi-sectoral approach to hazard mitigation. Several other key national policy documents explicitly promote the integration of DRM into the planning process. More explicit integration of the broader mandate of adaptive capacity to climate change is an ongoing challenge.

A 2009 UNDP Development Studies paper analyzed the costs of inaction on climate change for Belize, characterizing the vulnerability of three economic sectors in Belize to the effects of climate change: agriculture and fisheries, energy and tourism. In the area of three staple crops (rice, maize and beans) important to Belize's food security as well as for export income, the report concluded that reductions in yield for these crops alone would represent BZ\$13-18 million in lost revenue. While specific yield loss predictions for fisheries was complex, exports have ranged between BZ\$85 and \$100 million, indicating its importance to the Belize economy.

With respect to the energy sector, the losses to Belize just for the electricity sector were estimated at approximately BZ\$58 million by 2080. The economic impact of climate change for the tourism sector in Belize were estimated at BZ\$48.3 million, and includes the effects of reduced tourism demand, loss of facilities (from sea-level rise), loss of beaches (from coastal erosion), and loss of reef-based ecotourism.

A careful look should be given to the impact that climate changes are having in the health as there are indications that some vector-borne (chagas and dengue) and water/food borne diseases may increase. In reference to dengue for example, vulnerability assessment studies have shown that there would be increased in the range of the disease due to increase precipitation and temperature (Between 2009 and up to week 36 of 2011, there is an increased trend in dengue clinical cases.)

With regard to health, the Ministry of Health is implementing the Safe Hospital in disaster initiative that focuses on strengthening the resiliency of health facilities in times of disaster. Three regional hospitals and the National Referral Hospital have been assessed and recommendations are in process of implementation.

## 2.6 Multilateral Environmental Agreements

The environmental agenda is reinforced by the international commitments geared at tackling global issues which can be detrimental to the environment. Annex 2 lists the Multilateral Environmental Agreements that Belize has signed and the year they were ratified or acceded. The agenda is not only reinforced by Multilateral Environmental Agreements, the country plays

a critical role in the Central American Commission for development, the environmental arm of Central American Integration Commission.

Belize, as a signatory to various Multilateral Environmental Agreements (MEAs) including the Kyoto Protocol, is undertaking a number of actions to coordinate multi-sectoral environmental policies to achieve the three Rio conventions: Convention on Biological Diversity; Convention to Combat Desertification; and Framework Convention on Climate Change (see Annex 2). As a natural resource-based economy, there is pressing need for sustainability strategies to be coherently mainstreamed throughout development planning. This requires that an understanding of the complex interdependence between the potential effects of increasing levels of poverty on the environment be reflected in policymaking. A clear example is the correlation of the highest poverty levels in Belize with the lowest levels of biodiversity, indicating the need for improved management of the environment and natural resources for sustainable livelihoods and development (World Bank, 2011).

### **3.0 ONGOING ASSISTANCE PROGRAMMES**

The cost of maintaining programmes and policies which aim to have a healthy environment and reduce poverty is a costly venture, while the budget is adjusted annually to ensure that all agencies can operate and function, it is the assistance of funding agencies that aid the government to fully implement their programme of action and attain their objectives.

The United Nations has various key agencies active in Belize. These agencies include the United Nations Development Programme, United Nations Children's Fund (UNICEF), United Nations Population Fund (UNFPA), and Pan American Health Organization. Every four years the agencies along with Government and non-government organizations analyze the needs and priorities of the country, Common Country Assessment. Thereafter a United Nations Development Assistance Framework, a strategic framework to guide the funding agencies address the priorities and needs identified is developed.

The framework for the period 2007 – 2011 concentrated on three thematic areas, poverty elimination; reverse the spread of HIV and AIDS and improvement of sustainable development practices (UNDAF Belize 2007 – 2011, 2006). The major works which were accomplished in improving sustainable development practices were: Mainstreaming and capacity building for sustainable land management in Belize, Mainstreaming into developmental plans: Sound Management of Chemicals Priorities for key developmental sectors in Belize and associated SMC governance, Strengthening national capacities for the operationalization, consolidation and sustainability of Belize's Protected Areas System, Terminal Phase-out Management Plan Project, Strengthening Institutional Capacities for Coordinating Multi-Sectoral Environmental policies and Programmes, Integrating Protected Areas and Landscape Management in the Golden Stream Watershed.

