

**THE BAHAMAS NATIONAL ASSESSMENT
REPORT
for the
TEN-YEAR REVIEW
for the Implementation of the Barbados Programme
of Action**



2004

**THE BARBADOS PROGRAMME OF ACTION – THE BAHAMAS
TEN-YEAR REVIEW**

	<i>Page</i>
Preamble	<i>2</i>
Introduction	<i>7</i>
1 Climate Change and Sea Level Rise	<i>10</i>
2 Natural and Environmental Disasters	<i>13</i>
3 Coastal and Marine Resources	<i>14</i>
4 Land Resources	<i>18</i>
5 Biodiversity Resources	<i>20</i>
6 Energy	<i>22</i>
7 Management of Wastes	<i>24</i>
8 Fresh Water Resources	<i>26</i>
9 Tourism Resources	<i>31</i>
10 Science and Technology	<i>33</i>
11 Health	<i>34</i>
12 Capacity Building and Coordination	<i>35</i>
13 Financial Investment in Trade and Services	<i>36</i>
14 Framework for Sustainable Development	<i>38</i>

PREAMBLE

1. In 1992, at the United Nations Conference on Environment and Development, (also known as the Earth Summit and the Rio Summit) the world community adopted Agenda 21. Agenda 21 reflects a global consensus and political commitment at the highest level, to development and environmental cooperation. The cooperation of all States is a prerequisite for the fulfilment of the objectives of Agenda 21. Such cooperation must also respond to the special circumstances and particular vulnerabilities of countries, through adequate and specific approaches.

2. The Global Conference on the Sustainable Development of Small Island Developing States, which was held 25 April- 6 May 1994 is the first Global Conference on sustainable development and the implementation of Agenda 21. Agenda 21 represents a comprehensive document, carefully negotiated and, wherever referred to in the present Programme of Action, should be looked to as a whole.

3. The Rio Declaration on Environment and Development identifies human beings as being at the centre of concerns for sustainable development. Development initiatives in Small Island Developing States should be seen in relation to both the needs and aspirations of human beings, and their responsibility towards present and future generations. Small Island Developing States have valuable resources including oceans, coastal environments, biodiversity, and most importantly, human resources. Their potential is recognised, but the challenge for Small Island Developing States is to ensure that they are used in a sustainable way for the well-being of both present and future generations. Although they are afflicted by economic difficulties, and are confronted by development imperatives similar to those of developing countries generally, Small Island Developing States also have their own peculiar vulnerabilities and characteristics, so that the difficulties they face in the pursuit of sustainable development are particularly severe and complex.

4. There are many disadvantages that derive from small size, and they are magnified by the fact that many island States are not only small, but are also made up of a number of small islands. These disadvantages include: a limited range of resources, which necessitate undue specialisation; excessive dependence on international trade, hence vulnerability to global developments; high population density, which increases the pressure on already limited resources; overuse of resources and premature depletion; relatively small watersheds and threatened supplies of fresh water; costly public administration and infrastructure, including transportation and communication; limited institutional capacities; and domestic markets that are too small to provide significant economies of scale. Meanwhile, their limited export volumes, sometimes from remote locations, lead to high freight costs and reduced competitiveness. Small islands tend to have high degrees of endemism of fauna and flora and high levels of biodiversity, but the relatively small numbers of the various species impose high risks of extinction and create a need for protection.

5. The small size of Small Island Developing States also means that development and environment are closely interrelated and interdependent. Recent human history contains examples of entire islands rendered uninhabitable through environmental destruction owing to external causes. Small Island Developing States are fully aware that the environmental consequences of ill-conceived development can be catastrophic. Unsustainable development not only threatens the present livelihood of the people, but also the islands themselves and the cultures they nurture. Climate change, climate variability and sea level rise, are issues of grave

concern. Similarly, the biological resources, on which Small Island Developing States depend, are threatened by the large-scale exploitation of marine and terrestrial living resources.

6. Many Small Island Developing States are entirely or predominantly coastal entities. Due to the small size, isolation and fragility, of island ecosystems, their renowned biological diversity is among the most threatened in the world. Because of this, in pursuing development, special attention must be paid to protecting the environment and the peoples' livelihoods. It also requires the integrated management of resources.

7. In some Small Island Developing States, the rate of population growth exceeds the rate of economic growth, placing serious and increasing pressure on the capacity of those countries to provide basic services to their people, and placing a heavy burden on women in particular as heads of households. Although their population densities may be high, many Small Island Developing States have small populations, in absolute terms, that are insufficient to generate economies of scale in several areas. They therefore have limited scope for the full utilisation of certain types of highly specialised expertise. They experience high levels of emigration, particularly of skilled human resources, which not only places an undue burden on training facilities, but also forces countries to import high-cost foreign expertise.

8. The lack of opportunities for achieving economies of scale, together with narrow resource bases, tends to limit the overall productivity of Small Island Developing States to a narrow range of crops, minerals and industries, whether manufacturing or services. Any adverse development concerning those productive sectors, whether arising from external market factors or from natural or environmental constraints, is likely to lead to significant reductions in output and in foreign-exchange earnings, and to increased unemployment.

9. Partly because of their small size, and partly because of their vulnerability to natural and environmental disasters, most Small Island Developing States are classified as high-risk entities. This has led to insurance and reinsurance being either unavailable or exorbitantly expensive, with adverse consequences for investment, production costs, government finances and infrastructure.

10. Because the per capita income of many Small Islands Developing States tends to be higher than that of developing countries as a group, they tend to have limited access to concessionary resources. However, analysis of the economic performance of Small Island Developing States suggests that current incomes are often facilitated by migrant remittances, preferential market access for some major exports, and assistance from the international community. These are sources that are neither endogenous nor secure. Furthermore, these incomes have generally been unstable over time. Natural and man-made disasters, difficulties in the international market for particular commodities, and recession in some developed economies, often reduce national incomes in Small Island Developing States dramatically, sometimes by as much as 20 to 30 per cent of gross domestic product (GDP) in a single year.

11. Because small island development options are limited, they present special challenges to planning for, and implementing sustainable development. To meet that challenge, the most valuable asset of Small Island Developing States is their human resources, which need to be given every opportunity to fulfil their potential and to contribute meaningfully to national, regional and international development, such as is consistent with the Rio Declaration on Environment and Development, and Agenda 21. Small Island Developing States will encounter constraints in meeting these challenges, without the cooperation and assistance of the

international community. The sustainable development of Small Island Developing States requires actions that address these constraints to development. Those actions should integrate environmental considerations, natural resource conservation objectives and gender considerations, consistent with Agenda 21 and the Rio Declaration on Environment and Development, into the development of social and economic development policies for international, regional, sub regional and/or bilateral cooperative programmes related to islands.

12. Within Small Island Developing States the critical contribution of women to sustainable development, and the involvement of youth in the long-term success of Agenda 21, should be fully recognised. Accordingly, youth should be encouraged to contribute to the decision-making process, and all obstacles to the equal participation of women in this process should be eliminated, to allow both youth and women to participate in and to benefit from the sustainable development of their native societies.

13. Sharing a common aspiration for economic development and improved living standards, Small Island Developing States are determined that the pursuit of material benefits should not undermine social, religious and cultural values, or cause any permanent harm either to the people or to their land and marine resources, which have sustained island life for many centuries. In Agenda 21, the international community committed itself to:

(a) Adopt and implement plans and programmes to support the sustainable development and utilisation of the marine and coastal resources of Small Island Developing States, including meeting essential human needs, maintaining biodiversity and improving the quality of life for island people; and

(b) Adopt measures that will enable Small Island Developing States to cope effectively, creatively and sustainably, with environmental change, as well as to mitigate impacts on and to reduce threats posed to marine and coastal resources.

Those commitments were later incorporated into General Assembly resolution 47/189 of 22 December 1992, which called for a Global Conference on the sustainable development of Small Island Developing States.

14. In establishing the basis for a new global partnership for sustainable development, States have acknowledged their common but differentiated responsibilities in respect of global environmental degradation, as stated in Principle 7 of the Rio Declaration on Environment and Development. Principle 6 states that the special situation and needs of developing countries, particularly the least developed and those most environmentally vulnerable, shall be given special priority. Under chapter 17, section G of Agenda 21, Small Island Developing States and islands supporting small communities, are recognised as special case for both environment and development, because they are ecologically fragile and vulnerable, and because their small sizes, limited resources, geographic dispersion and isolation from markets, all place them at a disadvantage economically, and prevent economies of scale.

15. It is in that context that the present Barbados Programme of Action addresses the special challenges and constraints facing Small Island Developing States. Because sustainable development is a process, not a phenomenon, the Barbados Programme of Action focuses on the next steps that can be taken, along the comprehensive path to sustainable development, which will follow the principles endorsed by Governments at the 1992 United Nations Conference on Environment and Development. The Barbados Programme of Action for SIDS contains a synopsis of actions and policies that should be implemented over the short, medium and long

terms. The reports of the regional technical meetings, held in preparation for the Global Conference, remain an important point of reference, since they contain a broad collection of recommended actions for the pursuit of sustainable development in Small Island Developing States.

