BELIZE:

Green
Clean
Resilient
And Strong

2014-2024 National Environmental Policy and Strategy

Vision

To be leaders in environmental stewardship for sustainable development both nationally and regionally

Mission

To ensure that Belize's development is sound through effective environmental management for present and future generations

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ABBREVIATIONS

BBRWHS	Belize Barrier Reef World Heritage Site
BNE	Belize Natural Energy
BOD	Biochemical Oxygen Demand
BSI	Belize Sugar Industries
BSO	Belize Scorecard and Outlook Report
CBD	Convention on Biodiversity
CBI	Confidential Business Information
CCA	Climate Change Adaptation
CDERA	Caribbean Disaster Emergency Response Agency
CEPREDENAC	Coordination Centre for the Prevention of Natural Disasters in Central America
CITES	Convention on the International Trade in Endangered Species of Wild Flora and Fauna
CLC	International Convention on Civil Liability for Oil Pollution Damage and Fund Convention
CO_2	Carbon Dioxide
CZMAI	Coastal Zone Management Authority and Institute
DOE	Department of the Environment
DRR	Disaster Risk Reduction
EPA	Environmental Protection Act
GDP	Gross Domestic Product
GEF	Global Environment Facility
GGG	Green Growth Generator
GIS	Geographic Information System
GMO	Genetically Modified Organism
GOB	Government of Belize
HFA	Hyogo Framework for Action 2005-2015
IGO	Inter-Governmental Organization
IPCC	Intergovernmental Panel on Climate Change ()
ISO	International Organization for Standardization
IWRW	Integrated Water Resource Management
LPG	Liquid Petroleum Gas
MARPOL	International Convention for the Prevention of Pollution From Ships
MDG	Millennium Development Goal
MEA	Multilateral Environmental Agreement
MFFSD	Ministry of Forestry, Fisheries, and Sustainable Development
MIS	Management Information System
MND	Ministry of National Development
NEAP	National Environmental Action Plan
NEMO	National Emergency Management Organization
NGO	Non-Governmental Organizations
NIWRA	National Integrated Water Resources Act
NPAPSP	National Protected Areas Policy and Systems Plan
NPAS	National Protected System
ODA	Official Development Assistance

ODS	Ozone Depleting Substances
OPRC	International Convention on Oil Pollution Preparedness, Response and Cooperation
PFA	Priorities for Action
Ramsar	Convention on Wetlands of International Importance Especially as Waterfowl Habitat
SAICM	Strategic Approach to International Chemicals Management
SD	Sustainable Development
SIB	Statistical Institute of Belize
SMC	Sound Management of Chemicals
UNCED	United Nations Conference on Environment and Development
USAID	United States Agency for International Development

CHAPTER I: GENERAL BACKGROUND

1.1 Introduction

Belize, the only English speaking country in Central America, lies between 15° 52' and 18° 30' North Latitude and 87° 28' and 89° 13' West Longitude. It is bordered by Mexico in the north and west, Guatemala in the west and south, and the Caribbean Sea in the east. Belize has a land area of 22,963 km^2 (8,866 mi^2), including approximately 1,000 small islands known as cayes.

Belize boasts both terrestrial as well as marine natural landscapes rich in biodiversity, making it one of the premiere nature-based destinations in the Caribbean and Central America. Because of the heavy reliance of Belize's economy on its natural resources, great emphasis is placed on maintaining the health of Belize's terrestrial and marine biodiversity. The country is home to the largest continuous barrier reef in the Western Hemisphere, second in size only to the Great Barrier Reef of Australia.

The 2012 Environmental Statistics for Belize indicates that as of 2011 there were 111 legally established Protected Areas covering 35.1 % of the country's total land area and 10.7% of its total territorial waters. Included in the marine protected areas is the Belize Barrier Reef World Heritage Site (BBRWHS).

Belize has made great efforts in the sustainable management of its natural resources base and the protection of its environment. As such, it continues to enjoy a relatively healthy environment with many areas still considered pristine. Much of the support the country receives to prepare and implement its national environmental programmes and activities is linked with the opportunities provided by the Global Environment Facility (GEF) and other facilities aimed at assisting developing countries to strengthen their capacities to meet their international obligations. Belize is a party to various Multilateral Environmental Agreements (MEAs). The literature reviewed indicates that Belize has signed on to approximately thirty (30) international

conventions, treaties and agreements that deal in some way or another with the protection of the Environment.

However, despite the accomplishments made, Belize continues to face great challenges in meeting the needs of a growing population, particularly the needs of those families trapped in the vicious cycle of poverty. In Belize the poverty rate rose from 33.5 percent in 2002 to 41.3 per cent in 2009 (BSO 2010: MDGs). The explanation for this lies partly in the fact that income inequality worsened, which undermines the usual correlation between growth rates and poverty reduction. This situation is exacerbated by the Government of Belize's (GOB's) high fiscal deficits burdened with debt payments. These all have implications for resource management, sustainable development and environmental protection. This is evidenced by the increase impacts of flooding primarily on the indigent poor and increased deforestation, the pollution of waterways and seas, the indiscriminate use of resources leading to a reduction in marine and terrestrial resources, all having implications to improving and sustaining a qualitative lifestyle.

The country has adopted a sustainable development approach to growing its economy, in recognition that the primary drivers of its economy: Tourism, Agriculture and Fisheries, are intimately linked to the health of the natural resources base and the environment. It is against this backdrop that a brief synopsis is provided of the assessment of priority environmental issues facing Belize and some of the main policy responses.

1.2. Objectives of the National Environmental Policy and Strategy

In 2012, the Department of Environment moved from the Ministry of Natural Resources and Environment to the newly formed Ministry of Forestry, Fisheries, and Sustainable Development (MFFSD), and there was the urgent need to ensure that the country revisit its policy and strategies to be responsive to new environmental challenges and commitments undertaken. These documents are to be used to set policies, priorities, action plans and anticipated results for the next ten years (2014-2024) based on a clear assessment of existing environmental challenges and resources and institutional framework and capacities to address them. These documents are also intended to be used as an operational/management tool for the mobilization of resources,

development of capacity (both institutional and legal), and as guidance for addressing gaps and the improvement in the execution of the Department of Environment's mandate.

1.2.1 Approach and Methodology

The methodology used in the execution of this activity provided the DOE with the opportunity to involve stakeholders (including Non-Governmental Organizations (NGOs), Civil Society, indigenous and local communities, private sector, and the media) in the process and include their inputs in the final documents. The overall objective is to have the DOE, the MFFSD, and stakeholders feel a sense of ownership since the method utilized ensured stakeholders active involvement in the preparation of the documents. The methodology was to organize the tasks into five major groups of activities. These activities were:

1. Background Research,
2. Stakeholder Consultations/Field Research,
3. An Analysis Process,
4. Drafting of Deliverables, and
5. Consultation Workshops including an Inception and a Validation Workshop

The methodology utilized included the following:

I. **Literature Review**

II. **Interviews and Field Visits**
The interviews were conducted utilizing a set of structured questions aimed at obtaining objective feedback that were weighed, compared and analyzed. These interviews were held with a wide range of stakeholders, each with their own background, outlooks, and priorities.

III. **Stakeholders' Analysis**. This included analysis of the stakeholders' perception of the DOE, and the stakeholders' role in the implementation of the National Environmental Strategy and Action Plan. The exercise also included a rapid institutional assessment (mandate, financial and human resources) of various key stakeholders.

IV. **A SWOT** Analysis of the DOE was conducted in preparing for the wider stakeholder consultations and workshop whose outputs were considered as key and important in the development of the new environmental policy, strategy statement and action plan.

V. **KAP Survey:** Knowledge, Attitudes and Perception survey using semi-structured questionnaires and targeting different audiences was conducted to provide a snapshot of stakeholders' and members of the public's pulse with respect to environmental issues presently confronting Belize.

VI. **Public Consultations -** Participatory techniques and other planning methods were utilized during the stakeholders' consultations to gather relevant information to inform the development of the policy, strategy and plan**.** Public consultations were by way of an Inception Workshop and a Validation Workshop in which stakeholders participated fully.

VII. Additionally, the framework depicted in Figure 1.1 is utilized to organize and reflect in a coherent manner the cumulative contributions captured during the various consultations, underpinned by the available evidence from the literature review and other primary data sources as earlier identified. This organizing framework depicts a Belize that is Green, Clean Resilient, and Strong.

Figure 1.1Organizing Framework

CHAPTER II: GUIDING PRINCIPLES AND POLICIES

Issues that consistently emerged in previous sections are: the need to develop a more systematic approach to the issue of unsustainable practices; rationalize and make more coherent the large number of frameworks, policies, and legislative instruments; and the need to ensure better coordination, management and enforcement of existing legislation. It is often pointed out that the implementation and enforcement of environment and natural resources management actions have been hampered by institutional capacity gaps. Most key institutions involved in environmental protection and natural resource management remain under-resourced and understaffed; and their personnel are in need of specialized training to become more technically proficient in their area of management. Another issue raised in several of the documents reviewed, was that of shared responsibility, recognizing the need for strong local-level stakeholder involvement, and that community buy-in and robust participation in environmental management is indispensable.

There is general recognition for the need to develop, adopt and implement a comprehensive natural resources and environmental policy and strategy including planning for climate change and mitigating its effects. The development of the Policy and Strategy Statement must address these issues which makes evident the relationship between sustainable practices and economic development and Belize's efforts to eradicate poverty.

2.1 Overview: Environmental Policy and Institutional Framework

2.1.1 The Constitution

The Belize Constitution provides the primary policy direction on the environment, when in its preamble its states that … *the people of Belize require policies of state which … protects the environment, promotes cooperation among nations and respect for international law and treaty obligations.*

Consequently, the Belize Legislature is required to enact laws for environmental protection which are consistent with international environmental laws contained in international treaties and agreements.

2.1.2 Multi-lateral Environmental Agreements (MEAs)

These international environmental laws are contained in approximately thirty (30) international conventions, treaties and agreements that Belize has acceded to and which treat in some way or another with the protection of the Environment; including four of the "Big Five" Biodiversity Conventions among others:

- the Convention on Biodiversity, 1992 (CBD);
- the Convention on the International Trade in Endangered Species of Wild Flora and Fauna, 1975 (CITES);
- the Convention on Wetlands of International Importance Especially as Waterfowl Habitat, 1971 (Ramsar); and
- the Convention on World Heritage Sites, 1972.

Belize however is not a party to the fifth of the "Big Five" Biodiversity Conventions, the Convention on Migratory Species, 1979 (Bonn Convention). It is important that GOB assess the importance and relevance of this convention as it relates to Belize being strategically located within the outer limits of the ranges for many birds and other species migrating from both South America and North America.

In addition to the conventions that target biodiversity protection, there are others that focus more on other environmental issues of international concern related to pollution prevention, protection of the ozone layer, climate change and chemicals management. Belize is also a signatory to most of the major conventions addressing these issues which include:

- the United Nations Convention to Combat Desertification;
- the United Nations Framework Convention on Climate Change;
- the Vienna Convention and its Montreal Protocol and amendments;
- the Basel Convention;
- the Rotterdam Convention on Prior Informed Consent Procedures for Certain Hazardous Chemicals and Pesticides in International Trade;
- the Stockholm Convention on Persistent Organic Pollutants;
- the International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978 (MARPOL);

- the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter of 1972 and its 1996 London Protocol;
- the International Convention on Civil Liability for Oil Pollution Damage (CLC and Fund Convention);
- International Convention on Oil Pollution Preparedness, Response and Co-operation (OPRC); and
- the Cartagena Convention and its Protocols on Oils Spills and Land Base Sources of Marine Pollution.