Apart from the works done by the UN agencies, Belize also benefitted from other bi-lateral or regional projects and projects funded by other international donors such as USAID and the EU (see Annex 3). Through the Central American Integration Commission, Belize was able to harmonize its Environmental Impact Assessment Regulations with that of Central American countries. Whilst with the aid of the European Union and funds coming from the 10<sup>th</sup> European

Development Fund, assistance was received to address issues related to improving Belize's competitiveness in the Sugar and Banana industries. Similarly, major works have also been accomplished via the Global Environment Facility.

Belize is also benefitting from various regional projects which are financed by Global Environment Facility, the 4.99 million dollar project entitled Energy for Sustainable Development in the Caribbean project aims at Transferring and implementing energy efficiency policies in the Caribbean in an effort to reduce greenhouse gas emission 20 to 50%. The 6.1 million dollar regional Project for Implementing National Bio-safety Frameworks in the Caribbean Sub-region, aims to implement effective, operable, transparent and sustainable National Biosafety Frameworks (NBF) which cater for national and regional needs in accordance with Cartagena Convention.

## **4.0 GAPS AND OPPORTUNITIES**

Striking a balance between economic development and environmental sustainability, while decreasing the poverty levels, is a difficult task for any country whether it is developed or developing. Belize has over the years, taken the challenge and while it has overcome various obstacles, it certainly has areas, which need improvement, and gaps, which need to be filled. Some of these gaps and opportunities are discussed below.

### **4.1 Forest, Protected Areas and Sustainable Land Management**

While the Ministry of Natural Resources has made significant progress with the support received from GEF and other international donors in the development of contemporaneous sustainable land use, forest and protected areas policies aimed at addressing new and emerging issues in these areas, there will be the need for additional assistance in supporting these new policies in their legislative development and implementation phases.

There will be the need to strengthen institutional capacities within all sectors of the Belizean Community to better utilize Geographic Information Systems (GIS) technology, spatial planning and for improved information sharing as the Belizean society become more computer literate and as governments move towards greater transparency and accountability.

Since the introduction of the concept of Reducing Emissions from Deforestation and forest Degradation (REDD) at the Convention of the Parties for Climate Change in 2005, very little has been accomplished. With its high Forest Cover and increasing agricultural activities, Belize should develop policies as well as a framework for the elaboration and implementation of a REDD+ strategy in an effort to identify suitable lands for agriculture and those lands which would better serve for the REDD initiative.

In addition, measures need to be put in place to ensure that there is a clear mechanism to deal with carbon credits. These measures must ensure that government or the general public receive direct tangible benefits from the trade in these carbon credits and not solely benefiting a few large private land owners, company or a select few.

Whilst these mechanisms need to be implemented, Government should also prioritize the issue of securing its forests especially from illegal activities and incursions. Matters, such as illegal

logging and the harvesting or exploitation of key commercial species such as Rosewood (*Dalbergia stevensonii*) should also be addressed. The issue of Rosewood harvesting and exploitation is important, it is essential that Government sensitize residents in the affected communities about the benefits of sustainable harvesting. Local institutions capacities in environmental law enforcement, environmental education and monitoring will need to be strengthened.

## 4.2 Coastal and Marine Resources

The current works to modernize the Fisheries legislation and the revitalization of the CZMAI are a definitive step to improve the management of the resources in the coastal and marine resources. However, there are various needs which also require attention, like the introduction of invasive species in these already fragile ecosystems. Government needs to develop a mechanism to deal with these invasive species especially the lionfish, *Pterois antennata*, which continues to wreak havoc in the marine environment.

The coastal and marine environment play an important role for the tourism industry, thus great importance should be placed on the proper management of these resources. The impacts of Cruise Tourism and mass visitation on popular sites such as the Hol Chan Marine Reserve, Altun Ha, Xunantunich and other protected areas make it is imperative that government start to clearly elaborate controls by setting visitor limits and also ensure that adequate resources are allotted to ensure adequate management of these areas.