16. The Barbados Programme of Action presents a basis for action in fourteen agreed priority areas, and defines a number of actions and policies, related to environmental and development planning, which should be undertaken by Small Island Developing States with the cooperation and assistance of the international community. However, in general, financing for the implementation of the Barbados Programme of Action will come from the individual country's own public and private sectors. National elements, for inclusion in the medium-term and long-term sustainable development plans of Small Island Developing States, are recommended along with the measures necessary for enhancing their endogenous capacity. Regional approaches to sustainable development/environment problems and to technical cooperation for endogenous capacity building are proposed. And, the role of the international community is outlined, including its roles in: providing access to adequate, predictable, new and additional financial resources; optimising the use of existing resources and mechanisms, in accordance with chapter 33 of Agenda 21; and, adopting measures for supporting endogenous capacity-building, in particular, for developing human resources and promoting the access of Small Island Developing States to environmentally sound and energy-efficient technology for their sustainable development. In that context, non-governmental organisations and other major groups should be fully involved.

17. The Barbados Programme of Action identifies priority areas and indicates the specific actions that are necessary to address the special challenges faced by Small Island Developing States. In fulfilling those actions, several cross-sectoral areas are identified – for example: capacity-building, including human resource development; institutional development at the national, regional and international levels; cooperation in the transfer of environmentally sound technologies; trade and economic diversification; and finance.

18. The year 2004 marks ten years since the Barbados meeting and Small Island Developing States are looking at the accomplishments and implementation of those areas identified in 1994. In April 2002, the Commission on Sustainable Development (CSD) passed a resolution, authorizing an international assembly to appraise the implementation of the Barbados Programme of Action. In accordance with this, during the week of January 26, 2004, an inter-regional meeting was held in Nassau, The Bahamas. In January of 2004 The Bahamas hosted the Interregional Meeting for The Ten Year Review of The Barbados Program of Action.

INTRODUCTION

The islands of The Bahamas are low-lying, surrounded by coral reefs and extensive sand flats. The archipelago's 700 islands and cays extend, from the east coast of Florida, some 750 miles (**1207 kilometres**) south-eastwards to Hispaniola and Cuba. The Bahamian Economic Exclusion Zone (EEZ) covers 260,000 square miles (**418 square kilometres**) of islands, banks, reefs, shipping lanes, and pelagic fisheries.

There are 22 inhabited islands, but the capital, Nassau, on the island of New Providence, and Freeport on the island of Grand Bahama, together account for about 78% of the total population of 303,611 (2000 Census, Department of Statistics). Population growth is 1.6% per year according to the 2000 census, compared with 2 per cent in 1990.

Very little of the total area of The Bahamas is dry land (only ~5,382 square miles / **8661 square kilometres**). About 40% of the total area of the country is comprised of shallow water banks, easily accessible by man, and the remainder is deep oceanic water. The islands are only the exposed portions of the banks, and are made of limestone, which was formed from the skeletal remains of vast amounts of marine life that inhabited the shallow waters.

Around the islands, notably on their windward sides, are extensive fringing coral reefs. There are also notable areas of patch reefs on the interiors of the banks, as well as extensive sea grass beds. Collectively the Bahamian shallow seas provide the largest body of coral reefs and other marine organisms in the Atlantic and Caribbean regions.

The Bahamian economy is based largely on tourism, which accounts for more than half of the total Gross Domestic Product (GDP). The number of yearly visitors has risen from 45,000 in 1950 to about 4 million in 2000 (Ministry of Tourism).

Banking and financial services account for roughly 15% of the GDP, and directly contribute over \$300 million a year to the economy, in salaries, fees and other local overheads. In addition to a well-developed commercial banking network dominated by Canadian-based institutions, there is a large international offshore sector that provides asset management for high net worth individuals. The attractiveness of the Bahamian environment, and of the resort facilities and transportation links developed to support tourism, are important factors in the growth of the financial services sector.

The value of agricultural production in The Bahamas is currently about \$50 million per year. Only some 19,768.43 acres (8,000 hectares) of land are used for agricultural purposes, with large-scale crop production concentrated on Abaco, Andros, Grand Bahama and Eleuthera. The Bahamas exported less than \$8 million worth of agricultural produce in 1999, mostly citrus fruits, avocado and pumpkin. Livestock production for the domestic market includes chicken, pork and mutton.

The Bahamas has the largest area of productive shallow water in the western Atlantic, and its EEZ included habitats ranging from sea grass beds and coral reefs to deep oceanic waters. This rich environment supports one of the world's major spiny lobster fisheries, as well as the most important remaining fisheries for conch and Nassau grouper in the western Atlantic and Caribbean. Commercial fishing generates about \$90 million a year—mostly exports of spiny lobster—accounting for about 2% of the country's Gross Domestic Product. Recreational fishing

is an important feature of the Bahamian tourism industry. The country's clear, unpolluted waters and the continuing availability of large game fish attract sports fishermen.

Major industrial operations have included cement manufacture, oil refining and bunkering, and pharmaceutical production. Among the newest activities are a dry-dock and repair facility for ships, and a major container transshipment terminal. All of these industries are essentially offshore activities that use The Bahamas as a tax-free base from which to provide services for other countries. The Bacardi rum factory in Nassau operates under similar provisions. Other smaller manufacturers serve the domestic market, and include import substitution products like purified water, car batteries, bicycles, ice cream and mattresses. Manufacturing accounts for 4% of the country's GDP.

There are very few natural mineral resources in The Bahamas, but solar salt is produced on Inagua, and limestone (aragonite) is exported from the Biminis. The search for oil and gas has so far been inconclusive, but there is geological potential for further exploration.

The Bahamas' GDP annual growth rate increase from 0.3% in 1995 to 6% per annum in 1999 and remained strong at 5% in 2000 and comfortable at 3.5% in the first part of 2001, while inflation averaged only 1.5% for the last four years. A surge in private sector investment in tourism, shipping and construction, combined with steady expansion in the financial services industry, has driven economic growth since 1995. However, the economy slipped into a recession in 2001, as output fell by 2%, largely reflecting the adverse impacts on tourism and investment by the global economic slowdown, and the terrorist attack on the United States of America in September 2001. Growth was subdued in 2002 and early 2003, as lingering security concerns dampen the U.S. tourist arrivals via air and cruise ship

Table 1. Statistical Overview of The Bahamas. Source: The Bahamas Environmental Handbook, BEST Commission (2002a)

<p>Total area –19,9553 sq. km</p> <p>Total land area – 8 sq. Km)</p> <p>Estimated reef area – 1,231 sq.km)</p> <p>Largest island – Andros: 4,023 sq.km)</p> <p>Largest City – Nassau (Population in 2000: 212,432) Total population – 304,913 (2000)</p> <p>Total households – 88,102 (2000)</p> <p>Percent urban – 80%</p> <p>Ethnic Distribution – Black 85% White 15%</p>	<p>Age distribution – Under 14: 29.4% 15-24: 65.6% Over 65: 5.1%</p> <p>Population growth – 1.8%</p> <p>Work force - Agriculture and Fishing: 4% Tourism: 50 % Public sector: 18% Financial Services: 15% Manufacturing: 4%</p> <p>Total GDP - \$4.5 billion (1999)</p> <p>Per capita GDP – \$15 billion (1999)</p> <p>Annual tourist arrivals – Total: 3.6 million (1999) Sea: 2.2 million Air: 1.4 million</p> <p>Annual tourist spending - \$1.5 billion (1999)</p>
--	--

1. CLIMATE CHANGE AND SEA LEVEL RISE

The land of “shallow seas”, described by Christopher Columbus in 1492, was formed at or near sea level, shaped by wind, water and rain, into what is now The Commonwealth of The Bahamas. The vulnerability of these islands to climate change and sea-level rise is found in their geology (limestone at or near mean sea level), location (within the hurricane belt), and water resources (freshwater, floating on sea water). Additionally, The Bahamas’ dependence on fossil fuels, a service-based economy, and lack of natural resources and adaptive capacity, further emphasise the country’s vulnerability to climate change and climate variability. Although the temperature rise can not be precisely predicted, or the exact amount time it will take, or the precise effects for each region of the globe, we do know that dramatic and devastating effects are possible as results of global warming.

For The Bahamas, as for many other Small Island Developing States (SIDS), global warming could bring catastrophe in the form of: (i) rising sea level (an archipelago of low-lying islands is particularly vulnerable); (ii) loss of biodiversity (inland ecosystems, coral reefs); (iii) economic loss; (iv) lost of agricultural lands; (v) human health impacts; and, (vi) degraded ground water supplies. Bearing this in mind, The Bahamas has made some strides in facing the climate change phenomenon, by implementing national and regional actions.

National Actions

- The Bahamas ratified the United Nations Framework Convention on Climate Change (UNFCCC) in 1994. A National Climate Change Committee (NCCC) was established in 1996 to coordinate the fulfilment of The Bahamas’ obligations and activities under the convention, and its responses to the issue of climate change at the local, national, regional and international levels.
- In 1999, the Government of The Bahamas commissioned a study of the effects of climate change on The Bahamas, by Global Change Strategies International (GCSI), a Canadian based consulting firm. The study resulted in a report entitled “Effects of Climate Change: Hydro-meteorological and Land-based Effects in The Bahamas”. The findings of the report formed an integral part of The Bahamas’ First National Communications to the UNFCCC. Additionally, the study is part of the effort by the Bahamian Government to develop a National Action Plan on climate change, to meet its obligations to the UNFCCC.
- The Government is currently developing a National Climate Change Policy, that seeks to provide a framework for advancing the capacity and capability of The Bahamas to effectively adapt to climate change impacts, and for supporting the sustainable use, conservation and preservation, of the country’s natural resources.