There are several other sub regional and bilateral agreements that Belize has ratified, many of which are often offshoots of many of the larger international conventions and consistent with the requirements of these.

In ratifying these MEAs, Belize has taken on the environmental responsibilities and duties contained in them and should perform those obligations. In cases were these MEAs are binding, their provisions are legally internalized and Belize must fulfil these obligations or could possibly face punitive sanctions either in its domestic courts or those of the international community.

2.1.3 Sustainable Development Principles

Another policy source for guiding the management of Belize's environment is the environmental and sustainable development principles. They include:

1. Inter-generational Equity: to recognize that the present generation has a right to use and enjoy the resources of the Earth, but is under an obligation to take into account the long-term impacts of its activities and to sustain the resource base and the global environment for the benefit of future generations of humankind;
2. The Precautionary Principle: to guide action in response to threats of serious or irreversible damage to either human health, property or the environment when full scientific information is not available by placing the burden of proof that the action is not harmful on those taking the action;
3. The principle of proportionality: to recognize the concept that measures taken to protect human health, property and the environment should be proportional to the chosen level of

protection, taking into account technical and economic feasibility and other relevant factors, as well as a country's chosen level of protection;

4. The Life Cycle Approach: to conduct a systematic, cradle-to-grave (or cradle to-cradle) analysis to estimate the environmental consequences of alternative materials, designs, manufacturing processes, product use patterns, and end of life alternatives;
5. Prevention: to recognize that in averting harm to human health, property and the environment, the economic and social costs of avoiding damage and injury are nearly always less than the costs of repair, treatment, or compensation after they happen;
6. Substitution: to avoid a product that may cause risks to human health, property or the environment if products or processes that are less dangerous can reasonably be used instead;
7. Internalization of Costs or Polluter Pays: to use market and/or regulatory instruments to ensure that persons who are responsible for pollution, or for production or processes that may ultimately lead to pollution, bear the full environmental and social costs of their activities, and that those costs are reflected in the market price for goods and services;
8. Public Participation: to guarantee unrestricted public access to environmental information with only limited, explicitly defined exceptions; the right of the public to participate in environmental decision-making processes and have its input taken into account; and opportunities for redress when authorities fail to comply with their duties to provide access to information or decision-making;
9. The Right to Know: the right of the public to know information regarding the risks to human health, property and the environment from harmful products and processes, including their roles in accidents, manufacturing, use, and disposal;
10. Confidential Business Information (CBI): to retain information of a confidential nature, provided by a business entity that cannot normally be disclosed by government to a third party (including, sometimes, other governments or governmental departments);
11. Good Governance: to recognize that transparent, accountable, and honest government is an important component of sustainable development;
12. Common but Differentiated Responsibilities: to recognize that in encouraging cooperation among states in order to effect collective, global action to achieve sustainable development, different standards, delayed compliance timetables, or less stringent treaty

commitments may be appropriate for different countries at different stages of development; and that developed countries have a special obligation with respect to providing technical and financial assistance to developing countries and countries with economies in transition;

13. Partnerships or Collaborations among Stakeholders: to recognize that when governments, intergovernmental organizations (IGOs), industry groups, business, and NGOs work together and allow each partner to leverage its unique set of expertise, efficiencies, and networks; a more productive and sustainable outcome is achieved than if pursued alone;
14. Liability: to hold a public or private entity responsible for providing compensation for an injury after it has occurred.

2.1.4 Policy Directives of the Government

The Government of the day also makes policies relating to the environment and is guided in its policy making by the positions it had put forward in its political manifesto to the people, and which the people voted for.

The policy statements of the present government, 2012 – 2017, in relation to Natural Resources and the Environment are:

- Establish the National Integrated Water Resources Authority, through the Global Climate Change Alliance Project, to strengthen the management of water resources throughout the country.
- Continue implementation of the National Protected Areas Policy and System Plan to ensure effective protected areas management and increased benefits to local people.
- Expand the Solid Waste Project beyond the Western Corridor to ensure proper disposal and management of waste.
- Continue the work of the Land Management Program to improve service delivery countrywide, reducing waiting time at Lands Department Offices, improve internal controls, safeguard files and land tenure.
- Implement the land use policy and integrated planning framework as well as the National Forest Policy to ensure sustainable forest management and ensure greater benefits to the people.

- Increase alternative livelihood opportunities for people near protected areas to reduce poverty.
- Address climate change and natural disaster risk management within national plans and through collaboration with regional partners.

The Government has gone further and developed a long-term national development policy document entitled National Development Framework for Belize 2010-2030 or Horizon 2030.

Horizon 2030 produced various strategies to incorporate environmental sustainability into development planning and strengthen protected areas management. These strategies include:

- Implementing a comprehensive natural resources and environmental policy and strategy including planning for climate change and its effects.
- Introducing natural resources accounting into Gross Domestic Product (GDP).
- Enforcing environmental protection laws in a fair and just manner.
- Providing incentives for reforestation.
- Developing and implementing a long-term strategy for solid waste management.
- Adopting and implementing the National Protected Areas Systems Plan and strengthening the legal and administrative framework for protected areas.
- Promoting the "greening" of the productive sector by providing incentives for private companies to adopt superior environmental performance objectives to achieve strong international market positioning.
- Educating the public on energy sources, uses, services, safety, and other relevant areas.
- Provide tax and other incentives for households to more easily adopt "green" technologies and impose penalties for the use of hazardous materials.
- The establishment of a sustainable development council or board.
- Educating and sensitizing the public on the three pillars of sustainable development via public awareness programs.
- Developing an environment to reward individuals who promote Sustainable Development (SD) practices, cleaner production such as the development of a national clean technologies award or other incentives to industries.

- Enhancing technical capacity by promoting opportunities to advance students in becoming environmental lawyers, engineers, etc.

2.1.5 The 2014-2024 National Environmental Strategy Vision and Mission

Arising from the participatory and consultation process, DOE and its stakeholders rearticulated the Vision and Mission for the 2014 - 2024 National Environmental Strategy and Policy.

Vision Statement:

To be leaders in environmental stewardship for sustainable development both nationally and regionally.

Mission Statement:

To ensure that Belize's development is sound through effective environmental management for present and future generations.

CHAPTER III: ASSESSMENT OVERVIEW

3.1 Introduction

The environment ranks as a high priority area of concern among the Belizean Populace, superseded only by issues pertaining to governance, corruption and the economy. Ever since the United Nations Conference on Environment and Development of 1992 (UNCED), the Rio Summit, issues pertaining to sustainable development, climate change, loss of biodiversity and other environmental issues of global concern have remained in the forefront of both the national and international media. These issues have gained unprecedented attention because they are often far-reaching and global in perspective, transcending boundaries.

In response to the growing importance and attention being place on current and emerging environmental issues, the Government of Belize has responded by making the necessary policy, legislative and institutional changes in an attempt to respond to the national, regional and international environmental challenges of the time. Because of the dynamic nature of these issues, several of these institutions and their programmes remain in a constant state of flux as they adjust to new and emerging challenges confronting them.

3.2 Brief Historical Overview

In 1989, the Government of Belize established the Ministry of Tourism and Environment with the Environment portfolio placed for the first time on an equal footing with the other traditional ministries. Since then there have been several major efforts to ensure a coordinated national strategic response to the major national environmental challenges and regional and international initiatives.

In 1990, the Ministry of Tourism and the Environment through the Department of the Environment prepared and produced its first National Policy and Strategy Statement. It stated that the objective of the National Environmental Protection Strategy was "*to foster the prudent use and proper management of the natural resources of Belize, the preservation, protection, and improvement of the environment and control of pollution, thus guaranteeing a better quality of*

life for present and future generations". This became the mission statement of the Department of Environment until 2006.

This policy and strategy statement guided the development and passage of the Environmental Protection Act (EPA) in 1992. The EPA provided for the establishment of the Department of Environment, giving it the legal mandate to address modern environmental pollution issues. In addition, in recognition of the broad, crosscutting and inter-sectoral nature of environmental protection, the EPA further defined the role of the Department of the Environment as the national entity with responsibility for coordinating matters related to ensuring the prudent use and proper management of Belize's resources and the protection of the environment.

The functions of the Department are best described in the following extracts from the EPA:

- ensure the protection and rational use of natural resources for the benefit of present and future generations;
- advise the Government on the formulation of policies relating to good management of natural resources and the environment;
- provide decision-making with the necessary information so as to achieve long-term sustainable development;
- monitor trends in the use of natural resources and their impact on the environment;
- advise on the effects of any sociological or economic development of the environment;
- play a major role in providing the direction for long-term sustainable development based on the promotion or incorporation of ecological concerns in the economic development process;
- foster, through inter-ministerial cooperation, the prudent use and proper management of the natural resources of Belize, the control of pollution of the natural environment and the re-establishment of an ecological equilibrium, where needed, so as to guarantee a better quality of life for present and future generations;

- encourage governmental and non-governmental institutions/ agencies to align their activities with the ideas of sustainable development;

- exercise any other functions relating to the protection of the environment.

In response to these mandates, the Department of the Environment secured grant funding from the Overseas Development Agency in 1995-1996, administered through the World Bank, for the Preparation of the First National Environmental Action Plan (NEAP). In 1999, an effort was made to update the NEAP, but it resulted in very little substantive changes to the NEAP of 1995-1996.

In 2006, another major effort was made during the implementation of the second phase of National Capacity Self-Assessment Project to prepare a new National Environmental Strategy and a revised National Environmental Action Plan. These documents provided important guidance for the Government of Belize to address the prioritized environmental challenges confronting Belize and to identify possible areas of assistance from national and international development partners.

3.3 Review: Past National Environmental Strategies and Action Plans

This section of the report provides a very brief summary of the environmental issues identified in the 1990 and 2006 National Environmental policy and Strategy Statements and past national environmental action plans and key accomplishments. This is also important, as some of these strategies and planned activities have been identified as pertinent in addressing some of the current priority issues.

3.3.1 1990 Policy and Strategy

The First Policy and Strategy Statement of 1990 had eight general objectives as outlined below:

1. To foster an appreciation for the natural environment and the importance of a healthy environment to achieve social and economic wellbeing;
2. To identify environmental problems and work toward solutions;
3. To work with project proponents to ensure that their projects are environmentally and technically sound and implemented in a balanced and sustainable manner;

4. To have effective monitoring capability to ensure compliance with environmental laws;
5. To develop adequate and reliable data bases to inform decision making;
6. To continue the development of a functional process for strong intra and inter-ministerial cooperation in addressing environmental issues;
7. To work closely with regional and international agencies on environmental issues; and
8. Develop and promulgate new regulations and standards;

To achieve these objectives, the following strategies had been identified:

1. Strengthening coordination of environmental activities between GOB and NGOs;
2. Establishing and enforcing standards for industrial and hotel pollution;
3. Reviewing and reforming as necessary existing environmental legislation and strengthening their enforcement;
4. Increasing environmental planning for key areas of development such as coastal zone management and tourism sites;
5. Establishing information systems to store data and information on the environment to facilitate planning;
6. Facilitating public participation in environmental issues, through public education campaigns and district outreach activities;
7. Ensuring that environmental impact assessments will be undertaken for all environmentally sensitive projects.