The recent concerns expressed on offshore petroleum exploration activities requires that urgent attention be given for a comprehensive review of existing policies and legislation to ensure that clear policies and regulations are in place to properly guide all activities related to petroleum exploration in particular those proposed for offshore areas and in protected area and the development of this new fledgling industry. Government should also invest in capacity building of personnel to ensure compliance and adherence to international environmental standards. The active engagement of regional experts, local institutions both governmental and non-governmental in formulating this policy will ensure that all stakeholders could have an opportunity to review and impact the policy.

Other issues of concern are those associated with the population growth of coastal communities which is also adding other stressors to the marine and coastal environments, resulting from the inadequate management of sewage waste and solid waste. Ensuring adequate access to proper sewage treatment systems and proper solid waste disposal by the residents of the coastal communities will positively impact both the lives of the residents and the environments they reside in.

## 4.3 Water Resources

Having one of the highest volumes of freshwater per capita in Latin America is of little use if there is not the adequate management for this valuable resource in place. The dire need for the Government to establish baseline data, identify and demarcate the aquifers, establish water use criteria and establish the framework to ensure the proper management and use of the fresh water

is imperative. The perforation, contamination of wells and the misuse of this valuable resource should be properly monitored to ensure that these are done in a safe manner so as to avoid contamination. Contamination of any fresh water source can have significant negative impacts on the progress of a country and affect the health and stability of a nation.

## **4.4 Sustainable Development/Climate Change and Disaster Risk Reduction**

One of the five normative programming principles of the UNDAF is sustainable development, defined by the Millennium Project as the task of meeting “current human needs without undermining the capacity of the environment to provide for those needs over the long term. Environmental sustainability has its own normative framework of the Multilateral Environmental Agreements (MEAs) in three broad clusters related to climate, biodiversity, and chemicals. Evidence suggests that stronger environmental management and policy will certainly contribute to the achievement of both the other MDGs and other national development goals.

Responding to Belize’s vulnerabilities to climate change will require making simultaneous advances on adaptation, disaster risk reduction, environmental sustainability and poverty reduction. This requires an integrated approach which addresses the underlying causes of disaster risk, seeks to improve preparedness for future disasters, and ensures integration and alignment with national developmental programmes and MDGs goals with respect to the environment.

As climate change becomes more widely accepted as one of the key issues influencing the development of countries such as Belize, the CCA should prioritize climate change and issues related to disaster risk vulnerabilities and the support needed to adapt to climate change related issues. Hence, the report also sought to highlight the existing associations between natural resource management and the impacts of climate change and its national vulnerabilities to Belize’s ability to develop in a sustainable manner.

Although Belize does have a Petroleum Act (1991) and Petroleum Regulations (1992) which vest ownership of petroleum resources in the Government of Belize but provide for payment of five percent of government royalties to compensate landowners. The Government has passed into law legislation for a Petroleum Fund but which fell short in stating whether this fund addresses future environmental impacts. Although there is, and has been since 1996, the National Emergency Preparedness Plan for Oil Spills (NEPPOS) that sets the mechanism for responding to oil spills both terrestrial and marine, concerns have been expressed about institutional weaknesses to monitor the industry properly. However, the Department of the Environment, (DOE) whom has developed human capacity and purchased some equipment to address implementation of this plan can only address Tier 1 level spills only; with trained human capacity in various government agencies and private sector, and equipment available at key entities in government and private companies. However, for Tier 2 and 3 level spills, the government has been building partnerships with key companies abroad in order for them to respond on our behalf on any Tier 3 oil spill. Simultaneously, certain private companies handling petroleum products already have such partnerships with entities such as Clean Caribbean of the Americas for such quick response to Tier 3 oil spills.