Regional and International Actions

The Bahamas participated in the regional initiative “Caribbean Planning for the Adaptation to Climate Change (CPACC)”, along with eleven other CARICOM states, from 1996 - 2001, the components of which included:

- Designing and Establishing a Sea Level/Climate Monitoring Network (Regional)
- Establishing Data Bases and Information Systems (Regional)
- Inventorying of Coastal Resources and Use (Regional).
- Coral Reef Monitoring Network (Pilot)*
- Coastal Vulnerability and Risk Assessment (Pilot)
- Formulating a Policy Framework for Coastal and Marine Management (Regional)
- Economic Valuation of Coastal and Marine Resources (Pilot)

In The Bahamas, two sea-level measuring stations were established, as part of a regional effort to expand the stations in the Caribbean; one station was established by NOAA as part of the Global Sea Level Observing System (GLOSS), based in England at the Centre for Coastal and Marine Sciences; another station by GCSI researchers; additionally, two new stations were established, as part of the Organisation of American States (OAS) Caribbean Planning for Adaptation to Climate Change (CPACC) project, in Nassau Harbour and at Great Inagua. Hurricane Floyd destroyed the Great Inagua sea-level station in September 1999. Unfortunately, the records from the station for The Bahamas were not collected for a long enough period to show changes in sea level. ,

- The Bahamas has signed on to two follow-up regional projects, ACCC and MACC.

The Bahamas recognises that efforts to mitigate the impacts of climate change require multidisciplinary and cross-sectoral approaches, and must take account of the archipelagic nature of The Bahamas and its natural vulnerability.

Currently, there is no direct legislation in force to address climate change issues or the management of greenhouse gases, and policy options are limited. Although The Bahamas is not a significant source of greenhouse gas emissions, there is a need to reduce the drain of foreign reserves that are currently used to acquire imported fossil fuels.

Further, there still remains a need for governments to develop national inventories of greenhouse gas sinks, and formulated measures to address anthropogenic emissions. Likewise, The Bahamas consider that greater cooperation in the development and use of technologies to reduce emissions, in the sustainable management of reservoirs of greenhouse gases is critical.

*The Bahamas was also selected for a pilot project to monitor the effects of climate change on coral reef systems. The project's objective was to build regional and national capacity.

2. NATURAL AND ENVIRONMENTAL DISASTERS

National Action

A National Disaster Organisation was established in 1991, within the Office of the Prime Minister, replacing the intra-governmental Bahamas Hurricane Committee, which was formed in 1972. Currently, the National Disaster Organization/Disaster Management Unit, recently renamed the National Emergency Management Agency (NEMA) is situated in the Cabinet Office. The NEMA organisation provides an umbrella to help the country prepare for and respond to major disasters, whether from man-made or natural causes. The Agency has a series of standing committees, that address such areas as: (i) search and rescue, (ii) evacuation and transportation, (iii) damage assessment, and (iv) response and recovery. The Unit has since developed policies, a disaster mitigation plan, economic and fiscal instruments, regulatory measures and an emergency fund. The Government is currently:

- conducting regular training classes on the inhabited islands of The Bahamas, on disaster preparedness, management, and emergency response;
- developing a Comprehensive Emergency Management Plan;
- developing a national and regional handbook on Disaster Preparedness and Management.

A Bahamas Oil Spill Contingency Plan has also been developed, and was officially adopted in 2001. The Plan is a joint initiative by both the public and private sector, including major petroleum distributors and government agencies such as the Department of Environmental Health Services, the Port Department, the Royal Bahamas Defence Force, and the BEST Commission.

3. COASTAL AND MARINE RESOURCES

Because of The Bahamas' geographic configuration, the protection of the ocean is of considerable importance as the archipelago covers 124,000 sq. miles (19,9553 km) 90% of which is ocean. It is important to recognise that most of the country's total area (more than 96%) is coastal or marine environment, and most of its biological diversity (higher taxa of organisms, and habitat types) is in coastal, marine and deep waters, the greater portion of which remains quite unexplored. Much of the biodiversity of Bahamian waters comprises migratory fish and mammal species.

Approximately 80% of The Bahamas is within five-six feet (1.5 – 1.8 meters) of mean sea level, and, with rising sea levels and temperatures, the projected increase in the number and intensity of tropical cyclones is of concern. The loss of coral to bleaching and heat stress, and the destruction of wetlands and sea grass beds, is also of concern. Issues associated with lost coral are being dealt with, in the context of the GEF/OAS regional project on Adaptation to Climate Change (CPACC), in which coral reefs and sea-level rise are being monitored.

National Action and Policies

The Bahamas ratified the United Nations Convention on the Law of the Sea (UNCLOS) in 1983, ratified the Convention on Biological Diversity in 1993, signed the Biosafety Protocol in 2000, and became a signatory to the RAMSAR Convention (wetlands) in 1997. Under the Ramsar Convention, 80,558 acres (326 km²) of wetlands, on the Island of Inagua, have been designated as a Wetland of International Importance. It is managed under the guidelines of the Convention, by The Bahamas National Trust. A breeding colony of the West Indian Flamingo (*Phoenicopterus ruber ruber*), estimated to number some 60000, is found on Inagua, and some of these flamingos are now beginning to colonise other islands in The Bahamas. In 1999, The Bahamas was estimated to have (4,286 km²) of mangrove forest and other wetlands habitat, and in 2004 the Government will undertake a program of action to initiate a National Wetlands Policy.

Coastal biodiversity in The Bahamas consists in large part of mangrove and wetland areas. The National Creeks and Wetlands Restoration Initiative (NCWRI), which was formed in 1999, has compiled an inventory of degraded wetland sites in need of restoration, and has been involved in restoration activities throughout some of the islands. The NCWRI also undertakes public education and awareness activities, and the month of February is identified as National Wetlands Month. In 2001, Nickelodeon's "The Big Help" teamed up with The Islands of The Bahamas Tourism Sector, to educate, demonstrate and celebrate the underwater environment, with wetland restoration projects throughout some of the Family Islands. There are some 45 wetlands sites identified throughout The Bahamas, allowing for Bahamian children all across the country to get involved in the protection and restoration of wetland areas in their islands and communities. Initially, a total of seven (7) sites have been targeted for restoration by schoolchildren.

The Government is working diligently to ensure sustainable economic development, utilising integrated marine and coastal planning and resource management. Precautionary measures have been taken with respect to marine and coastal activities. It is now official policy to require an Environmental Impact Assessment prior to any major activities or development projects. If developers are guilty of negative practices, permits to operate can be revoked. The same applies

to fishermen, and heavy fines are applicable to cruise ships and boat owners for failure to comply with environmental laws and regulations.

It is important to note that The Bahamas is overwhelmingly a marine country, in regard to both its placement and biological diversity. This has two important side effects - firstly, fisheries policy and management bears a responsibility out of proportion to its logistical capability, personnel, and funding; secondly, the effects of fisheries activities on biodiversity are very poorly known, due both to the physical nature of marine ecosystems, and to the remoteness and consequent difficulty of policing these environs.

National legislation and international agreements, to which The Bahamas is a signatory, ensure the Government's commitment to sustainable fisheries. The Fisheries Resources (Jurisdiction and Conservation) Act of 1977 makes provision for conservation and management of the fishing industry and fisheries resources. The Fisheries Resources (Jurisdiction and Conservation) (Amendment) Act of 1993 gives the Minister of Finance responsibility for the disposal of forfeited articles from fisheries, and the Fisheries Resources (Jurisdiction and Conservation) (Amendment) (No. 2) Act of 1993 prohibits long-line fishing. Further, The Bahamas is a party to the United Nations Convention on the Law of the Sea, which establishes a comprehensive framework for the regulation of ocean space and fisheries resources.

Commercial fishing, within the 200-mile economic exclusive fishing zone, is reserved for Bahamian nationals. Despite an optimistic forecast for Bahamian fisheries, there are concerns that challenge sustainability. Enforcement of fisheries regulations is a serious problem, and fisheries management is challenged by open access policies that encourage over-exploitation and over-capitalisation. Management must make decisions without the benefit of reliable and timely scientific data, and the resources allocated by the Government for administration and development of the Department of Fisheries are far from sufficient. Increased fishing activities on grouper spawning aggregations leads to serious depletion of stocks; that is, illegal harvesting of species during their respective closed seasons, and of protected juveniles. Poaching by foreign vessels and violations by domestic fishermen are common. In order to meet the increased demand for grouper, some fishermen have resorted to the illegal use of chemicals and air compressors. In addition, increasing competition for the highly valued spiny lobster is leading to widespread theft from lobster traps and conflicts among fishermen.