3.3.2 1995 National Environmental Action Plan

In response to the stipulated objectives and strategies, the 1995 National Environmental Action Plan focused on seven priority areas as summarized in Table 3.1:

Table 3.1: National Environmental Action Plan 1995

Environmental Issues	Environmental Goals and Objectives	Environmental Strategies	Status or Activities Implemented
1. Waste Management	1. Reduce the impact of improper waste management on human health, the environment and the economy.	Policy and management recommendations for improving waste management.	Development of National Solid Waste Management Plan, Establishement of Solid Waste Management Authority and Present implementaion of the Central Corridor Component of the Plan.
2. Natural resource degradation (deforestation and deterioration of marine and coastal environment).	2. Assure for all Belizeans safe, productive and aesthetically pleasing surroundings.	Policy and management recommendations for reducing deforestation and unsustainable agricultural practices and enhancing integrated coastal zone management.	Despite the implementation of national programmes and project such as the Coastal Zone Mgt. Project and the Sustainable Agric. Project and the establishment of the Coastal Zone Management Authority and Institute, they remain very weak entities. These issues still remain relevant but with some new drivers.
3. Land use planning and land tenureship issues.	3. Attain the widest range of beneficial uses of the Belizean environment without degradation, and risk to health or safety.	Policy and management recommendations for strengthening land-use management.	LMP Project developed and implemented. However issues related with land use planning continue to be identified as a priority issue. While the legislations are in place, the focus of the institutions in land use planning and zoning is very limited. This remains one of the relevant issues impacting the lives of our people.
4. Water sanitation and health issues.	4. Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.	Policy and management recommendations for improving water resources management and improving health conditions.	National Integrated Water Resources Policy and Legislation were developed and implemented. Despite this, the institution remains weak and in dire need of strengthening.
5. Interaction of poverty with environmental changes.	5. Enrich the public's knowledge and awareness of the importance of sound environmental practices.	Policy and management recommendations for breaking the poverty-environmental degradation cycle.	Provision of extension support and credit to small farmers. Legal Property right to small farmers. Issues continue to be pervasive.
6. Issues impacting environmental institutions.	6. Seek the full participation of all ministries, departments and related agencies in the development and effective implementation of environmental laws and policies.	Policy and management recommendations for strengthening legal and institutional capacity and expanding the use of financial mechanisms for environmental and natural resources management.	NCSA II: A follow-up project focused on 'Strengthening Institutional Capacities for Coordination, Multi-sectoral Environmental Policies and Programmes'. These issues remain as very relevant despite the establishement of inter-agency coordinating bodies.

Table 3.1: National Environmental Action Plan 1995(Cont'd).

Environmental Issues	Environmental Goals and Objectives	Environmental Strategies	Status or Activities Implemented
7. Inadequate capacity to manage sustainable national uses of a resource of such global significance as the Belize Barrier Reef.		Policy and management recommendations for developing a conservation strategy for tourism.	Some accomplshments were achieved in this area but new issues related to impacts associated with mass tourism, the cruise ship industry and large coastal tourism developments continue to raise major issues of concern. In addition new concerns on the threats to Belize Barrier Reef System from potential off-shore petroleum exploration activities have emerged as a potential area of concern.

3.3.3 1999 National Environmental Strategy

In 1999, a revision of the Strategy was conducted which recognized the importance of a cross-sectoral approach to addressing many of the earlier identified issues and the importance of building and strengthening the public-private sector partnership to address these problems and an essential strategy in realizing the intended goals and objectives. The 1999 strategies included the following:

1. Evaluate the natural capital to determine what are the basic assets provided by the environment, including soil, fresh waters, potential for agriculture, fishing or forestry, biodiversity etc.;
2. Promote the sustainable use of the natural capital through working relationships with government sectors to address the impact of its activities on the natural capital;
3. Monitor the state of the environment through symposiums which address environmental issues and concerns to both private and public sectors;
4. Sensitize decision makers in GOB to provide leadership that promotes sustainable management of resources and a satisfactory quality of life for all citizens;
5. Promote the development of localized energy through close working relationships with the energy sector to encourage and support the use of safe and appropriate source of energy that meet specific community needs;
6. Work towards highlighting the value of wetland ecosystem and promote successful management approaches in their utilization;

7. Promote the concept of sustainable development;
8. Conducting and promoting training in environmental impact assessments to include environmental principles in project appraisal to mitigate against the negative environmental impacts of development projects;
9. Encourage the use of environmental economic incentives to promote more effective management of waste and cleaner technologies, through the use of tax exemptions for environmentally friendly equipment;
10. Strengthening the review process for projects seeking GOB endorsement for benefiting from international donor and funding agencies to ensure that greater concrete benefits are derived from the implementation of these projects, that national, local and pertinent organizations and stakeholders are involved in the development of the project, that the projects are in line with national objectives and priorities, and that local counterparts are assigned to projects to enable technology transfer and institutional strengthening;
11. Assist appropriate government agencies in preparing a comprehensive land use and zoning plan to reduce or prevent environmental degradation, including erosion, siltation of water bodies and associated threats to the reef ecosystem, increased flood risk and flood prone areas, indiscriminate altering and destruction of mangroves, coastal erosion, loss of wetland habitat and spawning grounds for marine life, increased production of sewage and effluent among others;
12. Promoting the development of a comprehensive policy on water resource to ensure that it is used wisely.

These strategies were not prioritized and due to lack of human and financial constraints, several of the recommendations were only partially implemented.

3.3.4 2006 Policy and Strategy Statement

In 2006 the following new vision was proposed: *"Mindful of the importance of our environment to the well-being of present and future generations, recognizing that the sustainable use of our environment is the only way to secure its availability to future generations, and being conscious that the prudent use and proper management of the environment shall constitute an integral part of the development process and cannot be considered in isolation of it, we accept our*

responsibility as Citizens of Belize and the World to protect and conserve our environment, to be stewards of our patrimony and engage in the sustainable use of the natural and built environment".

Although this new vision is contained in the 2006 document, it appears that it was never formally adopted nor properly internalized perhaps due to limitations in the consultation process and an insufficient sense of ownership by its stakeholders. The new vision was intended to address a perception that the first policy and strategy statement seemed to have placed too much onus on the Department of the Environment for the protection of the environment, when in fact it should be the collective responsibility of the citizenry. It also considered the DOE slogans: "Environmental Protection is Everyone's Business" and 'When people put the environment first development will last." The difficulty with this new vision is that it was too wordy and could have benefitted from a more concise and precise articulation; notwithstanding the non-participatory approach taken.

In response to this new vision, the 2006 document recommended the following national policy direction for DOE and Belize: "Environmental Management – ***Protection, Conservation, Stewardship of Patrimony, and the Sustainable Use of the Natural and Built Environment of Belize."*** The document outlined six major objectives summarized in Table 3.2.

Table 3.2: Summary of National Environmental Strategy 2006

Goals	Accomplishments
Goal 1:-Pursue a path of Financial Sustainability in Environmental Management.	Significant improvements in collection of revenues associated with the provision of environmental services, Amendment of the EPA to allow for the establishment of Environmental Management Fund - but difficulties in accessing funds persist. All new bills, such as the National Protected Area System Bill and National Integrated Chemicals Management Bill, Integrated Water Resources Act and Fisheries Resources Bill contain a provision addressing financial sustainability.
Goal 2:-Enhance Environmental Management Capacity through individual and institutional capacity building at various levels of government and community.	A few departments have been strengthened in terms of human resource capacity but many remain severely constrained and have not received the necessary budgetary allocations to carry out their mandates. Institutions in dire need of strenghtening include the NIWRA, Geology and Petroleum Departments and the Planning Unit within the Lands Deaprtment.

Table 3.2: Summary of National Environmental Strategy 2006 (Cont'd).

Goals	Accomplishments
Goal 3:- Promote Public Awareness, Advocacy and Public-Private Sector and Community Empowerment for Responsibility in Environmental Management Principles and an Appreciation and understanding of Environmental Terminologies.	While significant efforts have been made with the development of modern media such as web sites and a Facebook site, there is limited trained personnel dedicated to the development and implementation of national environmental education strategies. More effort needs to be given to the compilation and publication of the Environmental Statistics and Indicators with special emphasis on those sustainable development indicators such as those commited to under the ILAC initiative. A Public Awareness Unit was created in DOE.
Goal 4:-Promote Sustainable Natural Resources Management, Land Use and Development Practices through the strengthening and harmonizing of environmental laws.	Significant accomplishment were achieved in the development of Integrated Water Resources Policy, Energy and Transport Policy, Land Use Policy and Integrated Protected Areas System Policy. Despite these new polices, their implementation are yet to be achieved and the lead institutions remain weak.
Goal 5:- Promote Inter and Intra-Ministerial Cooperation and Collaboration for Environmental Management and Sustainable Development Principles to be integrated into Policy, Programs and Project Conceptualization, Formulation and Implementation.	Efforts to strengthen the NEAC and recommendations for the establishment of new coordinating mechanisms such as: Integrated Chemical Management Mechanism; National Integrated Water Resources Authority, and National Protected Areas Commission. These institutions are yet to be become fully functional, but a lot of effort have been expended in coordinate their activities
Goal 6:-Promote Regional and International Cooperation and Collaboration in support of Research, Training and the Implementation of Multilateral and Regional Agreements.	This effort continue to be driven by the MEAs and other external factors. Presently Belize is more reactive than proactive in addressing this issue. The recommendation for the establishment of a centralized office to coordinate the MEAs was never explored. DOE and MFA continue being the "gate keepers." Very little done at the National level and environmental applied research has stagnated.

3.3.5 Summary: Strategy and Action Plans Review

Several of the issues and concerns identified in 2006 National Environmental Policy and Strategy Document inclusive of the older 1990 and 1999 versions remain relevant today. These include those perennial issues identified and include the following, inter alia:

- Insufficient public awareness;
- Insufficient resources to formulate standards and regulations and ensure compliance with environmental law;
- Lack of planning to meet the resource needs for a growing population;

- Limited data bases to inform decision making;
- Inadequate inter and intra ministerial cooperation; and
- Lack of national strategy to better coordinate national efforts to better participate and take advantage of the growing number of regional and international agreements.

As is often the case, some of the issues and concerns identified have evolved during the period 1990 to today, and in some instances there have been significant improvements and accomplishments made in several areas. There have been several updating and adoption of new policies guiding Belize's effort to attain sustainable development and to allow for the implementation to a more integrated approach in the management of these often complex and cross-cutting issues. Several legislations have also been amended to incorporate modern environmental management principles and to make them more responsive to new and emerging issues.

There have also been progressive improvements in national decision making processes to allow for greater community participation and greater public awareness and support for efforts aimed at ensuring that development projects address their environmental and social implications. The number of high profile cases dealing with the application of the EIA legislation in the Supreme Court supports this.

Since 2006 the following national policies and plans have been prepared or adopted:

- National Protected Areas System Policy
- Integrated Water Resource Management Policy
- National Climate Change Adaptation Policy
- Sustainable Land Use Policy
- National Energy Policy
- Draft National Culture Policy
- National Gender Policy
- National Development Framework, 2010-2030 (Horizon 2030)
- Tourism Master Plan
- National Poverty Elimination Strategy and Action Plan

- Belize National Hazard Mitigation Plan 2008.

In addition to these, there have also been some major legislative accomplishments, which include the following:

- Amendments to the Environmental Protection Act and three of its regulations
- National Integrated Water Resources Act
- National Protected Areas System Bill
- National Integrated Chemicals Management Bill
- National Fisheries Resources Management Bill
- National Occupational Safety and Health Bill

Despite these accomplishments, some of the issues such as pollution and poor waste management, overexploitation of natural resources, unplanned and uncontrolled coastal development and lack of proper land use planning identified in 1990, continue to remain as prominent areas of concerns among those stakeholders involved in the management of Belize's natural resources and the protection of its environment. Since then, issues related to climate change and disaster preparedness, invasive species, threats to the Belize Barrier Reef System from offshore petroleum exploration and impacts associated with the cruise ship sector have begun to gain greater prominence in the national discussion.

