

Fourth National Report of Grenada to the CBD



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Acronyms

CBD	Convention on Biological Diversity
CBF	Caribbean Biodiversity Fund
CCI	Caribbean Challenge Initiative
CITES	Convention on International Trade in Endangered Species
COP	Conference of Parties
CSGRIN	Caribbean Seed and Germplasm Resources Information Network
EIA	Environmental Impact Assessment
FAO	Food and Agriculture Organization
GOG	Government of Grenada
ICBP	International Council for Bird Preservation
ICLARM	International Centre for Living Aquatic Resources Management
IWCAM	Integrated Watershed and Coastal Area Management
MOF	Ministry of Finance
NBSAP	National Biodiversity Strategies and Action Plan
NEMS	National Environmental Policy and Management Strategy
NCSA	National Capacity Self Assessment
NFAP	National Forestry Action Plan
NGO	Non Governmental Organizations
NTFP	Non-timber forest Products
OPAAL	OECS Protected Areas and Associated Livelihood
SDC	Sustainable Development Council
SLM	Sustainable Land Management

TNC	The Nature Conservancy
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate

Chapter 1

Overview of Biodiversity Status, Trends and Threats

1.1 Introduction:

Grenada in collaboration with the United Nations Development Programme has commissioned the elaboration of the Fourth National Report to the United Nations Convention on Biological Diversity in accordance with Article 26 of the Convention and COP Decision VIII/14.

This report has been prepared in concert with the Guidelines for the Fourth National Report published by the Secretariat of the Convention.

This chapter provides some general characteristics of Grenada which are relevant to the country's biodiversity and the status, trends and threats to Grenada's biodiversity.

1.2 General Characteristics:

Grenada the most southerly of the Windward Islands is located between latitude 11° 59' and 12° 20' north and longitudes 61° 36' and 61° 48' west.

Grenada comprises of three main islands: Grenada, Carriacou and Petit Martinique. Grenada is the largest of the three and has an area of approximately 312 sq km. Carriacou, located 24 km to the North East of Grenada has an area of approximately 34 sq.km. Petit Martinique lies east of the Northern section of Carriacou and has an area of approximately 2 sq km. Thus the total area of the State is approximately 348 sq. km. The total length of the coastline is 121 km.

Grenada is generally mountainous at the center with slopes descending gently to the coastline which is ringed by extensive coral reefs. The highest peak is Mount St Catherine at 833 meters above sea level. Other main peaks include Fedon's Camp 767 meters, Mount Qua Qua 735 meters, Mount Lebanon 715 meters and Mount Sinai 701 meters. The island of Carriacou is less mountainous with the highest peaks being High North and Mount Carre both at 291 meters.

Seventy-five percent of the total land area lies below 305 meters while 23.4 percent lies between 305 meters and 610 meters and 1.6 percent lies above 610 meters (GOG 2000)

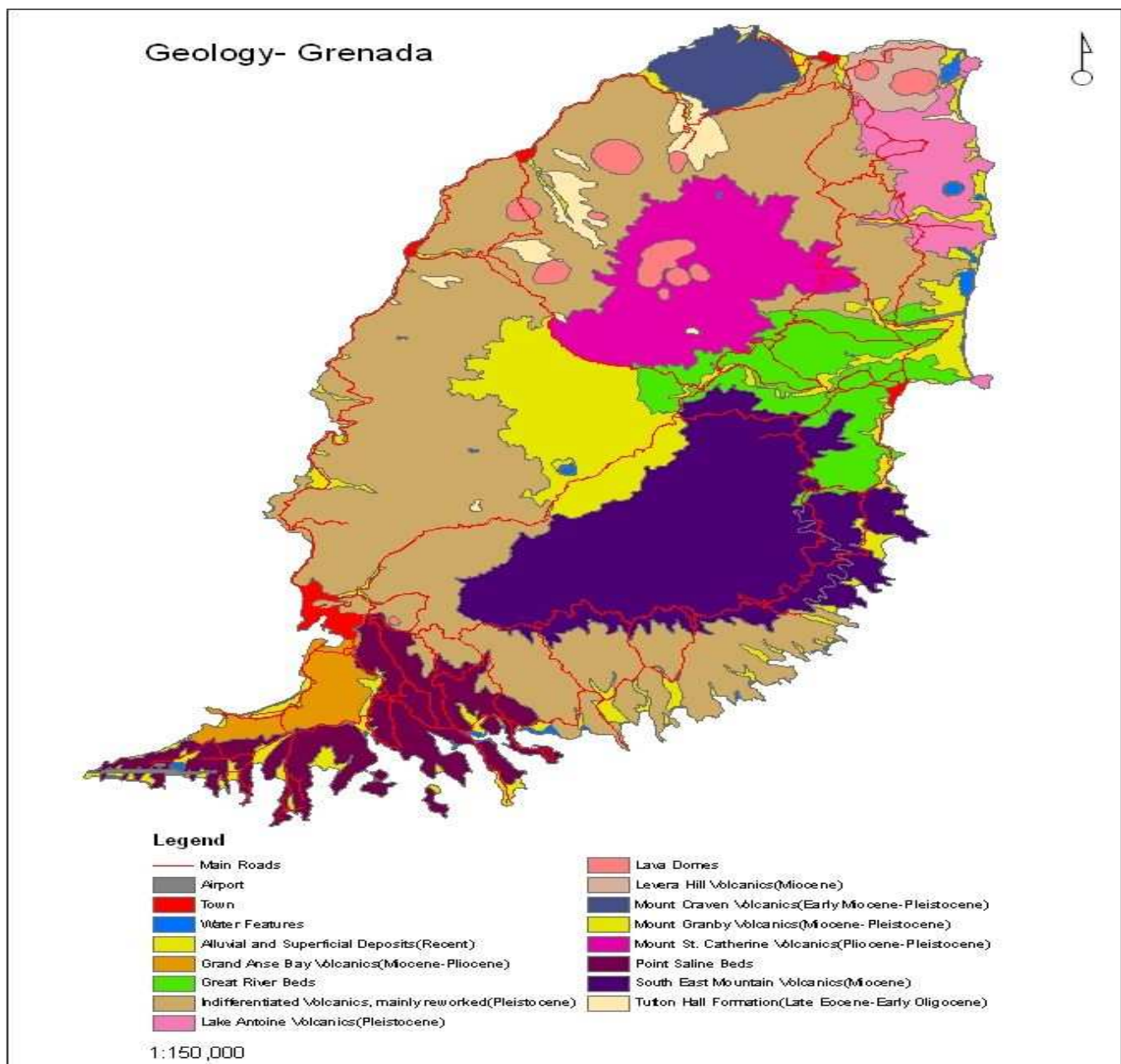
1.2.1 Geology:

Grenada's landform structure is characterized by a steep rugged interior and a relatively low rolling coastal periphery. The interior is dominated by steep mountain peaks, sharp ridges and deep narrow valleys flowing towards the coastline. These interior formations are due to volcanic activity leaving mountain tops of andesite and basalt lavas.

The coastal periphery is generally gently sloping and consists of weathered volcanic rocks and mudslide deposits. The coastal areas on the west are steeper than that on the east coast. Grenada was formed by a series of volcanic eruptions during the Tertiary and Pleistocene periods (Ternan et al, 1989). Details of the island's geological structure are indicated in Figure 1. In some areas, sedimentary rocks of Tertiary and Quaternary period are also present.