In light of these issues in January 2000, the Government of The Bahamas announced its decision to establish a network of marine protected areas. The Government has committed itself to a 20% conservation rate of the marine areas of the country. The first five no-take reserves within the network have been identified, and they encompass areas around the Berry Islands, Andros, Bimini, south Eleuthera, and the Exumas. This integrated network of no-take marine reserves is designed to:

- protect flagship species such as the Nassau Grouper, Queen Conch, Spiny Lobster and Elkhorn Coral;
- enhance support for fisheries production and community based management efforts;
- ensure protection of the marine biodiversity of the islands of The Bahamas; and
- ensure protection of healthy marine ecosystem structure and function.

An international team of scientists, will spend five years charting natural and human impacts, as the Government expands the existing system of marine protected areas, to create one of the world's first marine reserve networks.

The Bahamas has also planned an integrated coastal area management programme. The project, sponsored by Inter American Development Bank, is intended to support the development of the country's environmental laws and regulations, and the establishment of a Department of the Environment. The overall goal is to introduce advanced Integrated Coastal Zone Management (ICZM) concepts, leading to a National ICZM Program for The Bahamas.

Further, mechanisms to facilitate cross-sector communication and coordination are of special concern. At present, The Department of Fisheries shares conservation responsibilities with The Bahamas National Trust, environmental responsibilities with the Bahamas Environment Science and Technology (BEST) Commission, health responsibilities with the Department of Environmental Health Services, investment interests with the Bahamas Agriculture and Industrial Corporation, fisheries development interests with the Bahamas Development Bank, and sport-fishing and tourism interests with the Ministry of Tourism. The Department of Fisheries also interacts with the Ministry of Education, the Royal Bahamas Defence Force, Customs and Immigration, the Water and Sewerage Corporation, the Department of Lands and Surveys, the Department of Physical Planning, and the Bahamas Agricultural and Industrial Corporation (BAIC).

There are major gaps in fisheries science that urgently need addressing. In the absence of better-coordinated fisheries research, applied and strategic fisheries in The Bahamas will neither be able to monitor its successes, nor attain sustainable use. A greater information base is needed at all levels, from species biology to the behaviour of whole ecosystems, and from local to national, regional, and international levels.

Regional/International Action

The Bahamas is currently honouring the provisions of the Code of Conduct of Responsible Fishing. The country participates actively in the International Coral Reef Initiative, and other scientific activities of the Commonwealth Secretariat, Organization of American States (OAS), United Nations Educational Scientific Cultural Organization (UNESCO), United Nations Environment Programme (UNEP), etc. The Bahamas has undertaken climate change activities through the UNEP/GEF Caribbean Adaptation to Climate Change Project and the World Meteorological Organisation, and is actively involved in activities under the Convention on Biological Diversity, including UNEP/Global Environment Facility (GEF) Biodiversity Country Study, the Biodiversity Data Management Project and the National Biodiversity Strategy and Action Plan. The Bahamas is however not a party to the Specially Protected Areas and Wildlife Protocol (SPAW), as of 2003.

4. LAND RESOURCES

The total area of The Bahamas is 321,159 km² and of this area only 13,939 km² accounts for the total land mass. Thus, the challenge of managing the country's resources is great. One of the competing factors for efficient land management has been increasing physical development, particularly touristic and commercial in nature. The land development has often led to exacerbated erosion, loss of agricultural productivity, deforestation, and deteriorating water quality, for both the marine environment and freshwater resources. Another determining factor for land management and reduced land degradation is the natural hazard of hurricanes, the impacts of which have been increasingly devastating. In the last ten years, the impacts of hurricanes Lily, Floyd, Michelle, Frances and Jeanne have caused considerable damage to coastal ecosystems and communities, and have left in some cases permanent scars on the islands of The Bahamas.

National Action

The Conservation and Protection of the Physical Landscape (CPPL) Act, was enacted on May 23rd, 1997, to regulate certain environmentally unfriendly development activities. Activities of concern include: quarry excavation, backfilling of mangroves and natural ponds, felling of old growth trees, and permanent landscape damage.

There are a number of important scenarios itemised in the CPPL Act. Firstly, the Act charges the Minister with responsibility for Physical Planning, to regulate excavation, landfill operations, quarrying mining, and the felling of protected trees, in The Bahamas. The Act also allows the Director of Physical Planning to request an environmental impact assessment from the applicant for activities that may adversely affect natural resources. Such activities may include the filling-in of wetlands and drainage basins, or the construction of canals, bulkhead or piers. An Order of the Act defines protected trees as any hardwood species rare, historic or of remarkable growth. Currently twelve species are listed.

Additionally The Bahamas signed on to the United Nations Convention to Combat Desertification (UNCCD), which address the issue of land degradation. Under this Convention The Bahamas is obligated to develop a National Awareness Programme, which will inventory degraded lands and seek ways to rehabilitate such areas.

In keeping with land conservation efforts, in April 2002, the Government announced the expansion of the national park system, managed by the Bahamas National Trust (a quasi-governmental organisation), by the addition of ten new protected areas, to add to the existing twelve. The total national park holdings now exceed 263 hectares. These national areas of protection are chosen for their natural resources, economic, social, scientific, and international significance.

The Government through multilateral assistance is also seeking to develop a national land use policy. This project will achieve the following goals:

- set strategic land policy guidelines, which will seek to rationalise the sustainable use of land resources within the overall context of national economic, social and environmental policy development;
- begin the investigation of priority land policy issues;

- coordinate and manage the completion of studies and technical activities related to producing land use development plans for those islands where development projects are being considered.

In this regard, the Government has already embarked on a pilot project to develop a land-use plan for the islands of Exuma, which has seen increased growth in tourism development. A policy will be devised which addresses land-use, zoning, and future development options.

5. BIODIVERSITY

The Bahamas Country Study Report (1995) is The Bahamas' most recent attempt to provide an overview of the country's biodiversity. Even so, its accounting of the taxonomic and ecological status of biodiversity in The Bahamas is considered preliminary. As the report states, "knowledge of Bahamian species diversity is fragmentary. An estimate based upon the survey of scientists and literature; suggests that possibly only 5% of all species present in the country have been identified to date. This would mean that a full 95% remains unidentified or undescribed."

However, many aspects of Bahamian biodiversity have been studied and are noteworthy. The Lucayan Caverns on Grand Bahama, reputedly one of the largest submarine cavern systems in the world, are known to possess a number of endemic species. Research in some of the blue holes of Andros on *Gambusia hubbsi*, a species of mosquito fish found only in The Bahamas, shows that populations between blue holes differ greatly in body size and sex ratios. These differences may reflect differences in predators, and research is continuing on these extremely complex ecosystems. Also, the lakes of San Salvador contain four species of sympatric pupfish (*Cyprinodon*), a situation known to exist in only one other place in the world.

Isolation and an extensive shelf with productive coral reefs and other habitats, plus a large area of coastal wetlands, especially mangrove forests, contribute to the abundance and diversity of fish. In this regard, The Bahamas has greater biodiversity abundance than the entire insular Caribbean.

Correll and Correll (1982) report that nearly nine percent (121 taxa) of plant species found in The Bahamas are endemic, but concludes that the Bahamian "flora has been derived mainly from that to the south and west, especially Cuba." Over 1350 species of flowering plants and ferns have been described, representing approximately 660 genera and 144 families.

The Government of The Bahamas has endorsed biodiversity conservation. It has recognised that the environment is critically important to the economy and well being of all generations of Bahamians. In support of this policy, the government has begun to incorporate the protection and enhancement of the environment and biodiversity into the national planning process. To facilitate this process the Government, created the BEST Commission in 1995, passed important environmental legislation, and is actively reviewing and complying with international agreements on environment and natural resources.

Further, the Government is committed to the implementation of a review and approval process for development, through the finalisation of environmental impact assessment processes and procedures. The Government has also committed itself to develop policies that will ensure regular monitoring, quality control and enforcement of laws for the protection of environmental resources, including fresh water, marine resources, agricultural lands and general environmental quality.

6. ENERGY

The Bahamas is completely dependent on imported fuel resources for the generation of electricity and gas, and presently has no national energy policy. However, the Public Utilities Commission is responsible for regulating all utility companies, including telecommunications, water, and electricity.

The two major entities responsible for energy production and distribution in The Bahamas are the privately-owned Grand Bahama Utility Company (GBUC) and the publicly-owned Bahamas Electricity Corporation (BEC). GBUC provides electricity services to all of Grand Bahama and a few small offshore communities, through the use of an 18,000 kW diesel plant, two gas turbines producing a total of 35,000 kW, and a 75,000 kW steam plant. BEC produces energy through the use of seven diesel-driven alternators, eight simple cycle gas turbines and one combined cycle unit, comprised of one steam and one gas turbine.

National Action

The Government is committed to giving the area of energy resources greater attention. While there is no national energy policy, it is the government's intention to electrify the entire Bahamas. Power supply to the less populated Family Islands is subsidised by the government, and by consumers in Nassau, as it is not cost-efficient to electrify all of the islands due to the sparse populations.

Where necessary, the government has licensed private suppliers to satisfy rural energy needs, and there have been investigations of renewable-energy alternatives. Experimentation with the production of solar energy is being done privately, on a small scale. There are restrictions on energy production in the private sector; however, there have been several proposals for clean-energy technologies submitted to BEC, which are being considered by the Government.