3.4 Situation Analysis of Issues and Trends: MDG 7

The specific goals of MDG7 are to integrate the principles of sustainable development into country policies and programmes, reverse the loss of resources, to reduce biodiversity loss, and to halve by 2015 the proportion of people without access to safe drinking water and basic sanitation. The indicators for tracking of these goals are summarized below:

- Indicator 7.1: Proportion of land and area covered by forest
- Indicator 7.2: CO_2 emissions, total, per capita and per $ 1 GDP
- Indicator 7.3: Consumption of ozone-depleting substances
- Indicator 7.4: Proportion of fish stocks within safe biological limits
- Indicator 7.5: Proportion of total water resources used

- Indicator 7.6: Proportion of terrestrial and marine protected areas
- Indicator 7.7: Proportion of species threatened with extinction
- Indicator 7.8: Proportion of the population using an improved drinking water source
- Indicator 7.9: Proportion of population using an improved sanitation facility
- Indicator 7.10: By 2020, to have achieved a significant improvement in the lives of at least 100 million slum dwellers

Regarding the overall target of the MDG 7, Belize has adopted a number of new policies and promulgated a number of national legislative instruments that support the principles of sustainable development. However, these accomplishments have been very sector specific with little coordination to ensure consistency in response and fully take advantage of possible synergies that may exist among these national initiatives. As a natural resource based economy, there is pressing need for sustainability strategies to be coherently mainstreamed throughout development planning. This also requires that an understanding of the complex interdependence between the potential effects of increasing levels of poverty on the environment be reflected in policymaking.

Belize has made some accomplishments with respect to the first indicator looking at proportion of land and area covered by forest. Belize has been able to maintain approximately 61.64% of its total land mass under forest cover (Cherrington et al., 2012). The recent study conducted in 2012 by Cherrington indicates that the rate of deforestation for the period between 2010 and 2012 has been increasing beyond what had been projected. A 2010 study, measuring the change in forest cover for Belize, estimated that the annual deforestation rate was approximately 0.6 percent, considered to be very low in comparison with global rates. Based on the initial findings of the 2010 study it was projected that by 2015, Belize will lose 1.8 per cent of existing forest cover if the current rate was stabilized. With this not being the case, there is the urgent need for the GOB to develop a more integrated policy framework to help combat the decline in forest cover. At present, many of the existing instruments need to be aligned, coordinated and made more robust to ensure more objective and impartial enforcement.

With respect to the second indicator on greenhouse gas emissions, Belize is classified as a Non-Annex country, and is not obligated in the convention to set or meet quotas. While the country's net emission are negligible when compared with international levels, and in some sectors there are decreasing emissions (electricity generation), it would still be a prudent policy strategy to consider CO_2 emissions in development planning (BSO 2010:MDGs).

With respect to the third indicator on the phasing out of Ozone Depleting Substances (ODS), Belize has shown significant progress and is presently on track to complete this process by 2015. Belize is a party to the Vienna Convention for the Protection of the Ozone Layer and the Montreal Protocol on Substances that Deplete the Ozone Layer and its amendments inclusive of the London, Copenhagen, Montreal and Beijing amendments. Belize is classified as an Article 5 country under the Protocol and is eligible to receive technical and financial assistance from the Multilateral Fund for the Implementation of the Montreal Protocol. The country does not produce any ODSs, and all its consumption is met through imports. The Terminal Phase-out Management Plan for Belize was approved at the 53rd Meeting of the Montreal Protocol Executive Committee held in November 2007. In 2008, Belize's consumption level (.078) was far below the agreed ceiling of 2.9 tons.

Belize has also made significant accomplishments in addressing the fourth indicator on the proportion of fish stocks within safe biological limits. Belize is currently in the process of promulgating the newly Revised Fisheries Resources Management Bill and has declared in the last five years several marine protected areas and spawning aggregation sites. The major goal of marine reserves is to conserve marine biodiversity by protecting important ecosystem, habitats, and species. The objectives of Marine Reserves are the following:

1) providing a refuge from harvesting activities;
2) protecting habitats, especially those critical to lifecycle stages such as spawning, juvenile rearing and feeding;
3) protecting spawning stock biomass, thus enhancing reproductive capacity;
4) insuring protection of areas of species, habitats, and ecosystems restoration and recovery; and
5) assisting in conservation-based fisheries management regimes.

Despite its efforts, Belize continues to deal with challenges pertaining to illegal fishing activities and inadequate enforcement of its legislation due to resource constraints. Species such as the spiny lobster, shrimp, and queen conch are in demand both on the local and foreign markets. These delicacies are the main targeted species for local fishermen and are the main source of income. These species, although sold locally, are primarily harvested for the export markets. At present, lobster stocks and conch are managed sustainably after dramatic declining trends in the 70s, indicating effective implementation of protection measures.

In addition, new pressures on certain species such as sea-cucumbers and sharks are demanding closer attention. Another issue of concern is centered on the impacts of invasive species such as the lion fish.

With respect to the fifth indicator on proportion of total water resources used, Belize has one of the highest volumes 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. 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. In response, the GOB promulgated the National Integrated Water Resources Act in 2012, focusing on integrated water resources management. Present 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. This is exacerbated by severe constrains in the technical and financial resources of the new authority and its ability to administer the new legislation.

There has also been several important accomplishments relevant to the sixth Indicator on Proportion of terrestrial and marine protected areas. The 2012 Environmental Statistics for

Belize indicates that as of 2011, there were 111 legally established protected areas covering some 35.1 % of the country's total land area and 10.7% of its total territorial waters. Included in the marine protected areas is the Belize Barrier Reef World Heritage Site.

In 2005, the Government of Belize prepared a *National Protected Areas Policy and Systems Plan* (NPAPSP) which was founded on the need to ensure that biodiversity conservation becomes an important and integral part of national social and economic development. A key underlying principle was to balance biodiversity protection with maximizing the potential contribution of the protected areas system to national development and poverty alleviation needs. In response to the plan, a new "National Protected Areas System Bill" has been drafted which would allow for greater rationalization of Belize's protected area system and management mandates. There remains major challenges in the implementation of the recommendations contained in the plan and several terrestrial protected areas have very little management interventions.

In response to the seventh indicator on the proportion of species threatened with extinction these indicators remain difficult to quantify although anecdotal evidence suggest that many threatened and endangered species still maintain healthy populations in Belize. Belize has a *Biodiversity and Environmental Resource Data System,* which has collected data on more than 100,000 specimens. Major challenges exist in having updated population data because of very limited research and studies conducted in this area. However, indicators established regarding biodiversity protection capacity of the National Protected System (NPAS) suggest that Belize is at present adequately fulfilling protection standards in all but the commercial‖ species, i.e. game and fish that may be extracted. This has been particularly challenging with respect to pressure on fish stocks and marine species, in part due to the recent growth in the number of licensed fishermen. In addition, the methodologies for the monitoring of biodiversity are still undergoing development and refinement.

The eighth and ninth indicators on the proportion of the population using an improved drinking water source and the proportion of population using an improved sanitation facility seek to halve the population that does not have access to safe drinking water and basic sanitation. Belize has set its own target of universal access, becoming in this area an MDG plus country.

The Statistical Institute of Belize (SIB) reported that the proportion of the population with improved access to water ascended from 43.6 percent in 1995 to 76.4 percent in 2006. The 2006 MICS data report even higher degrees of access, showing 98.8 percent of urban dweller with access to safe drinking water, and 95.4 in rural areas. This puts Belize well on track to achieve their 2015 target of 100 percent.

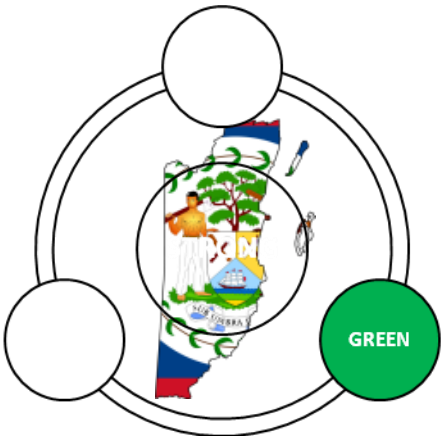
Despite the fact that Belize has made admirable advances in attaining its target, it may fall short of keeping up the current rate of progress unless specific measures are implemented, relating to improvements in institutional capacity, good governance practices, policy development, sound planning and community empowerment. Other elements such as geographical targeting have been recommended, especially for rural communities in the Belize and Toledo Districts, as the rural-urban divide persists, with poor rural farming families reflecting the least access (Belize Common Country Assessment 2012).

Some progress has been made in sanitation, especially in the rural areas, but the current pace still leaves the country off track in its MDG plus goal of 100 per cent access to improved sanitation services by 2015. In 2001, 54.8 percent of all households had access to sewer systems or septic tanks while 39.7 percent used pit latrines, 10 percent shared toilet facilities, and 3.5 percent had no toilet facilities. Adequate sanitation coverage at a national level in 2001 was 68.1 percent for urban areas and 25.8 percent in rural communities. By 2007, 64.5% of households had adequate sanitation connected to a sewer system or to septic tanks. By 2008, as many as 30 per cent of Belizeans, largely rural, still relied on systems classified as inadequate. Belize is currently not on track to achieve this MDG target (Belize Common Country Assessment 2012).

3.5 Towards a Clean, Green, Resilient and Strong Belize

In addition, to these issues addressed by the MDG7 indicators, other national environmental issues emerging from the participatory public consultation process associated with the development of the Strategy and wider literature review are organized around the four strategic clusters: Green, Clean, Resilient and Strong and presented below.

3.5.1 A Green Belize



This Strategic section focuses on addressing those issues related to the management of the natural resources and has as its long- term objective, a Belize where its natural resources, including land, forests, coastal and marine and water resources, are sustainably managed and conserved to improve the quality of life of present and future generation. It recognizes that these are essential elements of GOB's strategies to eradicate poverty by looking at these as a replenishable source of "natural capital" essential in sustaining livelihoods and ensuring food security. It has as its core strategic outcome the "Greening of Belize's Economy".

In Belize, the economy remains highly dependent on the state of its environment. Its main economic drivers are eco-tourism and agriculture, with both sectors intimately dependent on the relative good state of its natural resources base. Although this linkage between Belize's Economy and environment has been recognized for some time, we have yet not been able to fully incorporate in Belize's development strategies the comparative advantages that exist in its relatively healthy resource base and environment.

The Greening of Belize's economy would allow for Belize's development to fully take advantage of its comparative advantage in this area and for greater accounting of Belize's natural capital. Greening of the economy would require that GOB implement policies and legislations that encourage innovation, clean technologies, efficiency, and best practices in its developmental activities. The sustainable management of these resources are also seen by extension as Belize's major efforts in protecting critical habitats and its biodiversity as important economic resource intimately linked to its tourism, fisheries, forest, and agriculture industries. A transition to a green economy require the implantation of policies that enable the private sector to use natural resources sustainably as part of good business, creating jobs and contributing to long-term growth.

3.5.1.1 Degradation of Terrestrial and Marine Resources

Degradation of Terrestrial Resources

The forests of Belize over the past 30 years have undergone extensive change. This is attributable to relentless pressures arising from increasing demand for fuel-wood, fodder and timber; inadequacy of protection measures, illegal logging and the conversion of forest lands to non-forest uses without ensuring compensatory re-forestation and essential environmental safeguards. In addition, the major damage caused by the bark beetle infestation in the country's pine forests led to severe depletion of its national stocks requiring the importation of pine lumber. Another driver of deforestation and loss of biodiversity has to do with the cross border incursions into the forests by neighboring farmers, hunters and other opportunistic individuals extracting forest products as new economic opportunities arises as is the case of the Xateros. Presently the greatest driver of deforestation is the conversion of forestland being converted into agricultural land. The loss of forest is a contributor to environmental degradation and is a major cause of soil erosion, destruction of wildlife habitats and biological diversity, loss of livelihoods and traditional uses are being compromised.