The islands of Carriacou and Petit Martinique are also of volcanic origin. About two thirds of Carriacou is volcanic with the other one third consisting of fossiliferous limestone. (Jessemy 1999).

Figure 1 Geology of Grenada



Source: Land Use Division, Ministry of Agriculture

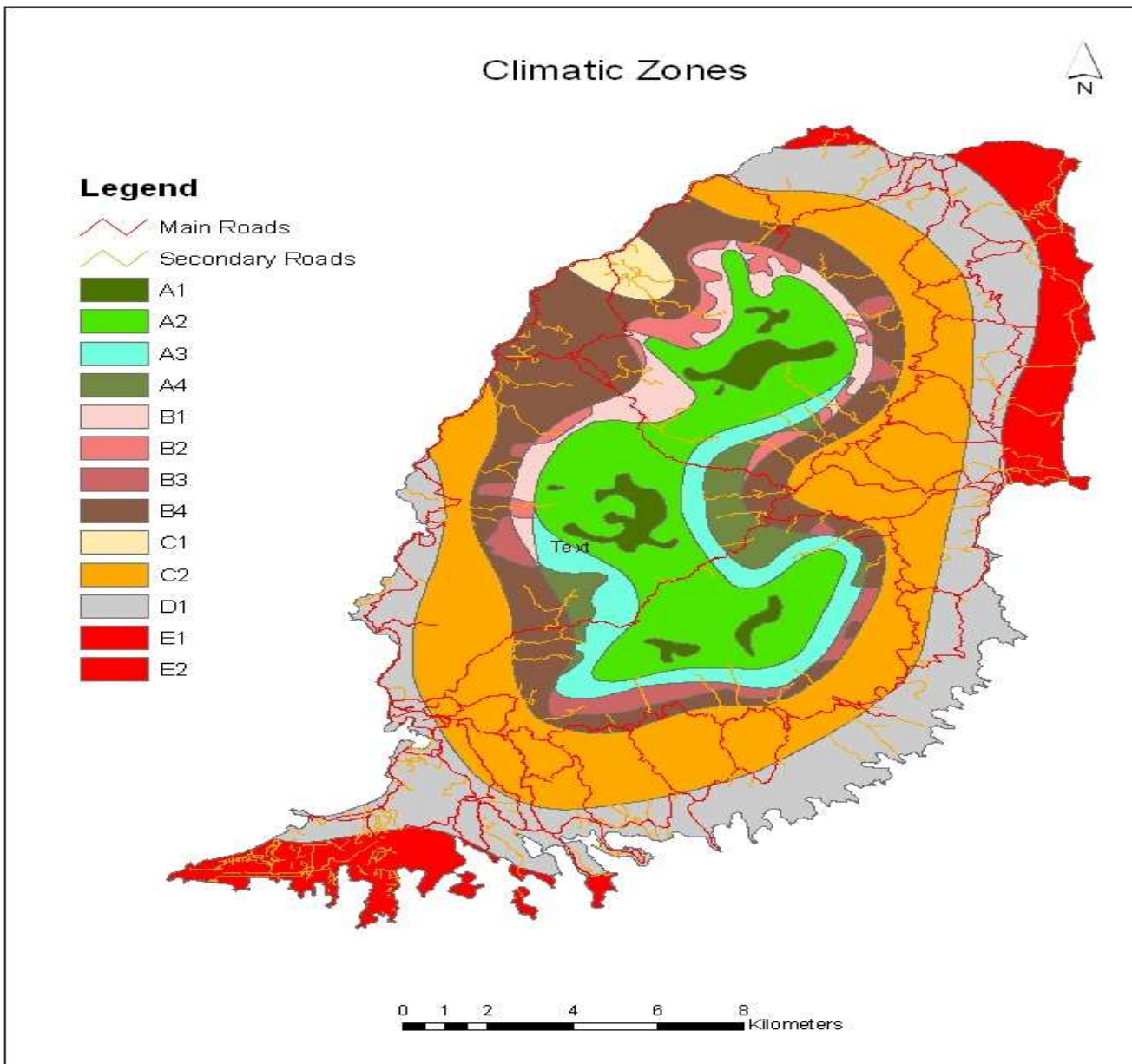
1.2.2 Climate:

Grenada experiences a tropical climate characterized with an average temperature range from 24 degrees Celsius to 30 degrees Celsius. The point average is 26 degrees Celsius. The diurnal range is low with the temperatures moderated by constant north east trade winds. Lowest temperatures are experienced between the months of November and February.

Two seasons obtain - a dry and a wet season. The dry season generally runs between January and May and the wet season between the months of June and December. Approximately 77% of the annual rainfall occurs in the wet season. Given the mountainous terrain, there is a wide variation and intensity in rainfall based on location. Mountainous areas can experience an average of about 3,880 mm whereas lower areas along the northern and southern coastline can experience an average of 1,125mm annually. This gives rise to different climatic zones as depicted in Figure 2.

As indicated, the conditions vary from the high mountainous areas which are cooler to the low coastline areas which are warmer. For example, zone A1 is characterized by moderately warm temperatures between 20°C and 22.5°C, moderate growth, no dry season and rainfall in excess of 4000mm annually. Moving outward towards the coastline, zone B1 experiences warm temperatures between 20°C to 22.5°C, rainfall between 3000 mm and 4000mm and a short dry season. In zone C1, warm to very warm temperatures ranging between 25°C to 27.5°C, rainfall between 2000mm and 3000mm and a short dry season. In zone E1, very warm temperatures over 22.7°C are experienced with rainfall ranging between 700mm and 1000mm and a long dry season.