Targets have been set for energy savings. Transmission and distribution losses of energy are well known, and a 14% improvement in transmitted power losses is the current target. BEC also makes recommendations to consumers on how to utilise energy more efficiently in their businesses and homes.

The Corporation currently monitors environmental performance to ensure that emissions and discharges are within local and international guidelines. An emissions inventory has been established to record monthly emissions from all power stations. This includes carbon dioxide (the principal greenhouse gas emitted) and oxides of nitrogen and sulphur (the principal acid gas released from BEC's power stations).

Fuel purchasing procedures now take account of environmental considerations, and responsibilities have been identified for improving fuel delivery and storage, to minimise spillage and ensure proper metering of fuel consumption. Currently, there is leakage of fuel from underground pipelines at the receiving terminal. Certain aspects of fuel handling, where emergency procedures and clean-up facilities are desirable, have also been identified. A system has been outlined to promote the minimisation of waste production, and the use of satisfactory disposal routes where recycling is not possible. Guidelines have been established for the storage and disposal of waste oil.

Procedures have been proposed to ensure that process water usage is minimised as far as possible, and that water discharged (both process water and surface water) is not harmful to the local

environment. The use of water additives and cleaning fluids that are environmentally friendly will be promoted where they are readily available.

A management procedure has been developed for the distribution system, which covers such issues as:

1. the use of non-rain-forest wood for poles.
2. the use of environmentally friendly wood treatments.
3. the use of non-PCB transformer oils.
4. recycling of transformer oil.
5. minimising disturbances during installation and maintenance.

7. MANAGEMENT OF WASTES (*Solid and Hazardous Wastes*)

Conventions

The Basel Convention for the transboundary movement of waste was ratified by The Bahamas on 12 August 1992.

Sanitary landfills

Bahamians and visitors together generate more than 264,000 tons of municipal solid waste annually. The Island of New Providence generates about 77% of this annual waste, with Grand Bahama Island at 17%, and 6% (15,800 tons) generated on the other 12 major islands. New Providence and Grand Bahama have established sanitary landfills, and The Government, with assistance from the Inter-American Development Bank, is in the process of establishing proper sanitary landfills throughout the Family Islands, including newly-constructed modified-landfills on the islands of Bimini and North Eleuthera. The Government continues to review proposals for the use of new technologies for solid waste treatment.

Recycling

Recycling efforts on New Providence are limited consisting primarily of beverage bottles with return deposits and the private individuals who collect them. There is also some cardboard and paper collection by commercial firms. A lack of overseas market for plastic and glass, and to some extent cardboard and paper, reduces the potential for serious recycling efforts. There are initiatives for the recycling of derelict vehicles, to markets in the United States, but this too is dependent on the international market for steel.

National Action and Policies

The Environmental Health Services Act of 1987 and the Health Rules provide the regulatory framework for solid waste management in The Bahamas, and establish that overall responsibility rests with the Ministry of Health. The Environmental Health Services Act promotes environmental protection in order to ensure human health, and contains regulations related to contaminant emissions for air, water and soil. Collection and transportation of solid waste are generally covered, and provisions prohibiting litter are included. The Government has proposed amendments to the Act, to specify more clearly environmental protection standards and regulations. These Draft Environmental Health Regulations (Collection and Disposal) are under review by the Government.

Other pieces of legislation of relevance to solid waste management are the Local Government Act of 1966 and the Water and Sewer Corporation Act. The latter places water resources use under the control of the government, and creates an authority to oversee water management and protection. The Government continues to seek to develop recycling agreements with private firms for the disposal of derelict vehicles, has developed environmental education curricula, has presented workshops for domestic recycling and composting, and has provided for a yard waste shredding facility and for litter control.

The dumping of sewage and garbage from cruise and cargo ships is an ongoing problem for The Bahamas. While discussions with such companies are frequent, and heavy fines are imposed if detected, policing 258,998 km² of water is virtually impossible for us.

Public Education and Awareness

The Government has been engaging in public education through: media campaigns, printed material and seminars; technical assistance at the community level for backyard composting; community clean-up programs; and school environmental contests and presentations. Activities within communities include warning signs, optional depositories (such as permanent and temporary litter barrels in public spaces, or skips at dumpsites), and drop-off depots for recyclables. There is also increased enforcement of the existing litter law, to deter would-be dumpers.

Hazardous Waste

The Bahamas has for several years had a policy of not accepting imported waste of any kind. This policy stands regardless of whether the waste is intended for disposal or recycling.

Regional and International Action

The Bahamas is not actively involved in any regional programmes regarding waste at this time. However, The Bahamas is a signatory to the Basel Convention, supports the Basal regional centre, participates actively in meetings related to various aspects of the Convention, and participates in negotiations for a treaty on liability and compensation for damage resulting from transboundary movements of waste.

8. FRESHWATER RESOURCES

All freshwater in The Bahamas, comes from rainfall that is in dynamic transit to the ocean. It has been estimated that freshwater underlies only some 5% of the total land area of The Bahamas. The physical geology or hydrogeology of The Bahamas, and its water resources, are directly linked, as the country has no true rivers. Rainfall is unevenly distributed across the country – the north and north-central Bahamas receives annually some 1270 to 1524 millimetres of rainfall, while in the southeast Bahamas, the rainfall decreases to some 914 millimetres annually. There is a distinct dry season (November to April) and a pronounced wet season (May to October). The seasonal effects of tropical cyclones have a pronounced effect on annual rainfalls. Winter storms coming from the North American continent also bring occasional rainfall during the normally dry period. This effect however rarely extends into the central and southern Bahamas.

The freshwater resources have been quantified, and their spatial distribution is reasonable well defined. The fresh water lenses lie on top of brackish water, which can result in salt water intrusion due to over extraction. The existing information suggests that there is no net shortage of freshwater in The Bahamas to meet current needs. There are however local shortages because of the spatial distribution of freshwater. New Providence, for example, is capable of producing a long-term sustainable yield of 9.63 million gallons of freshwater per day. New Providence has a resident population of 210,832 persons (2000 Census, Department of Statistics), which seems to correlate to a total sustainable yield of 45 gallons of freshwater for each person per day. However, this analysis assumes that the entire island has been developed as a water supply source, and ignores the tourism sector, which is the largest demand sector for freshwater in The Bahamas.

Institutional Structure and Legislation for Water

In The Bahamas, existing laws usually relate to water supply or to the environment in general. However, with regard to ground water rights, there is generally some objection to the Government administering access to what is generally regarded as a communal possession.

Existing legislation provides the basic legal framework for the management and regulation of the country's ground water resources. The Water and Sewerage Corporation (WASC) Act (1976) defines the responsibilities of the Corporation in the following areas:

- (i) to provide water supplies for domestic and other uses, to provide adequate drainage, and to dispose of sewage and other effluent;
- (ii) to expand the water infrastructure systems in the country;
- (iii) to ensure and control the optimum development and use of water resources;
- (iv) to serve as advisor to the Minister responsible for water and sewerage, draft regulations, register users, etc.

Responsibilities **(i)** and **(ii)** are the duties of an ability corporation. Function **(iii)** and **(iv)** define control and regulatory duties to be carried out on behalf of the government.

In practice, water resources management is limited to the provision of some water related services, whilst efforts toward the protection of the water resources and their long-term management are not yet fully developed. The current implementation of rules and regulations governing the use of water resources is hampered by the following conditions:

- (i) legal and institutional overlap, between various water-related laws and the agencies

- entrusted with their implementation;
- (ii) the lack of a water resources development policy, or central institutional framework for its administration.

The Legal and Institutional overlap involves: in the first instance, the Ministry of Health, which is entrusted with the administration of the Environmental Health Act (EHA) and the Health Services Act (HSA); secondly, the Ministry of Works and Lands, which is entrusted with the administration of the Building Control Act and Regulations (BCA) and with town planning and land use, and physical planning. In the context of the Bahamas, these functions must be closely coordinated with the activities of the Ministry of Consumer Affairs and the Water and Sewerage Corporation, which are entrusted with the optimal development of the country's water resources, their allocation, distribution, and the quality control.

Established guidelines for allocating water resources between competing uses are weak. Further, control mechanisms, to ensure that resources are exploited in line with allocation limits established by the water authorities, have not been adequately developed. As a result, those government agencies involved with economic development programs are not compelled to recognise and accept that the allocation, protection and regulation, of the country's water resources are the primary responsibility of the Public Utilities Commission under the Water and Sewerage Corporation Act.

To a large extent the present situation is the result of rapid economic growth over the last decade, which fueled an unregulated growth in water usage and sewage disposal needs. In places like The Bahamas, where most competing economic activities are dependent on the availability of limited water resources, the allocation of a water resource and the disposal of sewage and industrial effluent have important economic consequences.

The present policy of The Bahamas Government is to encourage and assist tourism development, in areas where there is an adequate supply of freshwater. In areas where the freshwater resources are inadequate, the Government provides for the granting of Water Supply Franchises associated with the development of a water supply system for the area. Liberal duty free exemptions are usually permitted for each Franchise.