Belize has taken initiatives under its national forest that include the co-management agreements indicating a shift in policy towards participatory forest governance and the establishment of a protected areas system with varied exploitation classes allowing for the strictest conservation of vital ecosystems, biodiversity conservation and multiple-use exploitation of robust ecosystems based on sustainable management principles.

The Forest Department recognizes this as a significant progression from the initial policy focus on production but believes that there is the need for greater consideration for forest dependent people and their livelihoods and other issues related to climate change impacts, hurricane damage, national security and indigenous peoples rights. The department has also noted stagnation in the exploitation and utilization of forests where the focus has been generally to extract and export as primary lumber with no further processing for increased marketability and market value. In addition, the Forest Department recognizes that exploitation has also focused on primary hardwoods with notable underutilization of secondary hardwoods, and less well-known timber species and as well as non-timber forest products.

The following have been identified as some of the major targets aimed at addressing concerns of deforestation.

- **A new and robust Forest Policy that aims to use the forest and other natural ecosystems sustainably**

There is the need to finalize and adopt a new forest policy and strategy that incorporates preservation, maintenance, sustainable utilization, restoration, and enhancement of the natural environment and inclusion of other actors to improve governance.

The policy should address a vision that has state and non-state partners collaboratively manage the forests of Belize for the protection of fundamental ecological services and the sustained generation of income and livelihood opportunities. The promotion of reforestation programs to balance out the forestlands undergoing conversion to agriculture land should also be addressed.

- **Increase by 50 per cent the forest revenues generated by instituting a Framework for payment for environmental services**

The Government shall create appropriate regulatory frameworks for the creation of payments for environmental services schemes and the sustainable generation and equitable distribution of benefits derived from those schemes.

- **Increase revenue for timber and non-timber forest products from value added activities by 100%**

The Government shall encourage the forest sector to increase its competitiveness through the manufacture of value added products from forest resources and has as its main target, the doubling of revenues from this sub-sector.

Degradation of 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).

Belize's coastline, particularly in sensitive ecological areas and many of the country's mangrove islands are experiencing unprecedented impacts primarily from tourism related development. Beach erosion and sediment run-off into coral reefs from the loss of mangroves and other coastal vegetation are among the primary adverse impacts. Other direct pressures on the coral reefs of Belize induced by coastal development are in the form of marine dredging operations that destroy sea grass beds and wetlands. In addition to sedimentation from various land use practices, contamination with nutrients and pollutants such as pesticides from the agriculture and aquaculture industries also threatens the reefs. Over-fishing and removal of key herbivorous fish is also an issue of concern, since their removal creates a shift in the trophic webs that ultimately affects ecosystem function and health.

Recently, oil exploration has raised various issues of concern about possible impacts to the marine environment. It is expected that Belize's reef systems will continue to increase as the warming of sea temperatures due to global climate change will only intensify "natural" stressors on the reef such as hurricanes, coral bleaching and sea water acidification. The effects of climate change on the marine eco-system are an emerging environmental issue of major concern. The current effort to modernize the Fisheries legislation and reactivate the Coastal Zone Management Authority and Institute (CZMAI) are definitive steps to improve the management of the resources in the coastal and marine resources

The primary goal of the strategy for this sub-sector is to promote the protection and rational use of marine-coastal ecosystems of Belize, strengthening trans-boundary coordination and national actions with a focus on fisheries, tourism and marine areas. Key targets are:

- Reduce the Clearance of Fringing Mangroves, sea grass beds and littoral forest by at least 30%

- Reduce anthropogenic pressures on coral reef ecosystem
- Ensure sustainable fisheries management
- Reduce tourism related impacts on coastal and marine resources
- Strengthening trans-boundary and regional cooperation for fisheries management.

3.5.1.2 Sustainable Land Management

The lack of proper planning to address the needs of a growing population, which has led to the overexploitation of some of Belize's natural resources, has been a perennial problem with gains made in certain areas and stagnation in other areas. The issues associated with the lack of proper land use planning is a major cause of several of the other issues identified as priority issues such as those related to deforestation primarily associated with the expansion of the agriculture and tourism sectors and their accompanying pollution issues.

The lack of proper land use planning in Belize is one of the major obstacles in the way of orderly, integrated and sustainable development. In the urban environment, many low-cost housing are being developed in locations that have minimal employment opportunities, negligible public services and poor infrastructure, and are often prone to such adverse conditions as inundation, drought and other hazards.

In Belize, the agriculture sector is exceeded only by the transport sector in the use of chemicals and is the largest source of non-point source of pollution due to land erosion and the use of agrochemicals and the largest point source of organic pollutants from the food processing industries. 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. The study also indicated that an area of over 1600 square kilometers, having 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.

GOB has made some progress with the support received from GEF and other international donors in the development of contemporaneous Sustainable Land Use Policy and Forest Policy aimed at addressing new and emerging issues in these areas.

Effective Implementation of the 2012 Belize National Land Use Policy and its recommendations is the primary goal of this sub-section. The land resources of Belize must be managed on an equitable, sustainable, fully representative and accountable basis, and the Land Use Policy and Integrated Planning Framework seek to create the foundation that can provide that. Key targets of this include:

- Effective Implementation of Land Use Plan, Mandates and Responsibilities
- Preparing a National Land Use Plan

3.5.1.3 Integrated Water Resources Management

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. 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.

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. In response to these issues and growing concerns GOB adopted “The National Integrated Water Resource Management Policy adopted in 2008 and in 2011 it enacted the National Integrated Water Resources Act (NIWRA)”.

The overarching water policy has as its basis the inclusion Integrated Water Resource Management (IWRM) principles, the human rights approach identified under the Millennium Goals and places great emphasis on management and control. The policy for integrated water resources management states:

"Belizeans have a fundamental right to water and it is hereby declared that the policy of the Government is to bring about the planned development, coordinated management, sustainable use and protection of Belize's water resources consistent with the social, economic and environmental needs of present and future generations, and to ensure that all Belizeans have access to affordable, safe, adequate and reliable water."

The policy document stresses the need to conduct a proper and comprehensive assessment of water resources and develop 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. It also identified the need to regulate the perforation of wells to avoid cross contamination of aquifers and to monitor the misuse of this valuable resource.

Key targets of this new strategy are:

- Development of a National Integrated Water Resources Plan
- Strengthening of the NIWRA
- Prioritizing and Protecting Water for Domestic Use

3.5.1.4 Towards a Green Economy

The issues identified above are all strategically addressed and intimately intertwined with the goal of greening Belize's economy. This development path should maintain, enhance and, where necessary, rebuild natural capital as a critical economic asset and source of public benefits, especially for poor people whose livelihoods and security depend strongly on nature.

Despite challenges such as an overbearing external debt, a weak investment climate, dwindling preferential markets, high incidence of poverty, and a high incidence of natural disasters, the

Belizean economy shows positive signs of greening. The following main strategies are recommended to enhance this green trend and eventually achieve a full green economy which is the overarching goal.

- **Enhance Investments**

Continued emphasis should be placed on those key economic sectors which play a part in GOB's development agenda seeking to effectively meet with its sustainable development objectives.

- **Measure Progress Towards a Green Economy**

Belize's environmental statistics previously published by the Statistical Institute of Belize (2004) and subsequently by the Land Information Center (2006-2012) should be institutionalized. This information is vital for deeper analysis but more importantly to provide evidence to policy makers on the value of its natural environment through the establishment of qualitative and quantitative indicators to track progress over time and its contribution to economic growth.

- **Increased Stakeholder Engagement**

An extensive stakeholder engagement both passive and active needs to be carried out. This should provide some measure on gauging the general sentiments of stakeholders as it relates to the promotion of green growth initiatives, skills and resources and support for greening at the level of top management as well as to provide some notion on the extent of demand for green technologies. At the private sector level it should encourage corporate social responsibility. It should lend or explore equal opportunities for their participation in developing green policies etc.

- **Promoting Environmental Standards**

GOB should adopt internationally recognized standards for benchmarking performance related to greening of the economy and more broadly towards sustainable development. Not only is it strategic but it provides an opportunity for the adoption and promotion of clean technologies. With time, the demand for standards in Belize particularly environmental standards will grow

and therefore there is a great need to promote the use of standards. To this end, there must be initiatives aimed at supporting private sector transition to a green economy so that it can usher a change in the way key commodities are produced, consumed and financed. Understanding the supply chain in this context, there will be the need to develop initiatives that aim to adopt new standards for sustainability and to drive wider implementation of standards across major economic sectors.

- **Enhanced Education Awareness and Capacity Building**

The educational system should guide young minds into adopting and acknowledging green habits as a way of life. Providing incentives for the private sector to engage in green production by promoting the use of environmental standards such as the ISO 14000 series would serve to complement government's effort towards a green economy.

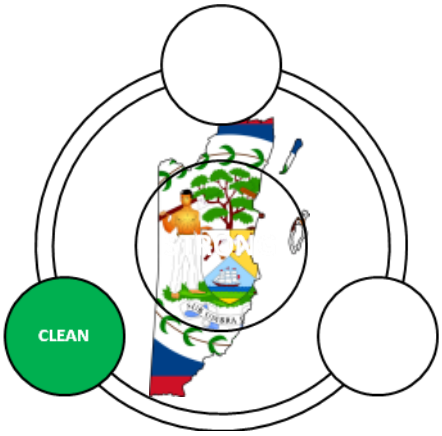
- **Adopting the Green Growth Generator (GGG)**

The GGG can guide the decision making process through extensive stakeholder engagement and a rigorous assessment of potential interventions to help create a roadmap that maximizes the potential for an effective and efficient transition to a green economy across Belize. The Green Growth Generator is a decision-making framework which could be developed in partnership with village councils, municipal councils, local government and central government across the six districts within Belize.

- **Undertaking a Quantitative Analysis of Green Policies**

The green economy initiative, like any other development programme/initiative, calls for a cost-benefit economic study to determine its level of feasibility and effectiveness; it is further recommended that resources be allocated to the investigation of alternative models, the collection of the necessary data, and the simulation of various scenarios under one or more such models. This will provide a clearer picture of the expected results of the implementation of the green economy initiative in Belize, and will serve to ensure that the intended benefits do indeed accrue to the country.

3.5.2 A Clean Belize



In 1990 concerns related to pollution went global. This helped pave the way for the 1992 United Nations Earth Summit in Rio de Janeiro where "climate change" was put on the front burner. Today, the fight for a clean and healthy environment continues with a sense increasing urgency.

Belize's challenges related to the prevention and control of pollution are, like all other countries, closely related to its level of development and its economic structure. Until the recent discovery of petroleum and the subsequent production of liquid petroleum gas (LPG) gas and small refining activities of crude oil to diesel, its industrial sector was limited to light manufacturing industries such as carbonated drinks, beer and rum production and other food processing activities.

A recent survey identified concerns related to pollution and waste management in particular those issues associated with the improper disposal of liquid and solid waste. Despite the implementation of the National Solid Waste Management plan and the establishment of the National Solid Waste Management Authority to oversee the execution of the plan, the problems with illicit dumps and littering persists. Other issues of concern are those associated with the transportation and final disposal of hazardous wastes.

Air pollution issues although not seen as posing a direct threat to the environment is an issue in several localized areas and there have been isolated incidences where air pollution related issues have triggered instances of public outcry.

This section of the policy document focuses on the strategic thrust of a "Clean and Healthy Environment". The three main issues identified were those dealing with waste management, pollution control and integrated chemicals management, and had as it main goals: improving

waste management, reducing and controlling pollution and improving integrated chemicals management.