Figure 2: Climatic zones - Grenada



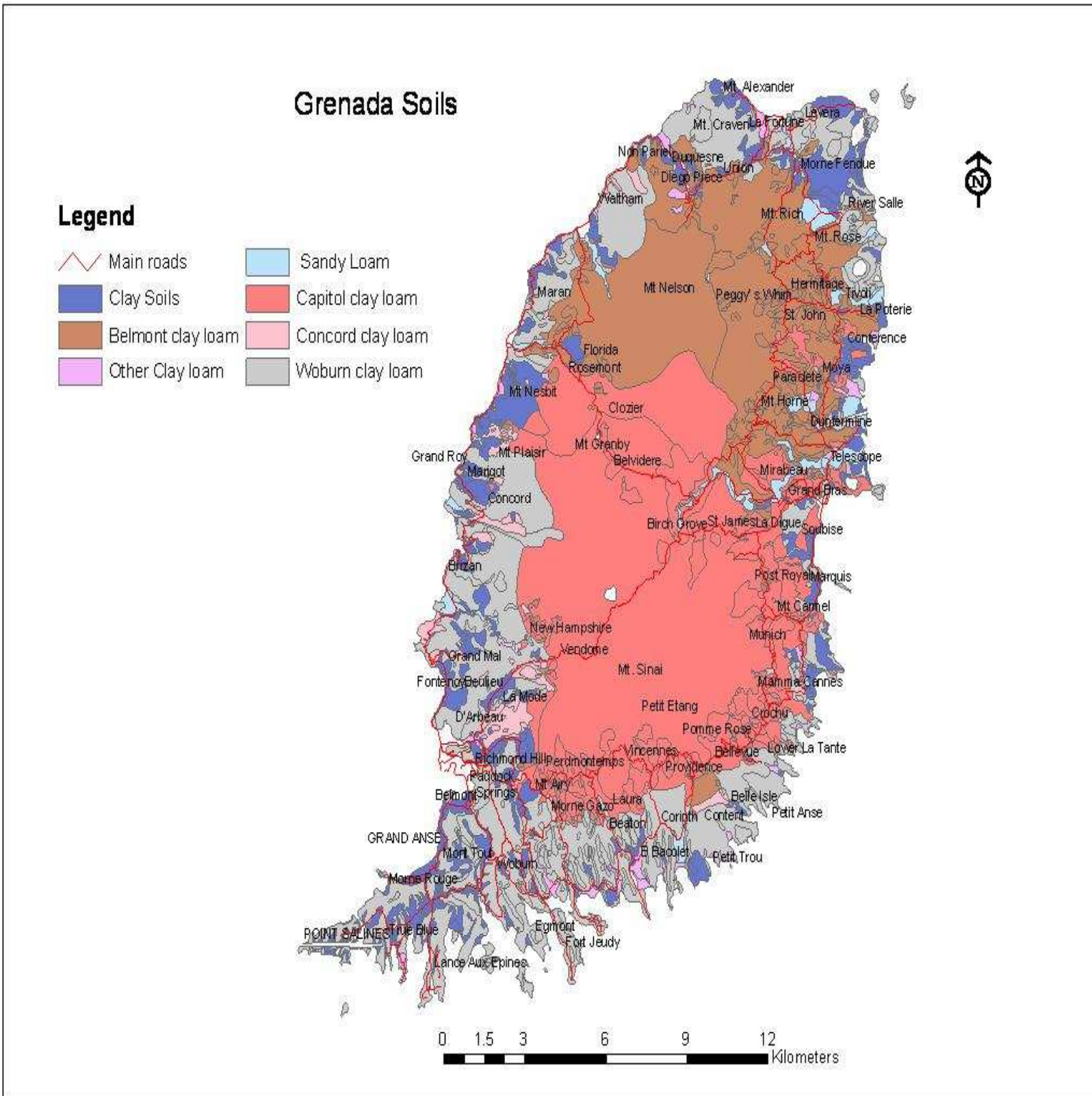
Source: Land Use Division, Ministry of Agriculture

1.2.3 Soils:

Vernon et al (1959) suggests that climate is a major factor influencing the distribution and location of soils in Grenada. In the interior where the rainfall is higher, there is a high degree of chemical weathering resulting in highly leached clay. Given the predominance of iron and aluminum oxides, soils in the high interior are reddish. They tend to have a poor nutrient storage capacity and are fragile. Most of the soils in Grenada are classified as clay loams. In fact, clay loams account for 84.5% with clays 11.6% and sandy loams 2.9%. Figure 3 indicates the main types of soils and their location.

The Belmont Clay Loam dominates the north of the Island. The central part of the island is dominated by Capitol and Belmont Clay Loam and the south is dominated by Capitol Clay Loam. Woburn Clay Loam occurs along the coastal areas to the south and west of Grenada. Clay soils are found along the coast of the Island (Jessemy 1999).

Figure 3: Distribution of Soil Types in Grenada



Source: Ministry of Agriculture

1.2.4 Vegetation Type in Grenada:

The vegetation of Grenada and Carriacou according to (Beard, 1949) is as a result of its land use, history and its soil type and rainfall regime. The following vegetation types identified in Table 1 and Table 2 have been represented in the NBSAP in 2000.

Table 1 Vegetation Types - Grenada

Type	Species	Acreage	Comment
Climatic Type			
1.Rain forest and lower Montane rain forest	Dacryodes-Licania	1,688 ha, 5.3% of mainland area	Small sector present in Grand Etang Forest reserve between Mt Qua Qua and Fedon's camp. Vegetation damaged by hurricane and under threat.
2. Montane thicket	<i>Micropholis chrysophylloides</i> , <i>Licania ternatensis</i> , <i>Euterpe globosa</i> , <i>Dacrydes excelsa</i> and <i>Richeria grandis</i> .	2,278 ha. or 7.25% of mainland area	Vegetation occur at peaks over 600m at Grand Etang and Mt St Catherine. Vegetation is damaged and recovering.
3.Elfin Woodlands	<i>Cyathea spp.</i> , <i>Heliconia bihai</i> , <i>Euterpe globosa</i> , <i>Charianthus purpureus</i> and <i>Weigeltia antillana</i>	1,752 ha.or 5.6% of mainland area	Vegetation confined to the summits of peaks such as Mt St Catherine and Grand Etang. Vegetation is damaged and recovering
4.a Deciduous Seasonal Formation i) Middle Belt	<i>Tabebuia pallida</i> , <i>Swietenia mohogoni</i> and <i>Guettarda scabra</i>	NA	Vegetation (Marquis River) Vegetation is minute and it's condition is fair
ii) Dry Coastal Belt:	<i>Bursera simaruba</i> , <i>Albania caribaea</i> , and <i>Spondias mombin</i>	NA	Vegetation type found in Canoe Bay, La Sagesse and Lake Antoine. Vegetation in fair condition
5. Dry Evergreen Formation. Littoral woodland	<i>Conocarpus erectus</i> , <i>Tabebuia pallida</i> , <i>Coccolobia uvifera</i> and <i>Hippomane mancinella</i>	3.90% of mainland area	Vegetation type well represented in areas such as Canoe Bay, La Sagesse, Levera, Hog Island, Calivigny
Edaphic Type			
Edaphic Type 1. Herbaceous Swamp and Papyrus Bog Association	<i>Rhizophora mangle</i> , black mangroves <i>Avicennia gerimans</i> , white mangroves <i>Laguncularia racemose</i> and <i>Conocarpus erectus</i>	190 ha or 0.6% of mainland area	Vegetation found at Lake Antoine, Levera, Grand Etang, Hog Island

Source: Beard (1949), Howard (1950), Eschweiler (1982), Forestry department

NA: Not Available

Table 2 – Vegetation Type - Carriacou

Type	Specie	Acreage	Comment
Climatic Decidious Formation Woodland) Seasonal (Dry	<i>Bursera simaruba</i> , <i>Brosium alicastrum</i> , <i>Pisonia fragrans</i> , <i>Ficus lentiginosa</i> , <i>Lonchocarpus spp.</i> and <i>Swietenia mohogani</i>	NA	Vegetation is badly affected by grazing and found only in the north and forest reserves (e.g. High North Forest Reserve). The species are adequately represented and the quality is good.
2. Dry Thorn-Cactus Scrub:	<i>Opuntia dillenii</i> , <i>Randia sp.</i> and <i>Piscidia sp.</i>	NA	Vegetation found in High North, Limlair, Thiboud, Saline/White Islands and Sabazan. The quality of vegetation is good and adequately represented.
Edaphic Mangrove Woodland	<i>Rhizophora mangle</i> , black <i>Avicennia gerimans</i> , white <i>Lagencularia racemose</i> and button mangroves <i>Conocarpus erectus</i>	NA	Vegetation found in High North, Lauriston, Mabouya and Tyrrel Bay.