Environmental and Water Quality Concerns

- **Over-extraction of groundwater lenses:**

In order to meet the water requirements of a growing population on the island of New Providence, some water lenses on the island have been extracted beyond their sustainable or safe yields, partly because of illegal private wells. This has caused a mixing of the fresh and brackish lenses, resulting in a steady rise in the salinity of the water supplied.

The commissioning of a two million-gallon per day desalination reverse osmosis plant has helped, but demand is still great. An increase to a minimum of four to six million-gallons per day of desalinated water can be justified. This will lessen the dependence on the water lenses. Appropriate water harvesting practices should also be implemented.

- **Waste disposal in landfills and septic tanks, which are unlined:**

The predominant method for solid waste disposal in the country is via landfills. These are generally not lined and pose a great threat to fresh water lenses, where they occur, due to problems associated with leaching. Alternative disposal methods are being explored.

The majority of the country's homes are not on a central sewerage handling system. Septic tanks predominate, and they tend to leach sewage into the fresh water lens, which has a significant impact on the quality of the water. A program to provide sewer systems for all major settlements has been developed, and funding is presently being sought. Presently, the major hotels utilize wastewater treatment plants and reuse the treated water for irrigation and flushing of their toilets.

As part of the Solid Waste Management Program, funded by the Inter-American Development Bank, both a municipal and a construction and demolition landfill cell, completed in 2000 for the island of New Providence, are lined to protect the underlying water resources. Bimini, San Salvador and North Andros also received lined municipal landfills, but only have the capacity to serve the current needs of the existing population.

- **Industrial and commercial effluents, and their disposal:**

The absence of a central sewerage system to handle liquid wastes requires light industrial and commercial establishments to utilize deep injection wells for wastewater disposal. These wells are generally not well constructed, monitored or maintained, and they often leak into the freshwater lenses. This is an increasing problem, which must be addressed.

The Water Resources Management Unit (WRMU) of the Water & Sewerage Corporation presently oversees the construction and testing of all disposal wells, reverse osmosis (R/O) supply and the associated R/O brine disposal wells.

- **Agricultural and landscaping concerns, with special reference to the construction and irrigation of golf courses:**

The Bahamas has recently moved into the improved production of agricultural products for export. Due to the poor quality of the soil, large amounts of agro-chemicals are relied upon to ensure adequate yields. The use of these chemicals poses a threat to the groundwater, and will require constant monitoring and regulation.

The Bahamas' economy is largely based on tourism. A major tourism sector water abstraction is for numerous golf courses. Large quantities of agro-chemicals and fertilizers are also used to maintain these, and due to the porous nature of the soil and rock, significant amounts of these chemicals are contaminating to the groundwater, and concentrations are increasing. Plus they require large quantities of freshwater.

It is the policy of the government, through the Bahamas Environment, Science and Technology Commission (BEST) and the guidelines for environments impact assessments (EIA), to monitor all new developments. To minimise freshwater use, golf course developments are required to utilise re-use water for irrigation; to line the lake

hazards; and to plant salt resistant grasses that do not require fresh water for irrigation whenever possible.

- **Land and coastal development:**

The clearing of land for housing and other projects has exposed low-lying water lenses to more evaporation activity. This further contributes to the lenses depletion. The permitting of unsealed canal systems in the past has produced additional drainage points for some fresh water lenses, which reduces the thickness of the lenses and allows the ingress of seawater.

Coastal development has also had an impact on beach formation and erosion. Beaches that lose sand in a hurricane usually return this sand over a period of time, but replenishment is often done at considerable cost. Proper reviews of likely impacts are necessary to ensure minimal impact on the beaches. The damage has been limited so far, and confined to the heavily developed areas of the country. The Bahamas is fortunate, in that most of the country is undeveloped. The archipelagic structure has tended to isolate damage, and confine it to separate islands.

- **Leaking underground storage tanks:**

Once groundwater is polluted, it is extremely difficult and costly to clean up. Efforts have been being made to clean up one fuel spill on New Providence for more than twelve (12) years, and there is still a significant volume of hydrocarbon in the substrate.

- **Climate change as it relates to rising sea levels, and storm surges associated with tropical storms:**

In The Bahamas, ground level is on average less than five feet above sea-level. The coastal area is predominantly made up of gently sloping shares. This type of land formation is particularly vulnerable to sea-level rise. As the only source of drinking water is from fresh water lenses, which float above a brackish lens, any sea level rise pushes the fresh water nearer to the surface, promoting greater losses to evaporation. Lower annual rainfall would cause a reduction in the size of lenses, due to the lowered recharge rate.

The geological make-up of these islands, and their fragile ecosystems, make sustainable use of natural resources critical, especially freshwater. Also, the extensive coastal zone and extremely vulnerable borders make enforcement of environmental regulation an ever more taxing problem. In an attempt to limit the effects of development on the environment, some of the policies implemented include:

- Establishment of the BEST Commission, made up of representatives of both the private and public sectors to serve as a focal point for national and international environmental matters.
- Implementation of a program to improve and put in place a system of drainage wells and catchments in densely populated low-lying areas susceptible to seasonal flooding.
- Studies on the solid waste disposal needs of New Providence, Harbour Island and Bimini, where inadequate solid waste disposal facilities pose health risks.
- Extension and evaluation of the National Parks system.
- Development of guidelines for environmental impact assessments (EIA).
- Submission of an EIA as part of the application process is now required of all investors.

9. TOURISM RESOURCES

Tourism is an important economic activity in The Bahamas and the natural environment is its greatest asset. As the number one industry, tourism contributes greatly to the gross domestic product. Fifty percent of the population is employed within the tourism sector, and over the past five years, there has been a steady increase in visitors to The Bahamas. However, there was a noticeable decline in visitors immediately after the United States terrorism attack in September 2001, the impact of which was quite evident on the economy. Nevertheless, the industry is continuing to rebound, and the Government is continuing to recognise the growing demand for destinations whose tourism appeal builds on key values such as environmental quality, natural beauty and cultural identity, and is promoting the concept of sustainable tourism development. Sustainable tourism development requires that economic planning take into account the conservation of the natural and cultural resources of the country.

Year	Air	%	Sea	%	Total
1993	793,811	45.4%	955,504	54.6%	1,749,315
1996	889,819	47.9%	968,591	52.1%	1,858,410
1999	994,457	43.5%	1,290,352	56.5%	2,284,809
2001	1,538,000	37.6%	2,552,000	62.4%	4,090,000

National Action

In 1992 the Government expressed its commitment to ecotourism as “a powerful instrument for sustainable development” in small island communities throughout the Bahamas. The Ministry of Tourism was mandated to develop policies to implement this commitment.

'A Sustainable Tourism Policy, Guidelines and Implementation Strategy for the Out Islands of The Bahamas' was produced in 1994 with funding from the Organisation of American States. This was followed by the creation of a Sustainable Tourism Development Unit within the Ministry of Tourism. The sustainable tourism policy addresses the following areas:

- Green marketing and management
- Monitoring of environmental impacts
- Natural and cultural resource protection and enhancement
- Waste Management and water conservation
- Environmental training and education

Equally important to the guidelines are the specific recommendations for implementation and promotion of the policy.

The Government organised a series of workshops in 1997 focusing on ecotourism planning and product development. More than 400 participants, including hoteliers, educators, local government officials, tour guides, journalists, environmentalists and potential investors, attended the workshops which were held on five different islands. The Commonwealth Secretariat also

sponsored ten Commonwealth Caribbean country representatives to attend a train-the-trainer workshop, which prepared participants to develop their own ecotourism planning program at home.

In further efforts to promote public awareness of the importance of sustainable tourism development, the Ministry of Tourism has implemented the following activities:

- Ecotourism Awareness Month
- Birdwatching Tour Guide Courses
- Alternative Energy Seminars
- Sustainable Development Workshop
- Eco Design Contest and Workshop

Sustainable Tourism Development

The Bahamas' definition of Sustainable Tourism development is "that development that responds to the needs of present Bahamian visitors and the travel industry without compromising the ability of future participants in Bahamian travel industry and guests to meet their respective business and vacation requirements."

The Bahamas Ministry of Tourism in 1994 established a Sustainable Tourism Development Unit to carry out the mandate expressed in the above definition. A set of sustainable tourism development policies was established to assist in guiding this unit in its mandate. The following are some of the initiatives of the Sustainable Tourism Development Unit to maintain the integrity of our natural resources:

Ecodge Architectural Design Competition

This project was developed and implemented with the assistance of the Inter American Development Bank in 2001. It included a one day workshop for all competing Architectural firms and investors as well as an exhibition of renewable technology and environmentally responsible products. At the conclusion of the competition the designs were exhibited for three weeks at the Central Bank to expose the public to environmentally responsible designs and technology.

The following objectives were achieved:

- Educate architects and investors on new techniques for environmentally responsible design standards for ecolodges and other accommodation and attraction facilities.
- Increase the level of construction of environmentally sensitive tourism facilities, which will protect the integrity of the environment of The Bahamas and the Caribbean and minimize the depletion of the world's resources.
- Provide a practical design document to assist environmentally sensitive architects and developers in other small-island developing states.

- Encourage and promote the development of sustainable accommodations in order to attract a growing number of environmentally sensitive travellers.