The NEPPoS was updated/actualized in 2005 with assistance from the Caribbean Disaster Emergency Response Agency (CDERA). This exercise updated the details/contacts from key agencies and personnel involved in the delivery of oil spill response. The DOE has developed a strategy for the eventual and effective financial sustainability of the NEPPoS. Based on all of the above, it is clear that there is now a tremendous opportunity in Belize for the Government and the private sector to work together on strengthening the legislation as it relates to the oil industry, taking particular care to effectively address environmental impacts. Several areas that need to be addressed include a policy with respect to exploration and exploitation in Protected Areas. Ultimately, the mechanisms that the Government and people of Belize has put in place to deal with the oil industry in a socially and environmentally responsible manner, are what will place Belize on the map for either: being a world leader in the responsible development of oil industry or simply a follower in the footsteps of other nations in which people and the environment do not truly benefit from the industry (GEO 2010)

Development planners need to explore the potential range of risks and costs of climate change for human beings, including water stress, loss of important ecosystems, changes in agricultural productivity, malnutrition and infectious diseases, and increased morbidity and mortality from heat stress, flooding, and drought. A 2011 FAO study on climate change, water and food security analyzed how the anticipated impacts of climate change can place particular stress on food production systems, under increasing pressure to satisfy the food needs of a rapidly growing and progressively wealthier world. With an increase in the intensive use of land and water resources, and the impact on natural eco-systems it becomes clear that these pressures will progressively undermines the ecosystems supporting the food-producing systems thereby undermining Belize's food security goals.

## **4.5 Capacity Development and Research Needs**

Scientific data is essential for the decision making process, the lack of key data indicators can have negative effects on the environment and the people. Making decisions on assumptions or on limited data can negatively impact the health, well-being and the quality of life of a country and can also prove detrimental to the environment. There is the need to strengthen national capacities to adequately monitor and collect data on the indicators use to measure sustainable development goals, which are also essential in being able to qualitatively measure the impacts of development policies on the environment whether positive or negative as means to streamline policies that are being implemented.

Thus, it is important that Government develop programmes which are geared at obtaining data on the quality of air, water and soil. Of utmost importance is the need to have data on key indicator species in the environment, like canaries in coal mines, these species can aid determining the quality of an ecosystem or a natural resource before it is too late. There is also the need to establish a programme to monitor air quality. This is essential as the air quality in a few communities near industrial areas and other areas can be having negative impacts on the health and quality of life of these residents.

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## ANNEXES

**Annex 1**  
**List of Stakeholders**

Stakeholder				
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Mr. Martin Alegria Chief Environmental Officer Department of Environment Market Square Belmopan City	501-802-2542	501-822-2862	envirodept@btl.net	<a href="http://www.doe.gov.bz">http://www.doe.gov.bz</a>
Mr. Edgar Ek Deputy Chief Environmental Officer ILAC Focal Point				
Mr. Aldo Cansino Environmental Officer				
Mr. Wilber Sabido Chief Forest Officer Forest Department Forest Drive Belmopan City	501-802-1542 /2079	501-822-1523	fdsecretary@mnrei.gov.bz	<a href="http://www.forestdepartment.gov.bz">http://www.forestdepartment.gov.bz</a>
Mr. Marcelo Windsor Deputy Forest Officer				
Mr. Andre Cho Geology and Petroleum Director Geology and Petroleum Dept. 34-36 Unity Boulevard Belmopan, Belize	501-822-2178 / 2651	501-822-3538	geology@mnrei.gov.bz	
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## Annex 2