Source: Beard (1949), Howard (1950), Eschweiler (1982), Forestry department

NA: Not Available

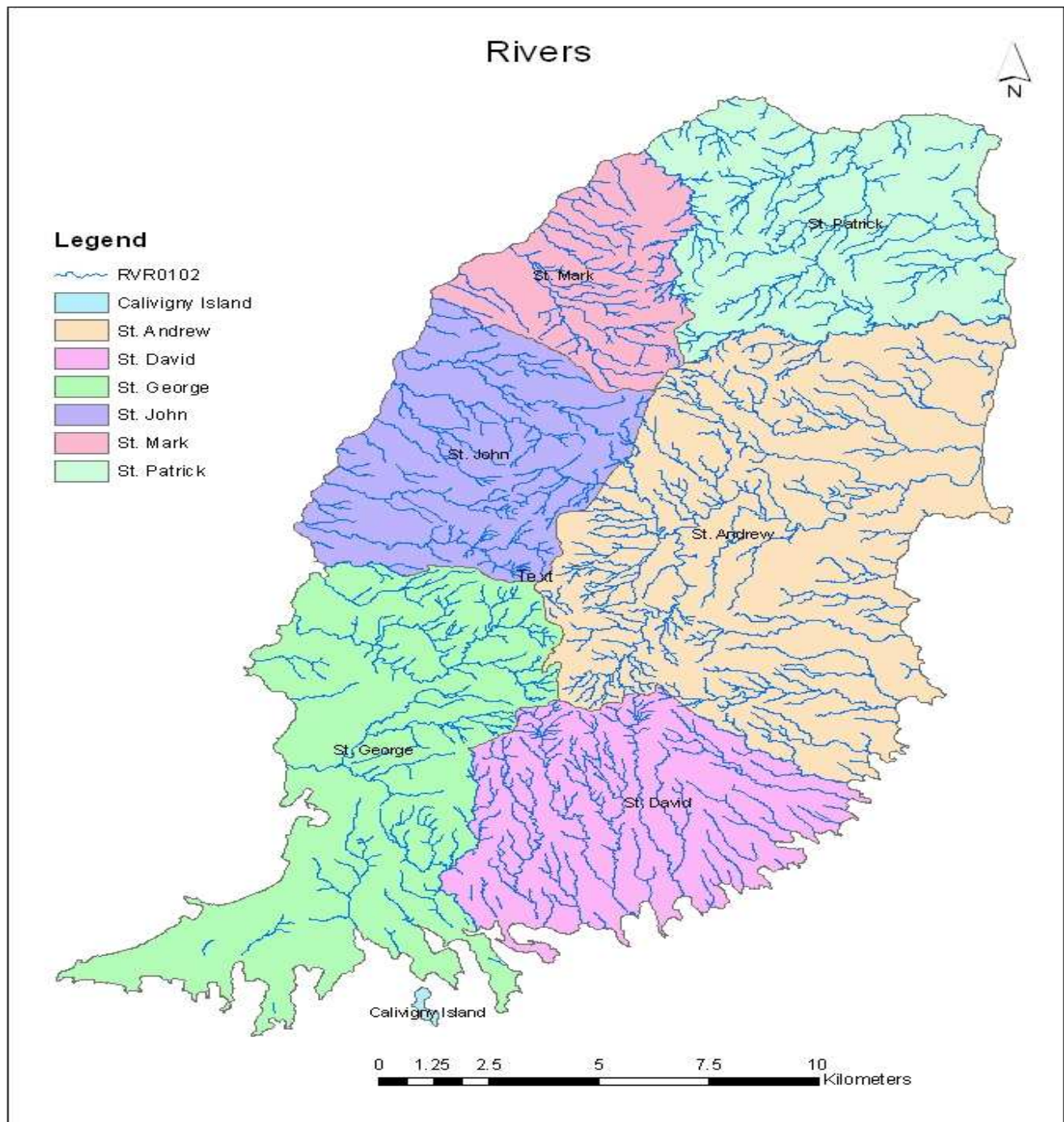
1.2.5 Rivers:

As Figure 4 indicates, Grenada has a number of rivers and small streams flowing from the high rugged interior peaks towards the sea. Three crater lakes, the Grand Etang lake in the centre of the island, Lake Antoine and the Levera lake in the north, along with the rivers constitute the main water resource base for human consumption and agriculture. Grenada has 71 distinct watersheds of which the largest watershed, the Great River catchment comprises 159 sq. km or about 1/2 of the area of Grenada (Land Use Division, 1997).

There are 8 major watersheds on Carriacou and none in Petit Martinique. Carriacou and Petit Martinique have no permanent streams or springs. Water supply in Carriacou and Petit Martinique depends on the harvesting of rainwater in cisterns, while water for agriculture and livestock comes mainly from the withdrawal of groundwater and surface water stored in ponds.

Given the increasing demand for water particularly in the urban south of Grenada as a result of construction and investment in the tourism sector, the provision of adequate water supply has become very important particularly in the dry season when there is maximum usage and at the same time reduced stream flow. As a result, the Grand Etang Lake is used as a source in the dry season as well as bore holes located in the south and south east of Grenada. There is also a full time borehole facility in Carriacou.

Figure 4: Rivers in Grenada



Source: Land Use Division, Ministry of Agriculture

1.2.6 Landslide susceptibility:

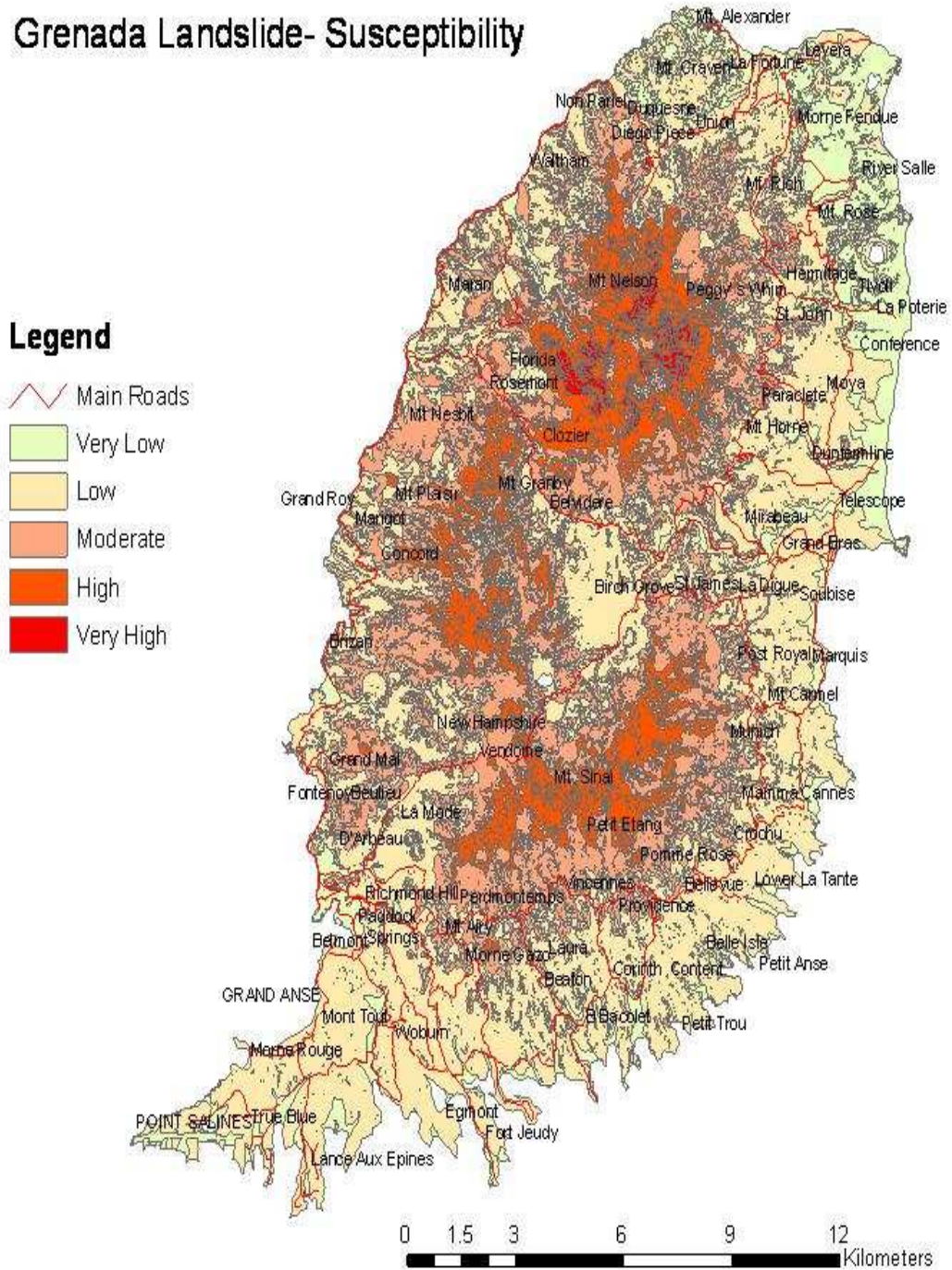
There is moderate to high susceptibility to landslides in many areas in the interior of the Country. Landslides are frequent following heavy rains and adverse weather conditions.