3.5.2.1 Improve Waste Management

It is well established, that solid waste can create significant health problems and a very unpleasant living environment if not disposed of safely and appropriately. If not correctly disposed of, solid waste may provide breeding sites for insect-vectors, pests and vermin that increase the likelihood of disease transmission and may also pollute water sources and the environment. In Belize, solid waste is regulated by the following legislations: The Environmental Protection Act; Solid Waste Management Authority Act; and the Public Health Act.

The Government of Belize has recognized the threat which inadequate management of solid waste poses not only to the nation's health, but also to its economic livelihood as it threatens to spoil the natural beauty and recreational amenities enjoyed by locals and tourist alike. Improper waste management practices are characterized by inadequate waste collection systems, improper discharge of waste in open or partially controlled dumps, and insufficient capacity to handle the increasing amounts of waste being generated.

Currently, the National Solid Waste Plan is being implemented by the Solid Waste Management Authority; the focus is on the Western Corridor which targets improvement of solid waste management within the municipalities of Belize City, San Ignacio and Santa Elena, Benque Viejo, Belmopan and the islands of San Pedro and Caye Caulker. A centralized sanitary landfill has been built at mile 24 on the George Price Highway and put into operation in August 2013 to service these communities.

Despite the implementation of the National Solid Waste Management plan and the establishment of the National Solid Waste Management Authority to oversee the execution of the plan, the problems with illicit dumps and littering persists. The recent "Walk for a Green Belize" 2014 involved the clean-up of the sides of the George Price Highway from Belize City to the Western Border in Benque Viejo. An estimated 1,800 bags of garbage were collected yielding a total estimated weight of over 6,000 pounds! Some illegal dumping is perceived to be attributed to individuals

not wanting to pay a user fee charged at the Transfer Stations, while other dumping and highway littering is attributed to a "cultural attitude".

These issues are proposed to be addressed through expansion of the Solid Waste Management Plan to address the Northern and Southern Regions and rural communities, increased enforcement of existing legislation through improved coordination by relevant regulatory agencies, and increased public sensitization programs.

3.5.2.2 Improving Liquid Waste Management

Fresh waters systems, such as, enclosed coastal waters, aquifers and groundwater are the recipients of liquid wastes pollutants. Poor or non-existent piped sewerage systems in urban and rural areas make sewage treatment difficult. Hotels and Resorts are the main producers of commercial, domestic wastewater, thus pollution from sewage is of major concern in urban areas especially those located on the coast and on the cayes. The discharge of sewage and bilge water from cruise ships and other live-a-board vessels poses additional pressures on coastal water quality.

The point sources of industrial wastewater in Belize are primarily associated with agro-processing activities, with increased biochemical oxygen demand (BOD) and nutrients levels being the parameters of main concern. Although all effluent generating industries are required to have their effluent treatment systems comply with the effluent limitation standards, there is very limited monitoring and assessment being done to determine the effectiveness of the standards in ameliorating the impacts of industrial pollution.

To address these issues the overarching goal of this strategic plan is to reduce the impacts of improperly treated liquid waste. It has as targets the reduction of untreated sewage into the receiving environment by 50 % and ensures 100% compliance with effluent regulations by industries with respect to their effluent discharges. Another target is the evaluation of the effectiveness of the effluent standards and practices.

3.5.2.3 Reducing Pollution

Air Pollution

Air pollution issues although not seen as posing a direct threat to the environment is an issue in several localized areas and there have been isolated incidences where air pollution related issues have triggered instances of public outcry. The industrial air pollution issues of concern are those primarily associated with Belize Natural Energy's (BNE's) flaring of production gases, Belize Sugar Industries' (BSI's) emissions, and those associated with thermal generators. There have been a few concerns received on vehicular emissions and smoke from illicit fires and few instances of odours emanating from wastewater treatment facilities.

In addition, smoke from fuel reduction burning in forest management and bushfires can have wide regional impacts and affect communities far removed from the burn site. Bushfire smoke affects human health mainly because of inhalation of tiny particles that increase the prevalence of a range of respiratory and cardio-vascular conditions in people exposed to them. One other critical issue is that there is not enough resources to patrol and enforce the environmental laws and control illicit burning. An issue of critical concern, is the lack of readily available data on air pollution and general air quality and the limited availability of equipment to monitor ambient air quality and vehicular emissions.

The strategy has as its principal objective the reduction of air emissions emanating from illicit burnings and vehicular emissions. Its major targets are the development and effective implementation of an air pollution prevention plan, the development and effective implementation of an ambient air quality-monitoring program aimed at establishing baseline information and reducing the number of illicit burning by 50%.

Marine Pollution

Marine pollution from ship generated wastes and land based sources have been receiving greater attention. The concern with respect to the development of Belize's new petroleum industry and the transportation of crude oil through Belize's sensitive marine ecosystems, coupled with the threat of offshore oil exploration have been driving efforts to increase Belize's protection of the Belize Barrier Reef System and other sensitive marine ecosystems.

To address these issues, the drafting of a Marine Pollution Bill commenced in 2013. The purpose of the draft Bill is to provide for the Belize's powers and jurisdiction in relation to the prevention of marine pollution and other related issues such as damage from groundings of ships and anchoring on the Belize Barrier Reef. The Bill also seeks to harmonize the commitments Belize has made in the ratification of several international marine pollution conventions, including the following:

- Powers And Jurisdiction Under The United Nations Conventions On The Law Of The Sea 1982 (UNCLOS)
- Intervention on the High Seas under the International Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties.
- Dumping Waste at Sea under the Convention on the Prevention of Pollution by Dumping of Wastes and Other Matter, 1972 and its 1996 Protocol.
- Prevention of Pollution from Ships under the International Convention for the Prevention of Pollution from Ships (1973) as amended by the Protocol of 1978 (MARPOL 73/78).
- Oil Pollution Preparedness and Response under the International Convention on Oil Pollution Preparedness, Response and Co-operation, 1990.

Efforts to address marine pollution related issues should focus on the completion of the drafting of the Bill and its socialization. Also develop a comprehensive monitoring and surveillance plan accompanied by capacity building for enforcing agencies.

3.5.2.4 Sound Chemicals Management

Belize with its history of environmentally friendly policies and like most developing countries and countries with economies in transition, recognizes that Sound Chemicals Management is in its national interests for sustainable development, and have adopted various international commitments towards that end. It has been signatory to the Rotterdam Convention, Stockholm Convention on POPs, Basel Convention, and the Montreal Protocol. Furthermore, Belize demonstrated its resolve by implementing the Strategic Approach to International Chemicals Management (SAICM) Quick Start Programme project entitled, "Mainstreaming into development plans sound management of chemicals (SMC) priorities for key development sectors in Belize and Associated SMC governance," which aims to improve the chemicals management infrastructure in Belize.

The strategy has as its primary objective the integrated management of chemicals. It has as its targets the following:

- the adoption of the draft National Integrated Chemicals Management Bill and its subsequent implementation;
- the implementation of the institutional development plan supporting the establishment of the chemicals management unit and the National Integrated Chemicals Management Authority;
- the complete implementation of the National Pollution Release and Transfer Registry; and
- the development and implementation of the national chemicals management training program and accompanying public sensitization program.

3.5.3 A Resilient Belize

Making Belize Resilient by Committing to Policies for Disaster Risk Reduction and Climate Change Adaptation: Resilient means making Belize better prepared for coping with the effects of future shocks that may be caused by more frequent and intense natural disasters, more volatile weather patterns and by technological hazards. It also means preparing Belize to effectively adapt to the long-term consequences of climate change and to effectively transform to a green economy.

Belize is prone to various hydro-meteorological hazards, which include tropical cyclones, storms surges, floods and drought. The country's high vulnerability to natural hazards and disasters is worsened because a large majority of its population and economic activity such as agriculture and tourism are concentrated along the exposed coastal zone and flood prone areas of the Greater Belize River Basin that drains the central zone of the country. Hurricanes, tropical storms, storm surges and floods impacted over 300,000 persons during the period from 1970 to 2010, resulting in about 69 deaths, and cost in excess of US $600 million in economic damage, mainly to agriculture and infrastructure.

Marine traffic, particularly oil tankers and cruise ships traveling through our coastal waters and the Caribbean Sea present the risk of oil pollution from accidents at sea. In addition, recent concerns have also centered on the increased risks from the transportation of BNE's crude oil and those that could be associated with offshore exploration. Such pollution threats to the Belize Barrier Reef, coastal installations, sea birds and fisheries have been highlighted in the national media. Additionally, oil tankers, which transport fuel to inland towns and villages, also pose potential threats to water bodies, forest areas and other infrastructure including towns.

Forest fires present a constant risk in Belize. These fires, which may start by natural causes such as lightening or indiscriminate human actions, usually cause damage to grassland and forest areas. Additionally, Belize City because of its congestion and its tradition of building wooden houses is susceptible to domestic fires. As a consequence, making Belize resilient and climate change adaptable is of immediate importance.

Resiliency also involves ensuring healthy and well-managed ecosystems that are more resilient and so play a key role in reducing vulnerability to climate change impacts. Equally important is ensuring that climate resilience is integrated into urban planning and infrastructure development.

In the social sphere, effective social inclusion policies will ensure that Belize and its communities are better prepared to protect vulnerable groups and fully involve women in decision-making. Finally, Belize will help itself in adapting to climate change through better coastal zone management and climate-smart agriculture; improving disaster risk management by expanding the use of climate risk insurance and other financial instruments to help with recovery after natural disasters; and reducing its dependence on oil imports, building sound infrastructure, and restoring protective coastal ecosystems such as mangroves.

3.5.3.1 Disaster Risk Reduction (DRR)

As the spill-over effects of hazard exposure and vulnerability in this globalized world proved unavoidable and necessitated a determined commitment to an international response, Belize was fortunate to join other countries at the United Nations in that international response by signing on to the Hyogo Framework for Action 2005-2015 (HFA) *Building Resilience of Nations and*

Communities to Disasters. The HFA, while not legally binding, commits Belize to undertaking certain DRR activities.

While hazards are inevitable, and the elimination of all risk is impossible, there are many technical measures, traditional practices, and public experience that can reduce the extent or severity of economic and social disasters. Hazards and emergency requirements are a part of living with nature, but human behaviour can be changed.

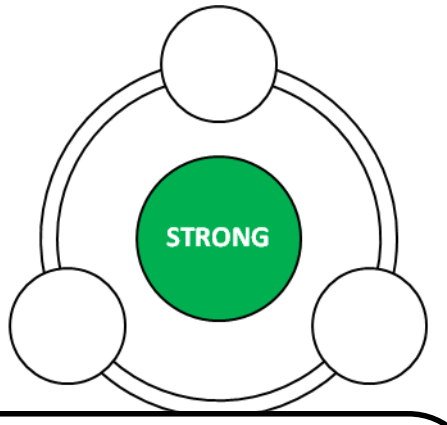
The Hazard Mitigation Policy for Belize recognizes that the country is susceptible to a variety of hazard events that could result in incalculable damage to the environment and the erosion of our social and economic development. Hazard mitigation can reduce our vulnerability to these hazards and vastly increase the nation's ability to recover from these events. The policy therefore places emphasis on building national capacities to reduce vulnerability based on the principles of sustainable development and the active participation of all stakeholders in hazard risk reduction activities.