### Participation in Multilateral Environmental Agreements

<b>Annex 2: Participation in Multilateral Environmental Agreements</b>		
<b>Multilateral Environment Agreements</b>	<b>Commonly referred as</b>	<b>Year Ratified or Acceded</b>
<b>United Nations Convention on Biological Diversity</b>	CBD	1993
<b>Convention on International Trade in Endangered Species of Wild Fauna and Flora</b>	CITES	1973
<b>Convention on the Transboundary Movements of Hazardous Wastes and their</b>	Basel	1997
<b>Convention for the Protection of the Ozone Layer, and Protocol on Substances that Deplete the Ozone Layer</b>	Ozone	1997
<b>United Nations Framework Convention on Climate Change</b>	UNFCCC	1994
<b>United Nations Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa</b>	CCD	1998
<b>Convention on Wetlands of International Importance especially as Waterfowl Habitat</b>	Ramsar	1998
<b>International Convention for the Regulation of Whaling (As Amended)</b>		June 2003
<b>International Convention on Civil Liability for Oil pollution Damage (as amended)</b>		
<b>Convention on the Prevention of Marine Pollution from</b>	MARPOL	
<b>Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region</b>	Cartagena	1983
<b>Protocol Concerning cooperation in Combating Oil Spills in the Wider Caribbean</b>		1999
<b>Rotterdam Convention on the prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade</b>	Rotterdam	2005
<b>Stockholm Convention on Persistent Organic Pollutants</b>	Stockholm	2004

## Annex 3 a & b

### Annex 3a: Analysis of environmental financial assistance by organization for the last 6 years (2006 – 2011)

International Project/ Implementing agency/ or bilateral donor	Total No of Projects in the country	Environment related projects, % of total	Total funds	% of total funds allocated to environment related projects
UNDP <sup>1</sup>	49	18%	7.2M	32%
GEF	9			
IADB <sup>2</sup>	38	32%	105.4M	42%
European Union <sup>3</sup>	4	25%	113.5M	15%

<sup>1</sup> UNDP Belize

<sup>2</sup> IADB – <http://iadb.org/en/countries/belize>

<sup>3</sup> EU - [http://eeas.europa.eu/delegations/jamaica/eu\\_belize/developement\\_cooperation/projects](http://eeas.europa.eu/delegations/jamaica/eu_belize/developement_cooperation/projects)

### Annex 3b: List of International Project implemented 2005 – 2009 and Planned for 2010-2015

International (Name)	Project	Implementing Agency	Total Funds (USD)	Time Line	Note
<b>Projects Implemented 2005 – 2009</b>					
Multilateral Fund (MLF), Montreal Protocol	Implementation of the Refrigerant Management Plan-Refrigeration Servicing Sector Preparation Assistance	UNEP, UNDP	244,000	2005 - 2008	Technical Assistance to the Refrigeration Servicing Sector, in order to provide incentives for the use of good servicing, maintenance and containment practices in the refrigeration sector. Completed
Global Environmental Facility (GEF)	Integrating Protected Areas and Landscape Management in the Golden Stream Watershed	UNDP	1,000,000	2006 - 2010	To develop a model that will be able to interconnect ecologically dependent corridors.
Other Various Co-Financing			2,100,000		Completed
European Union	Belize Country Adaptation Strategy for the Sugar Industry 2006-2013 - Accompanying measures for Sugar	GOB	16,600,000	2006 - 2013	Improve communication and transportation efficiency and support an enabling environment for diversification
IADB	Emergency Assistance due to Hurricane Dean	GOB	100,000	2007-2009	Environment and Natural Disasters: Assistance to provide the necessary emergency and humanitarian aid to victims of the disaster such as food supplies, potable water, medicines, roofing and other materials for immediate shelter needs.
IADB	Studies for the Preparation of the Sustainable Tourism Program	GOB	36,7260	2007-2010	The operation consists in the studies for the preparation of the Belize Sustainable Tourism Program (BL-L1003) which will finance public sector investments such as improvements in access, basic services (water sanitation, solid waste management), small-scale improvements to natural and heritage sites, that help consolidate circuits and other infrastructure aimed at promoting private sector investments in tourism.