The slope profile of Grenada shows that over 90% of land area has slope of 20° and above. Carriacou has a relatively smaller slope with just under 80% of the land area with a slope of 20° or more.

	Grenada	Carriacou
Land over 30° slope	23.3%	31.0%
Land over 20° slope	70.9%	47.4%
Land over 10° slope	9.9%	24.4%

Figure 5: Map showing areas susceptible to land slides

Grenada Landslide- Susceptibility



Source: Land Use Division, Ministry of Agriculture

1.2.7 Land Use:

Land Use in Grenada is closely linked to its economic history as a primary commodity producer. As Grenada transitioned from a cotton and sugar producer to tree crops such as nutmeg, cocoa and bananas, land usage and production moved from the lower areas up the mountain sides. As a result the acreage of forest declined during the period 1961 to 1975. Consequently public land is restricted to a few agricultural estates and the forest reserve. With the increasing demand for land for housing purposes, encroachment on formerly agricultural land and key watersheds is now a major concern.

Initially, most of the estates were owned by a few expatriate planter class who subsequently passed ownership to locals. With adult suffrage continuing into eventual independence in 1974, most of the estates were subsequently subdivided into smaller lots allowing for mass private ownership.

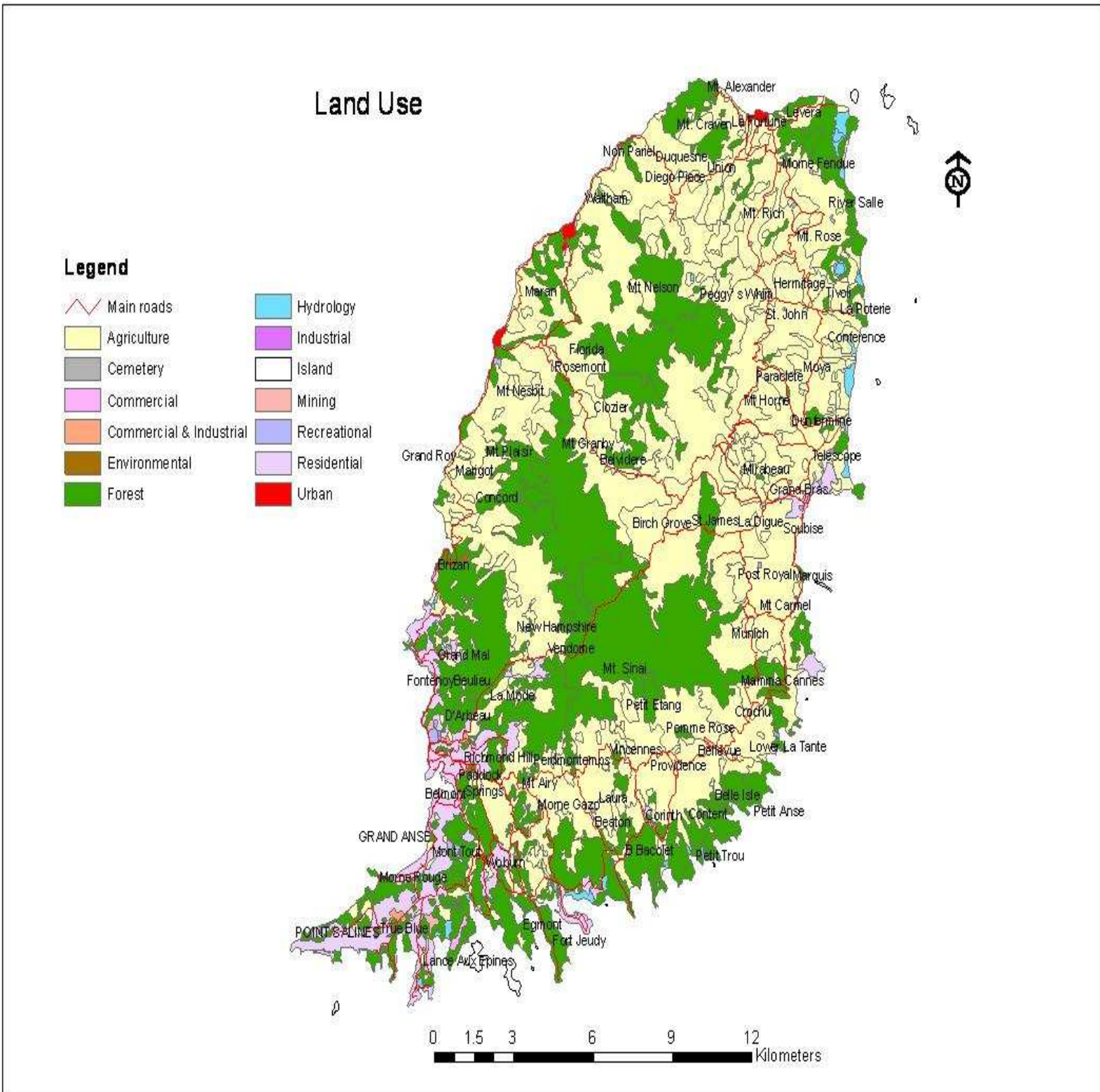
With the exception of the Grand Etang Forest Reserve, most of the lands in the country are privately owned. Private ownership means clear transferable rights which resulted in land being subdivided over time resulting in small land holdings. The Agricultural census revealed that most of the lands used for agriculture are on plots of 5 acres or less.