3.5.3.2 Response to Global Climate Change

The Government of Belize acknowledges the conclusion of the Intergovernmental Panel on Climate Change (IPCC) that mankind is having a discernible influence on the earth's climate. The mean temperature of the earth is projected to rise by 1.5 to 6 degrees Celsius during the next 100 years. This will produce a rise in mean sea level of 15 to 95 centimeters. It will also affect the hydrological cycle, leading to changes in evaporation and precipitation. The effects at the regional and national levels are unknown at this stage. However, the best scientific evidence indicates that there could be significant repercussions on the productive sectors of Belize, i.e. agriculture, coastal zone, energy, fisheries, forestry, human settlements, and water resources. In light of the foregoing, the Government of Belize has developed and adopted a national policy on Global Adaptation to Climate Change.

The Belize Climate Change Adaptation Policy is directed at all government agencies, which execute policies or provide services in sectors, which may be impacted by global climate change. These include but are not limited to agriculture, coastal zone, energy, environment, fisheries, forestry, health, housing, local government, tourism, transportation, and water resources.

3.5.4 A Strong Belize



There is consensus emphasizing that governance has a strong effect on environmental actions and outcomes. Rule of law, citizens' rights of access to information, public participation, and equal access to justice is a basis for poverty reduction and sustainable development (UN, 2012). Weak governance is correlated with negative environmental outcomes and is closely associated with social ills such as corruption, social exclusion, and lack of trust in authorities. Good governance, on the other hand, has the potential to regulate and enforce environmentally sound policies and, as such, to steer individuals and societies into productive out-comes and sustainable use of the environment.

> *"Good governance . . . is essential for sustainable development. At the domestic level, sound environmental, social, and economic policies, democratic institutions responsive to the needs of the people, the rule of law, anti-corruption measures, . . . and an enabling environment for investment are the basis for sustainable development . . . All countries should strengthen governmental institutions, including by providing necessary infrastructure and promoting transparency, accountability, and fair administrative and judicial institutions."*
>
> *2002 World Summit on Sustainable Development: Plan of Implementation, paragraph 163.*

Based on best practices and global lesson drawing, a common set of core precepts have emerged which form a basis for effective environmental governance. These may be summarized as:

- ✓ Environmental laws should be clear, even-handed, implementable and enforceable;
- ✓ Environmental information should be shared with the public;
- ✓ Affected stakeholders should be afforded opportunities to participate in environmental decision-making;
- ✓ Environmental decision-makers, both public and private, should be accountable for their decisions;
- ✓ Roles and lines of authority for environmental protection should be clear, coordinated, and designed to produce efficient and non-duplicative program delivery;
- ✓ Affected stakeholders should have access to fair and responsive dispute resolution procedures;

- ✓ Corruption in environmental program delivery can obstruct environmental protection and mask results and must be actively prevented.

The identification and reinforcement of these core precepts can assist in strengthening environmental governance systems and as such better address environmental problems. Together, these elements provide the foundation for effective environmental protection and conservation of natural resources, and help chart a course towards an environmentally responsible future. This takes into account, the role of all actors that impact the environment; governments, NGOs, the private sector and civil society. Their cooperation is critical to achieving effective governance that can help us move towards a more sustainable future.

The gap between what is decided and actually implemented to improve environmental outcomes is the implementation deficit. This deficit may be partially explained by a lack of technical and financial capacities among environmental agencies in combination with low political priority given to these environmental issues. Although Belize has made significant strides over the past decades in environmental protection and management, inclusive of a strong environmental policy and legal framework, there is scope for improvement in core institutional governance parameters which underpin achievement of the environmental outcomes defined under the green, clean and resilient strategic clusters.

These core and cross-cutting issues are by no means new. Identified in the 1996/1999 and resurfacing again in the 2006 environmental strategies and action plans, these intra- and inter-institutional cross-cutting governance issues have a direct impact on effective implementation of the national environmental agenda, Table 3.3. Inter alia, principal among these issues are: financial and technical resources; policy coordination; planning; policy monitoring and evaluation and underpinning data management systems; financial sustainability; and compliance and enforcement.

Additionally, and although specifically conducted to assess national capacities in meeting the obligations under the three Rio Conventions, the National Capacity Self-Assessment of 2005 identified a number of institutional gaps with direct bearing to environmental management and institutional governance; inter alia, principal amongst these were: conventions management;

human resource management; environmental information management; policy formulation and coordination; natural resource management; access to financial services; capacity building; policy, legislative and institutional review; research; and public education, awareness and advocacy.

Table 3.3 Summary of Issues Affecting Implementation of Past Plans

1996/1999 NEAP	2006 NEAP
✓ Proliferation of institutions with environmental responsibilities with unclear roles and responsibilities; ✓ Approach to inter-ministerial coordination is non-institutionalized and practice is weak and informal; ✓ Inter-ministerial communication remains a challenge; ✓ The basis for resource allocation for and across institutions is unclear; ✓ Significant financial resource gaps exist; combined with technical capacity gaps undermine effectiveness of environmental protection; ✓ In the absence of a formalized coordination mechanism, NEAC coordinates environmental management decision making; ✓ Significant challenges with respect to availability and robustness of environmental data; systematic data management systems are lacking and more broadly, a Monitoring and Evaluation system requires urgent attention(CEDS); ✓ Capacity development requires institutionalization; over reliance on external projects at the moment, e.g. USAID, ODA, GEF, etc.	✓ Planning: Absence of a national development planning focus and a nascent MND; no deliberate harmonization/alignment of MEAs into national policy/planning; ✓ Policy legal and institutional framework: No overarching NRM and land use policy; Policy formulation and implementation tends to be highly centralized and sectoral; Overlapping and duplication of legislation contributing to ambiguity in roles and responsibilities; Lack of legislation to address emerging environmental issues: bio-safety, GMO, etc.; Under resourced environmental protection agencies; Limited local government involvement in enforcement and monitoring; Emphasis on fines and imprisonments vs. voluntary compliance measures and employment of novel economic instruments; ✓ Financial Sustainability: insufficient allocation of financial resources despite significant revenue generation; ✓ Coordination: coordination efforts and participatory and inclusive approaches to environmental management is informal and needs to be strengthened; ✓ Public Awareness and Advocacy: GOB's involvement is low and this area is primarily advanced through the work of civil society;

In 2014, these issues were placed squarely on the table in both the DOE and wider stakeholder consultation sessions conducted and directly map to ratings in the Perception Survey undertaken by the DOE. As summarized in Figure 2.1 and Table 2.4, when polled on various governance attributes, respondents rated: *'transparency',' independence', and 'timely response to stakeholders'* as the top three concerns; this was followed by, *'effective regulator' and 'timely response to issues/incidents'. 'Objectivity', 'efficiency' and 'trustworthiness'* were next in line. Notwithstanding, the DOE received highest ratings for being *'approachable', 'innovative' and 'professional'* reflecting perhaps a wider systematic cause-effect explanation of the deeper concerns identified. When juxtaposed against the precepts of effective national governance, this ought to provide reason enough for ensuring that the necessary and sufficient attention be paid to

these issues to ensure effective implementation of the Green, Clean and Resilient environmental agendas. On the flip side of these concerns and gaps however, lie the opportunities for strategically intervening and redirecting the course towards a more environmentally responsible future.

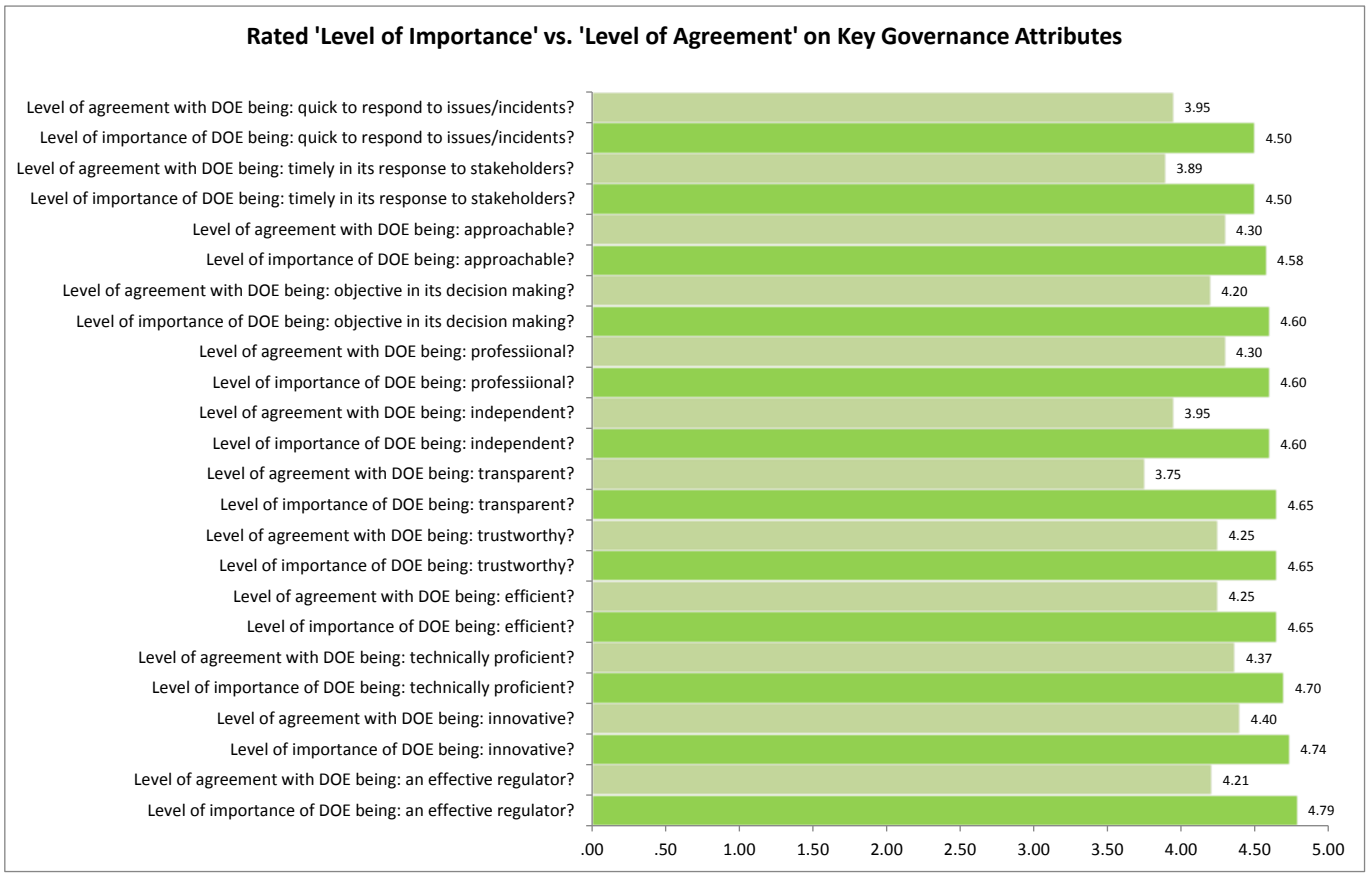


Figure 3.1: Ratings of Stakeholders Perception on Governance Attributes

Table 3.4: Ratings of Stakeholders Perception on Governance Attributes

DOE Perception Survey , 2014					
Governance Attribute	**Mean Rating, 5 point scale**		**Gap**	**Relative % Gap**	**Rank**
	Level of Agreement	**Level of Importance**			
DOE being: an effective regulator?	4.21	4.79	**-0.58**	**-12**	**4**
DOE being: approachable?	4.30	4.58	-0.28	-6	7
DOE being: efficient?	4.25	4.65	-0.40	-9	5
DOE being: independent?	**3.95**	**4.60**	**-0.65**	**-14**	**2**
DOE being: innovative?	4.40	4.74	-0.34	-7	6
DOE being: objective in its decision making?	4.20	4.60	-0.40	-9	5
DOE being: professional?	4.30	4.60	-0.30	-7	6
DOE being: quick to respond to issues/incidents?	**3.95**	**4.50**	**-0.55**	**-12**	**4**
DOE being: technically proficient?	4.37	4.70	-0.33	-7	6
DOE being: timely in its response to stakeholders?	**3.89**	**4.50**	**-0.61**	**-13**	**3**
DOE being: transparent?	**3.75**	**4.65**	**-0.90**	**-19**	**1**
DOE being: trustworthy?	4.25	4.65	-0.40	-9	5

CHAPTER IV: STRATEGIC RESULTS

This section provides a synthesis of the strategic goals and targets for the major environmental issues addressed in this Strategy document and organized around the four strategic clusters: Green, Clean, Resilient and Strong. The clusters pertaining to Green, Clean, and Resilient encompass the traditional issues focusing on environmental impacts; while the cluster pertaining to strong, focuses on the issues related to environmental governance and institutional capacity.