IADB	Emergency Assistance due to Tropical Depression 16	GOB	200,000	2008-2009	Environment and Natural Disasters: On the 28th of October, 2008, the Government of Belize formally requested the Bank's emergency assistance for humanitarian relief to mitigate the impact to the floods on the population in the affected areas.
UNEP UNDP	Mainstreaming into Development Plans: Sound Management of Chemical Priorities for Key Development Sectors in Belize and Associated SMC Governance	UNDP	231,481	2008-2010	Assist in the strengthening of chemicals management in a holistic manner from importation to disposal
(MLF, Montreal Protocol	Terminal Phase-out Management Plan (TPMP)	UNEP, UNDP	295,000	2008 - 2011	To develop and implement a framework of policies and programmes that will allow compliance with the Montreal Protocol. Completed
GEF UNDP BEL PACT	Mainstreaming and Capacity Building for Sustainable Land Management in Belize	UNDP	1,200,000 (GEF 500,000)	2008-2011	To strengthen coordination between the various natural resource management ministries, agencies, and stakeholders. To demonstrate and document best practices for reduction of land degradation and the rehabilitation of degraded lands. And to promote development of policies within the Government's SLM framework, based on the demonstrated best practices.
GEF (GOB)	Strengthening Institutional Capacities for Coordinating Multi-Sectoral Environmental Policies and Programmes	UNDP	497,500 (624,900)	2008-2011	To coordinate Belize's natural resource and environmental policies leading to synergies for the national implementation of the various multi-lateral environmental conventions
IADB	Sustainable Tourism Program	GOB	13,322,000	2008-2012	(ECO Tourism) The project consists of the following two components: (a) investments in overnight tourism destinations which will finance studies, final designs and investments in civil works and equipment aimed at improving the quality of the tourism natural and cultural products at consolidated destinations in line with Destinal Management Plans developed during Program preparation; (b) Institutional strengthening and capacity building for policy, destination planning and management. (Loan)

IADB	Solid Waste Management Project	GOB	11,150,00	2008- 2013	The Program will finance investments to improve solid waste disposal in the aforementioned cities and localities, and services to strengthen SWMA as the entity responsible of improving solid waste management across the country. (Loan)
IADB	Emergency Road Rehabilitation Program Flooding Tropical Depression	GOB	5,000,000	2009-2010	Environment and Natural Disasters: To provide resources to finance road rehabilitation works, cleaning tasks, purchase of goods and services, environmental interventions, institutional support related to the implementation of the emergency works and a macro socioeconomic assessment of the event. (Loan)
IADB	Support for the Preparation of an Integrated Disaster Risk Management	GOB	500,000	2009 -	Provide support activities in institutional strengthening and capacity enhancement , toward the design and implementation of an integrated disaster risk management plan.
BCPR-UNDP	Strengthening of Disaster Preparedness and Emergency Response Capacity in Belize	UNDP and United Nations Emergency Technical Teams (UNETT)	982,475	2009-2012	To strengthen the country's framework for disaster co-ordination as well as the strengthening of national capacities allowing for effective disaster preparedness, risk reduction and emergency response.
<b>Projects Planned for 2010-2015</b>					
PACT	Towards the Sustainability of Marine Reserves Network (MRN) in Belize	GOB	206,905	2010-2011	
IADB	Detailed Design of Wastewater Collection and Treatment System in Placencia	GOB	500,000	2010	This project to design a wastewater collection, treatment and disposal systems for the Placencia Peninsula.
IADB GEF	Integrated Water and Sanitation Programme for the Placencia Peninsula	GOB	10,000,000 (GEF 5,000,000)	2010	The construction of a wastewater treatment facility and associated networks. In addition, will address the issues pertaining to reforms in the institutional and regulatory arrangements required for the management of the wastewater sector. (Loan)
MLF, Montreal Protocol UNEP UNDP Switzerland	Hydrochlorofluorocarbons (HCFCs) Phase Out Management Plan		425,000	2010 - 2016	The HPMP is designed to enable the country face the global problem of phasing - out HCFCs, thus protecting the ozone layer, at the same time mitigate climate change and safeguard the environment.