The most recent survey of land use in Grenada was conducted in 1995 as part of the agricultural census. The land use categories from the census indicated that approximately 75 percent of the total land area is under some form of agriculture except forests. Permanent crops accounts for 63.7 percent of the total land area. About 7 percent of the land area is used for temporary cultivation. 4.5 percent is classified as permanent pasture areas. 20.8 percent of the land are forested areas and about 4 percent of the land area is non-agricultural, non-forested (GOG, 1995).

The major land use problems in Grenada are as follows:-

- Illegal developments and squatter settlements;
- Land use conflicts among the agricultural, tourism and construction sectors;
- Vulnerable settlements to disasters including flooding, land slides and rising sea levels;
- Environmental management concerns;
- Land tenure arrangements and institutional capacity for land management;
- Lack of adequate legal and regulatory frameworks.

Figure 6: Land Use in Grenada



1.2.8 Demographics:

Grenada's population was recorded at 102,632 persons at the 2001 census with a gender split of 51% females and 49% males. Annual population growth averaged is 0.6% annually for the period 1981 to 2001. The current population density is about 300 persons per sq.km.

Given the mountainous terrain, most of Grenada's population, reside within 1km of the coastline with many settlements around the river mouths. The parish of St George to the south of the island, where most of the industrial and tourism plant is located, accounts for 36% of the population. St Andrew the largest parish accounts for 24% with the rest of the population being fairly evenly distributed among the other parishes.

Grenada is divided into six administrative parishes and Carriacou and Petit Martinique. From the 2001 census the geographic distribution is as follows:

Table 3: Geographical Distribution of the Population.

Parishes	Population 2001	Population 1991	Average annual change (%)
St. George (town)	3,939	4,621	-1.6
St. George (Rest)	33,128	27,373	1.9
St. John	8,591	8,752	-0.2
St. Mark	3,994	3,861	0.3
St. Patrick	10,674	10,118	0.5
St. Andrew	24,749	24,135	0.3
St. David	11,486	11,011	0.4
Carriacou/PM	6,081	5,726	0.6
Total	102,642	95,597	0.7

Source: Ministry of Finance

It is estimated that for the period 2001 to present the annual population growth rate was .7%. The fastest growing area is the Parish of St. George.

The Grenada Population is relatively young with about 50% of the population under 25 years old. The Labour Force now stands at approximately 42,000 persons. A recent poverty assessment survey revealed that 37% of the population is deemed to be poor with 53 percent of the population deemed to be economically vulnerable.

1.2.9 Economics:

Grenada's macroeconomic environment is characterized by its diversified structure with Tourism, Agriculture, Construction, Manufacturing, Transportation, Banking, Insurance, Government Services and Communications being the main contributors.

During the period 2001 to 2008 the economic growth profile was quite erratic. Following growth rates averaging 7% achieved from 1998 to 2000 there was a decline in 2001 of 3.4 %. This decline was attributed to the developments in the global economy in particular the USA economy in the aftermath of the World Trade Center destruction.

In 2002 the economy grew by -.4%. This was followed by phenomenal growth of 7.1 % in 2003. This high growth rate was driven primarily by expansion in the tourism sector. Due to the devastation caused by Hurricane Ivan in 2004 negative growth was again experienced. The economy achieved a negative growth of 5.7% in 2004.

Post hurricane Ivan, the economy rebounded in the years 2005 on account of the rebuilding efforts in the construction sector. A growth rate of 11.0% was achieved. Fortunes were reversed again the following year with the economy achieving negative growth of 2.5% in 2006. Rising prices in the global economy was the determining factor. In 2007 the economy achieved positive growth of 4.5%. Preliminary estimates for 2008 reveal that the economy will grow by 1.6%. The growth projection for 2009 stands at 2.2%. The Government hopes to achieve a growth rate averaging 4% for the period 2010-2015.

Table 4: Growth Profile (2001-2009)

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009
Growth	-3.4	-.4	7.1	-5.7	11.03	-2.35	4.45	1.6	2.2

Source: Ministry of Finance

The economic outlook for Grenada is challenging and downside risks threaten weak growth prospects. The deterioration in the external environment in particular global recession, sustained high commodity prices, ongoing turmoil in the financial markets, volatile oil prices and disruption in airlift capacity to Grenada are spelling doom for the national economy. The external environment is expected to negatively impact tourist arrivals, remittances, foreign investments, official development assistance and local government revenues.

Work has also slowed down in tourism related investment projects resulting in a decline in the construction activities. Global recession and difficulties in the international financial market are negatively impacting on these projects.

Conditioned on the foregoing the government's key macroeconomic priorities include stronger economic management, reduction in the cost of living, revitalization of the agricultural sector, improved business climate, improved accessibility to quality health care and improved opportunities for education and human resources development.

1.2.10 Natural Disasters:

The Caribbean region in general is prone to natural disasters. The natural hazards profile for the region over the last few decades is as follows:

Table 5: National Hazard Profile

Period	Natural Hazards
1960s	16
1970s	13
1980s	41
1990s	48
2000 to present	54

Source: GOG, 2005

There is a clear trend of increasing incidences of natural hazards in the region.

On September 07, 2004, Hurricane Ivan visited Grenada with sustained wind speeds in excess of 120 miles per hour with gusts of over 145mph. The storm caused extensive damage to the country.

The estimated damage was in excess of 200 percent of the country's gross domestic product with extensive damage to the major economic sectors, the built infrastructure and the national ecosystems. Eleven months later the island was again visited by another devastating hurricane, Hurricane Emily which brought further damage to the fragile ecosystem.

The damage assessment report for related categories of environmental assets for Hurricane Ivan is provided in Table 6 below.

Table 6: Damage Assessment: Selected Indicators

Environmental Asset	Intensity of Damage	Extent of Damage	Functioning Of Asset	Duration Of Impact	Recovery of Asset
Mangroves	Medium	70%	Adverse effect	Short to Medium term	Natural/requires appropriate environmental protection measures
Sea grass beds	Minor	<10%	No effect	Short term	Natural
Coral reefs	Minor	<10%	No effect	Short term	Natural
Beaches	Major	>50%	Adverse	Short to Medium term	Natural
Forest and Natural Vegetation	Extreme	100%	Intense impairment of the functioning of the asset	Long term	Irreversible damage. Requires concentrated environmental protection measures.
Wildlife	Extreme	100%	Impairment of the functioning of the asset	Medium to Long term	Requires concentrated. environmental protection measures.
Fisheries	Minor	<10%	No effect	Medium to long term	Natural

Source: Grenada: Macro-Socio-Economic Assessment of Damaged Cause by Hurricane Ivan, OECS

There is an active underwater volcano, Kick ´en Jenny located within 10km from the North East of Grenada and between the islands of Grenada and Carriacou. Kick ´en Jenny is reported to be the most active underwater volcano in the region.

Grenada's Biodiversity:

1.3.1 Forest:

Overview:

Much of the Grenada's Biodiversity is found in its forests. There are two endemic species of plants, the Grand Etang Fern (*Danaea* sp.) and the Cabbage Palm (*Oxeodoxa oleracea*) and one endemic tree species (*Maythenus grenadensis*).

The dry forests found in the south and north of the county contain two endangered bird species – the Grenada Dove (*Leptotila wellsi*) and the Grenada Hook-billed Kite (*Chondrohierax uncinatus murus*) which are endemic species. Grenada is also home to four bird species which are endemic to the Lesser Antilles. The Grenada flycatcher (*Myiarchus nugatory*), the Scaly-breasted thrasher (*Margarops fuscus*), the Lesser Antillian bullfinch (*Loxigilla noctis*), and the Lesser Tanager (*Tangara cucullata*).