The design competition attracted eighteen local architectural firms who also took part in a one-day workshop with potential developers. Coinciding with the workshop was a tradeshow featuring environmentally responsible products. These initiatives by the Ministry of Tourism helped create a greater appreciation of the nation's cultural, historical and environmental assets, while providing international exposure for The Bahamas as a destination that promotes sustainable development principles.

Regional Action and Policies

The Bahamas is currently one of four Caribbean pilot countries involved in this initiative. The Blue Flag program originally began in Europe with a major focus on maintaining the environmental integrity beaches and marinas within Europe. This program has been broadened to include not only Caribbean States but also countries such as Australia, New Zealand, South Africa and Canada.

The program is voluntary and beaches and marinas are judged on the following four factors:

- Water Quality
- Environmental Management
- Safety and Security
- Environmental Education

The Bahamas currently have two marinas (Old Bahama Bay and Port Lucaya Marinas) involved in this program. Both marinas are presently awaiting certification from a panel of Judges based in Spain.

10. SCIENCE AND TECHNOLOGY

As a Small Island Developing State, The Bahamas recognises that building human capacity and infrastructure in the area of science and technology is critical for the economic and social advancement of the nation. The Science, Technology and Technical and Vocational Department of the Ministry of Education has sought to develop this capacity, particularly at the primary and tertiary levels throughout the country. The Department has developed an environmental education curriculum for the public school system. The curriculum was developed in consultation with other government agencies and non-governmental organisations and aims to equip Bahamians with the attitudes, knowledge and skills necessary to preserve, conserve and restore degraded environment.

Additionally, a National Science and Technology Committee was re-established in 2001 within the BEST Commission with the main objectives of:

- Popularisation of Science and Technology in The Bahamas;
- Establishing and sustaining a consultative body for Science and Technology that gives focus to strategic planning and facilitation of matters concerning Science and Technology;
- Formulation of policy with regards to Science and Technology in The Bahamas;
- Promoting and supporting the advancement of Science through institutions of higher learning and research organisations in The Bahamas;
- Promoting and supporting the progress of Technology and the physically and environmentally safe use of it in The Bahamas;
- Enhancing and further developing information systems and resource networks on Science and Technology in The Bahamas;
- Developing mechanisms for international cooperation on matters of Science and Technology in The Bahamas, the region, the hemisphere and the world; and
- Improving Science and Technology efficiency and conservation.

11. HEALTH

The Government of The Bahamas has adopted a proactive philosophy on health, shifting its focus from treating illness to promoting wellness, and from focusing on health delivery systems to health itself. The Ministry of Health serves as the executing agency for the government's health agenda. The MOH provides comprehensive coordination for establishing national policy and planning, financing public health sector services, regulating and monitoring the national health care system, providing and managing primary care and environmental health services, and developing and implementing national health public programmes for disease control.

The Bahamas has the highest annual incidence rate of AIDS in the English speaking Caribbean, and is among the three nations with the highest incidence rates in the world. Like other Caribbean countries, heterosexual transmission is the predominant mode of transmission of HIV, with the sexually active age group 20 – 44 years being mainly affected.

National Action:

A National Health Services Strategic Plan 2000 -2004 (NHSSP) was developed to provide a “comprehensive framework for the advancement of an enhanced, integrated, health care service delivery system” for The Bahamas. The NHSSP has determined eighteen major priority health programmes to achieve the goals of the plan. Such areas include Maternal and Child Health, Family Planning, Mental Health, Workers' Health, Substance Abuse Prevention and Control, and Communicable Diseases Prevention and Control.

In order to effectively monitor the state of Communicable Diseases in the Country, a Surveillance Unit in the Department of Public Health has been established. Over the period 1996-2000, the total number of deaths occurring in patients younger than 65 years of age deprived them of 125,272 years of potential life due to their premature deaths. Proportionally, communicable diseases accounted for 32% of the total years of potential life lost (YPLL), external injuries and poisoning accounted for 21% of the total YPLL, perinatal conditions 11%, diseases of the circulatory system 9%, neoplasms 7 %, unspecified illness 2%, and all other causes 18%. Relative to targeting the HIV/AIDS situation in The Bahamas, the government embarked on the development of a National Action Programme and the establishment of an AIDS Secretariat. The National Action Programme addresses the prevention of HIV/AIDS among targeted groups, including as young people, and initiatives that promote education as an intervention measure among special interest groups.

Currently the focused of government concern include: morbidity and mortality, health information management and research, disease surveillance, health policy and planning, and health financing. The government realises that for improved health and health care in The Bahamas, it is critical to prioritise health interventions, promote healthy lifestyles for Bahamians through education, and increase health management services.

12. CAPACITY BUILDING AND COORDINATION

The Government is currently in consultation with the Inter-American Development Bank, on a medium term programme for the development of projects and studies to assist in public sector reform and modernisation. The major objectives of the programme are: to ensure that government decisions are based on proper systems adopted by the Public Sector for generating comprehensive, timely and accurate, economic and social statistics; to provide comprehensive analyses of options; to generate sound, well- founded recommendations; and, most importantly, to ensure that the resultant decisions are implemented in the manner intended. Unless decisions are rationalised and implemented in this way, there is the great danger of overlooking vital considerations, or of reaching unsound judgments, or, indeed, of failing to implement the decisions taken in the manner determined. The intensification of globalisation in the last decade means that the margin for correcting erroneous decisions and judgments is more and more restrictive. Therefore, it is vital to put in place systems that will facilitate sound decision-making.

The Inter-American Development Bank (IDB) is an invaluable source of technical advice as well as funding for capacity building in The Bahamas. In 2003, the IDB conducted a seminar for senior officials focusing on project planning and implementation. This seminar was invaluable in disseminating knowledge and information on better ways of planning projects and programmes.

From a national perspective, the government, in an effort to encompass the overall issue of Public Sector Modernisation, established in 2003 a special commission on Public Sector Reform and Modernisation. The Government is also involved in a regional public sector reform program that is an initiative of CARICAD, CARIFORUM and the European Development Fund (EDF). That is the Strategic Planning in the Public Services Project, which seeks to enable the promotion and adoption of strategic planning and management skills, systems and structures, by the public sector administrations of participating member states.

Another important issue for capacity building is the strengthening of internal financial controls in all government agencies. Effective controls provide assurance to the public that ministries, departments and other government agencies are using public funds in accordance with the law and approved policies, and that as efficiently and as effectively as possible. The Auditor General is a constitutional office that reports to the House of Assembly on financial matters, but it is equally important for the executive itself to put in place mechanisms for reviewing its own procedures and controls. The Auditor General can then determine if the government's management and accounting systems are operating to acceptable standards, and whether the government has received value-for-money for expenditure incurred.

13. FINANCIAL INVESTMENT AND TRADE IN SERVICES

In 2003, the Government devised a Medium-Term Social and Economic Strategy in pursuit of sound macroeconomic and fiscal policies, which will enhance the competitiveness of the Bahamian economy, and its attractiveness to domestic and international investment. Economic stability, and the resultant investment generated, will increase job opportunities and incomes for Bahamians, and a stronger revenue base provides the resources for expanding essential public services. The government will be building on the six pillars of tourism, financial services, e-commerce, international services, manufacturing, and agriculture and fisheries.

Efforts to enhance the competitiveness of the financial services sector focused on a number of important areas during 2002, including:

- the establishment of the Financial Services Consultative Forum, which has primary responsibility for making recommendations on financial products and services that will enhance the competitiveness of The Bahamas in the international business arena;
- measures aimed at streamlining and simplifying compliance procedures, and eliminating overlap and duplication of effort by regulatory authorities. This approach strengthens compliance procedures while eliminating unnecessary costs on the institutions subject to regulation. These measures will be implemented in the near term, after necessary consultations and adjustments to the regulatory framework have been completed;
- an intensified focus on the development of the domestic capital markets;
- the pursuit of initiatives to modernise the domestic payments system; and
- implementation of the on-line, integrated, Registered Agent System in the Registrar General's Department that will allow for on-line incorporation of International Business Companies (IBCs) and filing of relevant documents.

With an aim to strengthen cooperation and coordination of activities among the various Bahamian supervisory agencies, a Memorandum of Understanding (MOU) was signed in October 2002 between the Central Bank, the Registrar of Insurance Companies, the Bahamas Compliance Commission, the Securities Commission, and the Inspector of Financial and Corporate Service Providers. Within the framework of the MOU, joint on-site examinations have already begun for licensees supervised by more than one agency. The benefit of such an arrangement is that, from the regulators perspective, it reduces total supervisory costs, and that, for those financial institutions that answer to multiple supervisory agencies, it causes compliance costs to be lower and minimises duplication of effort.

The Government of The Bahamas believes that additional progress can be made in fine-tuning the financial sector regulatory regime, being mindful however that, whatever is done, this regime has to remain credible in the eyes of the international community and in conformity with international standards. At the same time, The Bahamas seeks to maintain a balance between costs of regulations, as they affect our international competitiveness, and benefits otherwise derived from them. It is the experience of The Bahamas that the consultative approach to the development of financial sector regulations is a key element in meeting these objectives, and it is a practice to which this Government will continue to adhere.