GEF & Various Co-Financing (PACT, Oak Foundation, APAMO, UNDP and FD)	Strengthening National Capacities for the Operationalization, Consolidation, and Sustainability of Belize's Protected Areas System	UNDP	1,947,741 (GEF 1m) (UNDP 1/2m)	2010-2013	To aid in the sustainable land use and to develop legal, financial, and institutional framework to ensure the sustainability of the existing protected areas.
European Union	Belize Development Rural Development Programme II	Ministry of Economic Development	12,800,000	2010 - 2014	Support economic growth in rural areas by creating infrastructure and programmes to uplift vulnerable communities
IADB	Support to sustainable urban infrastructure systems in Belize City	GOB	450,000	2011-2012	Provide inputs that are required for the execution of the project ¿Flood Mitigation Infrastructure Project for Belize City¿ (BL-L1013), and complementary studies that will further support the development of sustainable infrastructure systems.
IADB	Flood Mitigation Infrastructure Program for Belize City	GOB	10,000,000	2011	Rehabilitation and maintenance works (cleaning, disposal of waste material, lining, etc.), of the existing concrete-lined and earthen canals, and secondary drains (feeder drains), the construction of missing canal links, and the acquisition of land required to establish the right of way for their construction and maintenance, street improvements, institutional development and strengthening ¿ Maintenance Management System (MMS), institutional strengthening, and other studies.
GEF	Management and Protection of Key Biodiversity Areas	IBRD -World Bank	6,205,600	2011 - 2016	To strengthen natural resource management and biodiversity conservation through the mitigation of threats to Key Biodiversity Areas (KBAs) in Belize.
EU (Global Climate Change Alliance)	Enhancing Belize resilience to adopt to the effect of climate change	UNDP	3,625,000	2012-2015	Enhancing Belize resilience to adopt to the effect of climate change
GEF Other	Capacity Building for the Strategic Planning and Management of Natural Resources in Belize	UNDP	1,300,000 (GEF 760,000)	2012-2015	
GEF	Belize Chemicals and Waste Management Project	UNDP-UNEP	1, 800,000	2012-2015	Follow up project to continue to assist in the strengthening of chemicals management in a holistic manner from importation to disposal



GEF	Enabling Activities for the Preparation of an update of Biodiversity Action Plan	UNDP	220,000	2012-2015	
GEF	Enabling Activities for the Preparation of Belize's Third National Communication to the UNFCCC	UNDP	500,000	2012-2015	Preparation of Belize's Third National Communication to the UNFCCC
GEF	Enabling Activities for the Preparation of an update of UNCCD National Action Plan	UNDP	150,000	2012-2015	Update of UNCCD National Action Plan
GEF UNF UNDP	GEF-Small Grants Program and COMPACT	UNDP COMPACT	300,000	2012-2015	GEF Small Grants: Community-based initiatives project to geared towards biodiversity conservation, climate change mitigation, protection of international waters, prevention of land degradation (primarily desertification and deforestation), and elimination of persistent organic pollutants. COMPACT: Community-based initiatives project to significantly increase the effectiveness of biodiversity conservation in the co-management of globally significant protected areas by working to improve the livelihoods of local populations. Yearly budget to sponsor several small to medium sized. Monies already budgeted for 2015.

<sup>1</sup> UNDP Belize

<sup>2</sup> [www.iadb.org/en/countries/belize/belize-and-the-idb,1082.html](http://www.iadb.org/en/countries/belize/belize-and-the-idb,1082.html)

<sup>3</sup> EU - [http://eeas.europa.eu/delegations/jamaica/eu\\_belize/development\\_cooperation/projects](http://eeas.europa.eu/delegations/jamaica/eu_belize/development_cooperation/projects)