Grenada had large expanses of primary forests. Much of the island has been deforested, initially for conversion to cotton and sugarcane plantations and thereafter for lumber and energy. Large portions of upland forests were also cleared for other agricultural purposes and housing. However, hurricane damage accounts for the greatest disturbance in Grenada's forests.

Grenada is located just south of the main 'hurricane belt'. In 1955 Hurricane Janet caused widespread destruction and the loss of large areas of forest. In fact it was reported that the forests were completely decimated.

Thereafter the country experienced occasional traumatic weather events of lesser magnitudes. Hurricane Lenny 1999 and the accompanying storm surges destroyed many coastal wetlands. With the advent of Hurricanes Ivan and Emily in 2004 and 2005 respectively, the impact on the country's forest biodiversity was particularly devastating.

Thus much of the forest to be seen in Grenada today are in the main secondary re-growth from the hurricane Janet era as the base and conditioned by the impact of the recent hurricanes.

The main species replanted were the Blue Mahoe (*Hibiscus elatus*) which occupied 75% of plantation area, Pine (*Pinus caribbea*) which occupied about 20% and mahogany (*Swetenia* sp.) and Cupressus lusitanica about 5% each.

With respect to forest types there is little formal data available regarding the biodiversity of Grenada's forests. Beard (1949) recognized the following forest types in Grenada:

- Cloud forests montane thicket, palm break and elfin woodlands - In general these forests are located in the highest rainfall and inaccessible upper areas of Grand Etang and on Mt. St. Catherine, thus have suffered little degradation and are under no serious threat from human activities.

- Rain forests and lower montane rain forests – These forests occur below the cloud forests where rainfall exceeds 2500 mm per annum. There is little difference in floristic composition between the rain forest proper and the lower montane rainforest. They are largely located in the lower areas of Mt. St. Catherine and mainly constitutes Grand Etang Forest Reserve.
- Evergreen and semi-evergreen forests- These forests occur where the rainfall is between 2000-2500 mm per annum. A 40-60 ha area of this forest-type occurs in the south of the island.
- Deciduous forests and cactus scrub – These occur at lower elevations where the rainfall is between 1000-2000 mm per annum. They are found in the south and north of mainland Grenada and on Carriacou and Petit Martinique.
- Littoral woodlands – These occur along the coast in small stretches throughout the country. Most of these woodlands have been lost, although a small patch remains in the north east of Grenada.
- Mangrove woodlands – Approximately 21 patches of mangrove occurs along the eastern and south eastern coastline of Grenada from and on the north and south coasts of Carriacou.

Trends:

There is a general lack of information in the status and trends of Grenada's forests. During the recent hurricanes, damage to the forest was significant. Most trees were uprooted. Others lost their crowns and branches. Others were left leaning or broken.

Regeneration has commenced with damaged trunks sprouting leaves. However, the dense covering of vines has hampered forest recovery.

According to FAO, prior to the recent hurricanes forest accounted for approximately 22.6 % of Grenada's total land area (FAO. 1995). From the Beard classification, FAO estimated the forest cover as follows:-

Table 7: Forest Types Profile

Forest type	% of Country
Cloud forests	5.3
Rain forests and lower montane	7.2
Evergreen, deciduous, dry	5.6
Littoral woodlands	3.9
Mangrove	<u>0.6</u>
	Total <u>22.6</u>

Source: FAO, 1995

The forestry department estimated that the annual rate of forest loss since 1995 was .9%. On the other hand, many stakeholders claim that the forest cover in Grenada has been increasing. Since agricultural production has significantly declined, lands that were previously under agricultural production were gradually being taken over by the forest through natural regeneration.

Dunn 1999 even suggested that previous studies have underestimated the area of forest cover in Grenada and argued that it is evident from ground observations that lands classified as agriculture in many cases were actually forest.

No recent studies were done to authenticate the trends in Grenada's forest cover, but anecdotal evidence suggest declining and degraded forests as a consequence of hurricanes and the absence of land use policy and land use management.

In recent years only a very small proportion of Grenada's timber requirements came from local forests.

The timber production capabilities of Grenada's natural forest are however limited by a number of factors including:

- Poorly stocked forests due to hurricane damage, pest infestation or past logging activities;
- Inaccessibility of many areas due to mountainous terrain;

There has been a general phasing-out of timber production in Grenada's and a greater emphasis on the multi-use benefits of conservation and recreation aspects of forest management.

In addition to the hurricane damage, Grenada's forest was significantly disturbed by pest infestation.

In 1994 the Blue Mahoe was seriously affected by the alien invasive specie - Pink Mealy Bug. The infestation destroyed many of the Blue Mahoe and related species of monocultures. This situation would have less impact in natural forest where the wide mix of species ensures that a large proportion of the trees remain uninfected, and ecological stability is achieved through diversity.

Due to the presence of some plantations on sensitive sites such as steep slopes and watershed, the low volumes of accessible timber produced by the plantations and a general shift in emphasis by the Forestry Department in response to the new Forest Policy, many plantation-based activities will probably cease in the future. This will eventually allow much of the area currently under exotic monoculture to gradually regenerate as more biologically diverse natural forest.

Currently protection exists for only a few forest areas in Grenada. Grand Etang Forest Reserve is fully protected by legislation from any change in land use. There is also legislation which prevents any form of hunting within the reserve

There are National Parks at Levera (123 ha) in the north east of the island, primarily mangrove, and at Mt. Hartman in the south west and Perseverance Estate on the west coast which is dry forest.

In Carriacou an area of 136 ha is protected at High North. Work is currently in progress by the Forestry Department and the Forest Management Project surveying areas to create three more Forest Reserves at Morne Gazo, Annandale and Mt. St. Catherine. This will result in approximately one third of the island's forests being protected.

Main Threats:

The main threats to forest biodiversity are:-

- The clearing of land for agricultural production, animal tethering, housing settlement, infrastructure and commercial activities.
- The impact of natural disaster including hurricanes and forest fires
- Pest infestation

The main drivers are the changing population and socio-economic dynamics which put pressure on the need for more lands for settlement purposes, the increasing use of non timber forest products for subsistence livelihoods, the expansion of the tourism sector and the lack of adequate legislative frameworks including the absence of a national land use policy and weak institutional base for forest management.

Implications for Changes in Human Well Being:

Grenada's forest has been noted for its public environmental functions. These include the protection and provision of water supplies and recreation, control for soil erosion and enhancement of soil productivity. The forests support the livelihoods of many rural groups engaged in hunting, saw milling, handicraft making, animal grazing and tourism activities.

Given the reduced importance of Grenada's forest as a source of timber, non timber forest products have become a major contributor to the livelihoods of the poor surrounding communities. The key NTFPs are bamboo, screwpine, poles, fruits, charcoal, medical plants, crayfish and wildlife. Residents of the surrounding communities depend on these products for a large portion of household income. For example, many individuals use screw pine (*pandanus utilis*) (Figure 7) and bamboo as raw materials for the production of spice baskets and other handicrafts for sale to tourists.

It appears that apart from a few species, such as screw pine, most plant-NTFP species in Grenada are not under threat from over-exploitation. On the whole, the major threat to these species would seem to be through loss of habitat.