As a significant participant in the provision of international business and financial services, The Bahamas has given greater priority to information exchange and cooperation with foreign authorities, as part of the global effort to stem the illicit use of financial services for money laundering and other forms of criminal behaviour. This responsibility is discharged in a manner that preserves confidentiality for legitimate business activities. In December 2000, The Bahamas adopted eleven pieces of legislation to this end, when the Organisation of Economic Cooperation and Development (OECD) developed its "international standards" to combat "harmful tax competition"

Unlike some SIDS countries, The Bahamas does not have a large agricultural sector. Thus, its participation in the exportation and trade of agricultural products has not contributed greatly to the collection of foreign exchange. The Bahamas' main economic engine has been centred on the provision of services.

14. FRAMEWORK FOR SUSTAINABLE DEVELOPMENT

The Commonwealth of The Bahamas has made strides along with the Wider Caribbean Region in environmental legislation. The Wild Birds Protection Act, the Bahamas National Trust Act, the Fisheries Resources (Jurisdiction and Conservation) Act, Amendment No. 2 of 1993 (for the prohibition of long-line fishing), and the creation of The Bahamas Environment, Science and Technology (BEST) Commission in 1994, were each milestone achievements in their time.

The BEST Commission is the central policy and coordination body for environmental affairs in The Bahamas. Its achievements have included the development of The Bahamas Biodiversity Strategy and Action Plan, in accordance with Article 6 of the Convention on Biological Diversity, to assure that national planning is based on all environmental considerations. The government of The Bahamas has recognised the need to strengthen the Commission, to make it more effective in developing environmental policy and to enhance its capacity in the area of environmental assessment and management. Critical to achieving the goals of the Commission is the establishment of the legal mandate of the Commission, and of the structure and legal basis of the environmental impact assessment procedure. These items are presently before the Cabinet.

The Inter-American Development Bank has provided technical assistance through a two-year “institutional strengthening” project, started in the year 2000. Some core activities included: the drafting of environmental legislation, regulations and recommendations, for implementation of a sustainable development policy; recommendations for staffing and funding of the Commission; and, updated and improved environmental impact assessment guidelines.

Among the many significant mandates of the Commission, is a review of environmental law and policy in The Bahamas. The Commission is to determine what legislation is in place, whether existing legislation needs to be amended, or whether additional legislation needs to be drafted, in order to enable The Bahamas to adequately protect its natural resources and to meet its commitments under the various international treaties to which it has become a signatory.

Other important goals are: to establish an integrated system for information flow and communication between government agencies and other interested entities, so as to ensure that development decisions are based on the best available information on environmental policies, science and technology, and related international decisions; the strengthening of enforcement capacity in regard to environmental laws; and, ensuring that environmental legislation now before Parliament is approved.

These policies, laws, and agreements are not yet coordinated on a national level, and at times may seem to be conflicting. However, current legislative policies have the potential to form the basis for the sustainable development in The Bahamas, facilitated by the geographic information system project presently being reactivated.

Concerns

Fresh water, oceans, forests, fisheries, conservation, and food security are "common goods" of national and international concern. The greatest challenge for policy and law will be to address environmental problems without imposing needless or harmful regulations on other sectors. Bahamian issues are complex and interdependent, but currently, social needs, environmental approaches to problem definition, and decision-making, are languishing because of a fragmented approach.

Of particular concern to the Bahamas Environment, Science and Technology Commission is the vulnerability of the coral reefs to damage and destruction. Sea-level rise, as a result of global warming, has potentially serious and far-reaching implications for biodiversity throughout the country. The potential negative impacts of sea-level rise on ground water quality and on human health are also of concern. These concerns are shared by several other agencies, so the role of the Commission in coordinating policy on these issues will be a critical one.

At present, obligations set forth under International Environmental Conventions are not being sufficiently addressed in The Bahamas, neither by policy nor by provisions of law. There have been several pieces of environmental legislation that have been drafted and are still awaiting passage. There has been no new environmental legislation adopted since 1997. The political process which governs the passage of legislation and regulation is moving at a much slower pace than the process which governs development of the physical environment and this results in environmental, social and economic impacts.

Environmental issues have come to the fore recently, as a side effect of the enactment of the Local Government Act (1997). While this legislation has brought many improvements, it has highlighted uncertainties concerning approval of land use and exploitation of natural resources. District Councils, as established under the Act, naturally seek to achieve economic development within their communities, but are sometimes confused by the constraints of the environmental rules and regulations imposed by Central Government.

National approaches to policy and law assume the decision processes in which goals are clear and agreed upon, policy options and the criteria for evaluating them are defined, and information provided on the consequences of alternative options is adequate. Policy makers need a steady flow of information to enable them to set priorities, design strategies, and make policy choices. They need “indicators” to define acceptable measures of progress and to highlight areas of concern. However, not only is current policy on the environment vague and fragmented, but loopholes in procedures sometimes allow approvals for development to be given without reference to the Commission, or to an environmental impact assessment process.

There has, in the past, been some confusion among agencies over their respective legislative mandates and responsibilities, and over the sharing of information. Some of the confusion has disappeared in part because of the establishment of national sub-committees – a National Biodiversity Committee, a National Climate Change Committee, and a National Ramsar Committee. These committees have improved the exchange of information on environmental issues.

Another area of uncertainty is in national parks and protected areas. The Bahamas National Trust is mandated by an Act of Parliament to manage national parks, and has put forward proposals for a system of representative parks. However, the Department of Fisheries is moving toward the designation of other marine areas as protected “no-take” zones for the conservation of fishing stocks. How might a national system of protected areas be approached for the greatest good for all? Present and proposed protected areas must be re-evaluated to determine their effectiveness in contributing to *in situ* conservation, as well as to replenishment, restoration, and resource enhancement.

References

Albury, P. 1978. The story of The Bahamas . London, Macmillian.

BEST Commission. 1998. The Bahamas Biodiversity Strategy and Action Plan, Bahamas Environment Science and Technology Commission, Ministry of Health and Environment

BEST Commission. 2003. The Bahamas Biodiversity Strategy and Action Plan, Bahamas Environment Science and Technology Commission, Ministry of Health and Environment

BEST Commission, 2002. The Bahamas Environmental Handbook, Bahamas Environment Science and Technology Commission, Office of The Prime Minister

BEST Commission. 2001. First National Communication on Climate Change, Bahamas Environment Science and Technology Commission, Ministry of Agriculture and Fisheries

BEST Commission. 2002. National Assessment Report on the Implementation of Agenda 21, Bahamas Environment Science and Technology Commission, Office of The Prime Minister

BEST Commission .1995. Bahamas Biodiversity Country Study Report, Bahamas Environment Science and Technology Commission, Office of The Prime Minister

Correll. D. and H. Correll. 1982. Flora of The Bahamas archipelago. Germany: Gantner Verlag K-G

Carter, T.R. 1994. IPCC Technical guidelines for assessing climate change impacts and adaptations. Working Group II of the intergovernmental Panel on Climate Change

Department of Statistics, 2001. Report of the 2000 Census of Population and Housing, Department of Statistics, Ministry of Trade an Industry

Dupuch Publications. 2003. Bahamas Handbook and Businessman's annual 2000. Nassau, Bahamas: Dupuch Publications

The Ministry of Tourism. 1994. A Sustainable Tourism Policy, Guidelines and Implementation Strategy for the Out Islands of The Bahamas, Ministry of Tourism

The Ministry of Tourism. 2002. Tourism statistics of total arrivals to Nassau by air & sea (1999-2001). Ministry of Tourism

United Nations. 1992. Agenda 21: Programme of action for sustainable development. Rio Declaration on Environmental and Development. United Nations Conference on Environment and Development, Rio de Janeiro, Brazil, June 3-14., 1992 New York. United Nations

United Nations 1994 . Earth Summit. Programme of actions for small island developing states. Global conference on sustainable development of small island developing states, Bridgetown, Barbados, April 26 to May 6 1994. New York. United Nations

ACRONYMS

ACCC	Adaptation to Climate Change in the Caribbean
ACP States	African Caribbean and Pacific
ACS	Association of Caribbean States
AOSIS	Alliance of Small Island Developing States
BEST	Bahamas Environment Science and Technology Commission
BPOA	Barbados Program of Action
CARICOM	Caribbean Community
CARICAD	Caribbean Centre for Development Administration
CARIFORUM	Forum of Caribbean ACP States
CCCCC	Caribbean Community Climate Change Centre
CEIS	Caribbean Energy Information System
CDM	Clean Development Mechanism
CDERA	Caribbean Disaster Emergency Response Association
CPACC	Caribbean Planning for Adaptation to Climate Change
CREDP	Caribbean Renewable Energy Development Program
FAO	Food and Agriculture Organization of the United Nations
GEF	Global Environment Facility
GOB	Government of The Bahamas
IDB	Inter-American Development Bank
MACC	Mainstream Adaptation to Climate Change
NEMA	National Emergency Management Agency
PAHO	Pan American Health Organization
SIDS	Small Island Developing States
UNDESA	United Nations Department of Economic and Social Affairs
UNDP	United Nations Development Program
UNFCCC	United Nations Framework Convention on Climate Change
UNICEF	United Nations Children Education Fund

WSSD

World Summit on Sustainable Development