## Annex 4

### Summary Scorecard-Belize Achievement and Challenges at a Glance

Goals	Targets	Indicators	Baseline	2009		Target 2015	Progress to 2015	
				Target	Achievement			
1. Eradicate extreme poverty/ hunger	Halve, between 1990 and 2015, the proportion of people living below the Belize indigence line.	• Population below Poverty Line (%)	33.5 (2002)	30.5	41.3 (2009)	16.8	Not on track; significant challenges to achieve this goal	
		• Poverty Gap Ratio (%)	10.9 (2002)	10.1	10.8 (2009)	5.5	Not on track; no significant change	
	Halve proportion population suffers hunger	• Proportion of population less than minimum dietary consumption (extreme poverty) (%)	10.8 (2002)	10.1	15.8 (2009)	6.7	Not on track	
2. Achieve universal primary education	Ensure complete Primary School.	• Net enrolment rate in Primary Education (%)	90.3 (1992)	92	83.7 (2008/09)	100	Not on track	
		• Proportion of pupils entering Grade 1 GI, reaching 8 (%)	87.2 (2000)	93.6	91.9 (2009)	100	Not on track	
		• Literacy rate of 15-24 year-olds (%)	70.3 (1992)	90.6	94.7 (2006)	100	Well on track; surpassed target for 2009	
3. Promote gender equality and women employment	Eliminate Gender Disparity.	• Ratio of girls-boys in Primary Education	0.939 (1995)	0.96.6	1.01 (2009)	100	On track; new challenges to ensure parity for boys	
		• Ratio of girls-boys in Secondary Education	1.105 (1995)	107.1	1.13 (2009)	100	Not on track; significant challenges emerging for boys	
		• Ratio of girls-boys in Tertiary Education.	1.49 (2002)	148.8	1.73 (2009)	100	Far off track; major problems for males	
		• Share of Women in wage employment in non-agricultural sector (%)	38.7 (1995)	—	41.7 (2007)	50	Not on track	
		• Proportion seats held by women Nat'l Parliament (%)	3.45 (1993)	—	0% (2009)	—	Not on track	
4. Reduce child mortality	Reduce by 2/3 <5 yr. mortality rate	• Under 5 mortality rate (per 1,000 live births)	23.7 (1990)	8	22.5 (2009)	8	Slow progress	
		• Infant mortality rate (per 1,000 live births)	17.6 (1990)	17.9	17.9(2009)	5.9	Not on track	
		• Children immunized against measles (%)	69 (1992)	96.6	96.6 (2009)	100	On track	
5. Improve maternal health	Reduce maternal mortality	• Maternal mortality rate (per 100,000 live births)	41.7 (1990)	—	53.9 (2009)	10.4	Not on track (Qualitative progress)	
		• Skilled birth attendance rate (%)	79 (1995)	97.5	95 (2008)	100	On track	
6. Combat HIV/AIDS, malaria and other	Have halted by 2015 and begun to reverse the spread of HIV/AIDS	• HIV prevalence population 15-24 (%)	None	—	0.77% (2009)	None	No trend data available	
		By 2015, halt tuberculosis and Malaria	• Incidence of malaria (cases per 1,000 population)	49.3 (1994)	—	1.7 (2008)	—	On track (dramatic reduction)
			• Incidence of tuberculosis (cases per 100,000)	49 (1990)	—	24.7 (2009)	—	On track
7. Ensure environmental sustainability	Integrate the principles of sustainability	• Proportion of land area covered by forest	NA	NA	58% (2009)	—	Not on track; significant policy adjustment needed.	
		• Consumption of ozone depleting CFCs	NA	NA	0.780 tons (2009)	—	On track –ceiling awarded Belize surpassed	
	Halve population without access to water	• Population with access to water source	43.8 (1995)	80.8	76.4 (2006)	100	On Track	
		• Social Investment Fund Data - Urban	43.6 (1995)	—	99.5 (2008)	—	On Track	
		• Social Investment Fund Data - Rural	51(1990)	—	90 (2008)	—	On Track, with continuous improvement	
	By 2020, to have achieved livelihood improvement. Owners of their own dwelling	• Population with proper sanitation facilities	41 (1995)	94.6	64.4(2007)	100	Slow progress	
		• Proportion of people with access to secure tenure	—	94.1	95.2	97.3	100	—
• Population with WVC linked to sewage/septic tank		—	—	—	—	—	—	
8. Develop a global partnership	Deal with debt problem in sustainable manner	• Debt service as % of exports	13.1	11	9.5	8.5	Slow progress	
		Implement strategies for productive youth work	• Unemployment of young people 15-24 years old	21.8	18	15	12	Slow progress
	In cooperation w/private sector new techs	• Teledensity (fixed and mobile lines): Mobile	6.7% (2000)	NA	53.2% (2008)	NA	—	
	• Internet connections, dial-up and broadband	6% (2000)	NA	11% (2008)	NA	—		

B

Source: Belize Scorecard and Outlook Report 2010-UNDP 2010