4.1 A Green Belize

This Strategic section focuses on addressing those issues related to the management of the natural resources and has as its long- term objective, a Belize where its natural resources, including land, forests, coastal and marine and water resources, are sustainably managed and conserved to improve the quality of life of present and future generation. It recognizes that these are essential elements of GOB's strategies to eradicate poverty by looking at these as a replenishable source of "natural capital", essential in sustaining livelihoods and ensuring food security. It has as its core strategic outcome the "Greening of Belize's Economy".

Issue 1: Degradation of Terrestrial Resources

Goal 1.1 A new and robust forest policy that aims to use the forest and other natural ecosystems sustainably

Target 1.1.1 Maintain healthy forest cover and natural terrestrial ecosystems at ...% (61%).

Goal 1.2 Optimize socio-economic benefits from ecosystem goods and services

Target 1.2.1 Increase by 50 per cent the forest revenues generated by instituting a framework for the payment for environmental services;

Target 1.2.2 Increase revenue for timber and non-timber forest products from value added activities by 100%.

Issue 2: Degradation of Marine Resources

Goal 2.1 Promote the protection and rational use of marine-coastal ecosystems and strengthen trans-boundary coordination and national actions with a focus on fisheries, tourism and marine areas

Target 2.1.1 *Reduce the clearance of fringing mangroves, sea grass beds and littoral forest by at least 30%;*

Target 2.1.2 *Reduce anthropogenic pressures on coral reef ecosystem;*

Target 2.1.3 *Ensure sustainable fisheries management;*

Target 2.1.4 *Reduce tourism related impacts on coastal and marine resources;*

Target 2.1.5 *Strengthening trans-boundary and regional cooperation for fisheries management.*

Issue 3: Sustainable Land Management

Goal 3.1 Effective implementation of the 2012 Belize National Land Use Policy and its recommendations

Target 3.1.1 *Effective implementation of land use plan, mandates and responsibilities.*

Issue 4: Integrated Water Resources Management

Goal 4.1 Ensure the integrated management of Belize's water resources

Target 4.1.1 *Development of a National Integrated Water Resources Plan;*

Target 4.1.2 *Strengthen the NIWRA;*

Target 4.1.3 *Prioritize and protect water for domestic use.*

Issue 5: Challenges in Transitioning to a Green Economy

Goal 5.1: Greening the economy

Target 5.1.1 *Enhance investments;*

Target 5.1.2 *Measure progress towards a green economy;*

Target 5.1.3 *Increased stakeholder engagement;*

Target 5.1.4 *Promoting environmental standards;*

Target 5.1.5 *Enhanced education awareness and capacity building;*

Target 5.1.6 *Adopting the Green Growth Generator (GGG);*

Target 5.1.7 *Undertaking a quantitative analysis of green policies.*

4.2 A Clean Belize

While it is the generally felt that Belize's environment is pristine, there have been growing concerns related to pollution of ground and surface water and the marine ecosystem in certain areas and other issues pollution issues dealing with air, solid waste and chemicals management. The economy of Belize is highly dependent on the Tourism Sector which is extremely sensitive to pollution and waste management issues.

This section of the national strategy refers to maintaining a clean Belize, free of litter and pollution where our inland and coastal waters, air and land are free from contamination, enabling our people and visitors to enjoy an unspoiled and health environment.

The section also includes consideration for cleaner production standards and encourages and promotes the adoption of best practices and the identification of best appropriate technology that provides jobs and supports Belize's sustainable growth. It also looks at activities aimed at strengthening partnerships among government, private sector and other stakeholders involved in pollution control efforts.

Belize's challenges related to the prevention and control of pollution are, like all other countries, closely related to its level of development and its economic structure. Until the recent discovery of petroleum and the subsequent production of LPG gas and small refining activities of crude oil to diesel, its industrial sector was limited to light manufacturing industries such as carbonated drinks, beer and rum production and other food processing activities.

A recent survey identified concerns related to pollution and waste management in particular those issues associated with the improper disposal of liquid and solid waste. Despite the implementation of the National Solid Waste Management plan and the establishment of the National Solid Waste Management Authority to oversee the execution of the plan, the problems with illicit dumps and littering persists. Other issues of concern are those associated with the transportation and final disposal of hazardous wastes.

Air pollution issues although not seen as posing a direct threat to the environment is an issue in several localized areas and there have been isolated incidences where air pollution related issues

have triggered instances of public concern. The industrial air pollution issues of concern are those primarily associated with Belize Natural Energy's (BNE's) flaring of production gases, Belize Sugar Industries' (BSI's) emissions, and those associated with thermal generators.

Issue 6: Waste Management

Goal 6.1: Improve Waste Management

Target 6.1.1: Expansion and effective implementation of the National Solid Waste Management Plan;

Target 6.1.2: Increased enforcement of existing legislation through improved coordination by regulatory agencies;

Target 6.1.3: Increased public sensitization programmes and access to information;

Target 6.1.4 Reduction of untreated sewage into the receiving environment by 50%.

Issue 7: Reducing Pollution

Goal 7.1: Reduction of Air Pollution from Vehicular Emissions and Illicit Burnings

Target 7.1.1 Development and effective implementation of an air pollution prevention plan;

Target 7.1.2 Development and effective implementation of an ambient air quality monitoring programme;

Target 7.1.3 Reduce the number of incidents of illicit burning by 50%.

Issue 8: Marine Pollution

Goal 8.1.: Reduce Marine Pollution

Target 8.1.1 Adoption of the draft Marine Pollution Bill;

Target 8.1.2 Improve marine pollution monitoring.

Issue 9: Sound Chemicals Management

Goal 9.1: Integrated Chemicals Management

Target 9.1.1: The adoption of the draft National Integrated Chemicals Management Bill and its subsequent implementation;

Target 9.1.2: The implementation of the Institutional Development Plan supporting the establishment of the Chemicals Management Unit and the National Integrated Chemicals Management Authority;

Target 9.1.3: The complete implementation of the National Pollution Release and Transfer Registry;

Target 9.1.4: The development and implementation of the National Integrated Chemicals Management Training Programme and accompanying public sensitization program.

4.3 A Resilient Belize

Resilient means making Belize better prepared for coping with the effects of future shocks that may be caused by more frequent and intense natural disasters, more volatile weather patterns and by technological hazards. It also means preparing Belize to effectively adapt to the long term consequences of climate change and to effectively transform to a green economy.

Belize is prone to various hydro-meteorological hazards, which include tropical cyclones, storms surges, floods and drought. The country's high vulnerability to natural hazards and disasters is worsened because a large majority of its population and economic activity such as agriculture and tourism are concentrated along the exposed coastal zone and flood prone areas of the Greater Belize River Basin that drains the central zone of the country. Hurricanes, tropical storms, storm surges and floods impacted over 300,000 persons during the period from 1970 to 2010, resulting in about 69 deaths, and cost in excess of US $600 million in economic damage, mainly to agriculture and infrastructure.

Marine traffic, particularly oil tankers and cruise ships traveling through our coastal waters and the Caribbean Sea present the risk of oil pollution from accidents at sea. Such pollution poses a threat to the Belize Barrier Reef, coastal installations, sea birds and fisheries. Additionally, oil

tankers, which transport fuel to inland towns and villages, also pose potential threats to water bodies, forest areas and other infrastructure including towns.

Fires present a constant risk in Belize. These fires, which may start by natural causes such as lightening or indiscriminate human actions, usually cause damage to grassland and forest areas. Additionally, Belize City because of its congestion and its tradition of building wooden houses is susceptible to fires. Belize's history of fires dates back to 1802 and includes fires which have destroyed entire neighborhoods. Historically, one major fire has erupted each year resulting in loss of property and in some instances, the loss of life. As a consequence, making Belize resilient and climate change adaptable is of immediate importance.

Resiliency also involves ensuring healthy and well-managed ecosystems that are more resilient and so play a key role in reducing vulnerability to climate change impacts. Equally important is ensuring that climate resilience is integrated into urban planning and infrastructure development. In the social sphere, effective social inclusion policies will ensure that Belize and its communities are better prepared to protect vulnerable groups and fully involve women in decision-making. Finally, Belize will help itself in adapting to climate change through better coastal zone management and climate-smart agriculture; improving disaster risk management by expanding the use of climate risk insurance and other financial instruments to help with recovery after natural disasters; and reducing its dependence on oil imports, building sound infrastructure, and restoring protective coastal ecosystems such as mangroves.

Issue 10: Disaster Risk Reduction

Goal 10.1: Building resilient communities to the effects of natural, technological and environmental hazards and engendering a shift from protection against hazards to risk management.

Target 10.1.1: Reduce the vulnerability of 100% of identified communities.

Goal 10.2: Build the capacity of national institutions to more effectively implement programmes and projects to reduce vulnerability of the nation and people to natural and technological hazards.

Target 10.2.1: Enhance the capacity of institutions by at least 75% to effectively translate policies/programmes/projects into meaningful results.

Issue 11: Response to Global Climate Change

Goal 11.1: Foster the Development and Effective Implementation of a Climate Change Action Plan in tandem with the associated policy

Target 11.1.1: The Development and Effective Implementation of a Climate Change Adaptation Action plan in tandem with the associated policy.

4.4 A Strong Belize

Concerns on cross-cutting issues related to Environmental Governance were also highlighted during the consultation process. These issues coupled with inadequate financial and human resources alongside the need for training were emphasized. It is believed that these are some of the core issue affecting lack of enforcement and inadequate public awareness and education processes essential in creating the supportive political will among policy makers.

A specific cross cutting issue of concern is that dealing with 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 affect 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 used to measure sustainable development goals, which are also essential in being able to quantitatively measure the impacts of development policies on the environment, whether positive or negative, as means to streamline policies that are being implemented. There is also the need to develop programmes that are geared at obtaining data on the quality of air, water and soil. Of outmost 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.

Issue 12: Environmental Governance and Institutional Strengthening

Goal 12.1: Capacities for Effective Policy Development, Implementation and Maintenance Enhanced

Target 12.1.1: Effective inter-agency planning and coordination mechanism defined, implemented and sustained;

Target 12.1.2: Decentralization of DOE's management model for effective policy coordination and implementation;

Target 12.1.3: Functional and technical capacity gaps of environmental protection and management agencies and staff reduced by 80%;

Target 12.1.4: Robust National Environmental Evaluation Policy and System designed and implemented;

Target 12.1.5: NEAP is adequately resourced (90%) and its implementation aligned with MOF's Programme Based Budgeting Initiative.

Goal 12.2: Public and Stakeholder Confidence Improved

Target 12.2.1: Stakeholder confidence improved.

Goal 12.3: Knowledge Management Capacity Strengthened

Target 12.2.2: Knowledge management capacity of the environmental sector enhanced.

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