A major issue of concern in the use of NTFPs is the demand for commercialization of these products without adequate baseline data to assess the impact including the impact on biodiversity and human wellbeing.



Figure 7, Screw Pine (*pandanus utilis*) valuable as a raw material for many handicrafts.

1.3.2 Agriculture:

Overview:

The 1995 agricultural census found that the average farm size was 2.6 acres and that 83% of farms were 5 acres or less indicating that small-scale farmer dominates the agricultural sector in Grenada. However, the farms that are over 5 acres, occupy 63% of the total acreage under cultivation.

Intercropping is common throughout the agricultural sector with 76% of permanent and 33% of temporary crops being intercropped. This is a positive aspect of Grenada's farming with respect to biodiversity conservation as the absence of large areas of monoculture ensures wider biodiversity on agricultural land. Grenada's agricultural sector is very diverse with a wide crop base which includes: permanent crops – nutmeg, cocoa, banana, sugarcane, fruits, minor spices and breadfruit and temporary crops – peas, corn, sweet potatoes, dasheen, yam, tannia, cabbage, tomatoes

The soils in Grenada are mostly clay loams, which tend to be well drained and are reasonably fertile. Coupled with adequate rainfall and a good climate this makes Grenada's soils a valuable natural resource. This soil type is not particularly erosion-prone, but is susceptible on steep slopes in heavy rainfall areas. Slope is the most critical factor on land use (NFAP/FAO, 1993):

The wide use of permanent crops creates a better environment for biodiversity conservation in general. The cultivated areas are not cleared of vegetation each year in preparation for the new season's planting as is the case with temporary crops. Instead the stands of cocoa, nutmeg or fruit trees are in place for many years thus providing habitats for other plant and animal species.

Trends:

Recent trends in land use in Grenada have not been documented. The last agricultural census completed in 1995 revealed that there was a steady decline in land used for agricultural purposes in line with the changing fortunes of the sector. The 1995 census revealed that 64 percent of the land area is under permanent crops, 21% forested lands, 5% under pastures and 7% under temporary crops.

Eschweiler (1982) used a different methodology for land classification in Grenada while the classifications are not entirely comparable with that of the 1995 census, but Eschweiler also concluded that land use for agricultural purposes was in decline.

Given the impact of the hurricanes as stated earlier, the decline of the agriculture sector is evident and there is a widely held view that the total area in agricultural production has declined.

Main Threats:

The main threats to agriculture biodiversity are:-

- ✓ Changing land use and loss of vegetated lands which signals a loss in habitat for wildlife and reduction in flora and fauna. This also creates conditions for soil erosion and siltation of rivers and coral reefs.
- ✓ The impact of natural disasters especially tropical storms and hurricanes.
- ✓ The increasing use of pesticides and insecticides and the accompanying pollution and impact on the environment and human wellbeing
- ✓ The introduction of invasive alien species
- ✓ Pest infestation

The main drivers are the increasing demand for tourism services, the absence of a national land use policy, the expansion of housing settlements into traditional farm lands, socio-economic pressures and low international prices for agricultural products.

Implications for Changes in Human Well Being:

Agriculture accounts for approximately 9 percent of the country's gross domestic product, 25 percent of the labor force and 50 percent of the country's export earnings (MOF, 2009). Agriculture is the bedrock of the Grenadian economy. The agricultural sector is linked to the other productive sectors in particular tourism and manufacturing. With respect to economic and social development, the sector plays a major role in income generation, food security, poverty alleviation and human health. The sector is critical for the achievement of the millennium development goals.

1.3.3 Wildlife:

Overview:

Grenada's terrestrial wildlife consists of four amphibian species, eight species of lizard and five species of snake, 150 species of birds – 18 of which are thought to be threatened or endangered - , four native species of terrestrial mammals and 11 native species of bats (Groome, 1970). A summary of Grenada's terrestrial wildlife produced by the ICBP (1988) is given in Table 8 below. There is little information available on invertebrates in Grenada but several species of fresh-water shrimps, and land crabs are common. One possible endemic species of weevil (*Diaprepes* sp.) was reported by Groome (1970).

Table 8: Grenada's Terrestrial Biodiversity

Resource	No. of species	No. of endemics
Plants	Approximately 2000	3
Amphibians	4	0
Reptiles		
Snakes	5	1
Lizards	8	0
Birds	Approximately 150	-18 threatened 1 (+1 sub-species)
Mammals (indigenous)	4	0

Source: ICPB 1988

Groome (1970) and Thomas (1998) indicated that Grenada's terrestrial wildlife consists of amphibians, lizards, snakes and birds. Fresh water shrimps and land crabs are also present. Monkeys (*Cercopithecus mona denti*), the manicoú (*Didelphis marsupialis insularis*), the armadillo (*Dasypus novemcinctus hoplites*), the ramier pigeon (*Columba squamosa*) and iguana (*Iguana iguana*) are the main species hunted for recreation, a source of food and income. Hunting is a popular activity in Grenada for recreation and as a source of food and income. A current ban on the hunting of most species appears to be having a positive effect on current population.

Mongoose (*Herpestes auropunctatus*) and rats are observed in large quantities and are posing problems to farmers as they compete for fruits and vegetables. Like wise various species of birds and bats are noticeable. In the case of the Grenada dove (*Heptotilla wellsi*), a rare specie now protected, current number do indicate that the specie is critically endangered. In the case of seabirds, the populations primarily in the northern uninhabited rocks and island between Grenada and Carriacou appear to be thriving.

Marine and fresh water fauna of Grenada is listed as 233 marine species, 69 marine/brackish water species and 17 freshwater species (ICLARM, 1998). Findlay (1999) indicates that available information for the period 1978-1998 shows cyclical variations in volumes. Policy interventions as the closing of fishing for stipulated periods have yielded positive results via the recovery of certain species such as sea eggs (*tripneustes ventricosus*), conch (*Strombus gigas*) and lobsters (*Panulirus argus*).

Trends:

The true state of wild life in Grenada is unknown following the impact of the hurricanes in 2004 and 2005 as a comprehensive assessment has not been done.

Grenada's wildlife has changed in terms of numbers and species composition during the last few years. The disappearance of animals such as the agouti, the

Grenada parrot and some amphibious species demonstrates that the island-wide extinction of species is a historical fact. Known species to have become extinct in Grenada include, the Manatee (*Trichechus Manatus*), the Grenada parrot (*Amazona* sp.), the Agouti (*Dasyprocta albida*), Neuweid's Moon Snake (*Pseudoba Neuweidi*) Shaw's Racer (*Liophis melanotus*) and the Morocoy Tortoise (*Geochelone carbonaria*) (Grenada Env. Profile, 1991). Other species, such as the mona monkey, mongoose, rat and green parrot, have been introduced by man over the last few centuries, often resulting in negative impacts on the native fauna.

During the Forest Policy development process, the general public expressed concern about the state of Grenada's wildlife and ranked it as the third most important issue for consideration. Although there is little hard data about species numbers and their current status, a consultative study of the wildlife situation in Grenada took place as part of the Forest Policy development process. Thus, most of the up-to-date information about wildlife in Grenada was provided by hunters in semi-structured interviews and group meetings conducted during the Forest Policy's Wildlife Conservation study (Forteau, 1998).

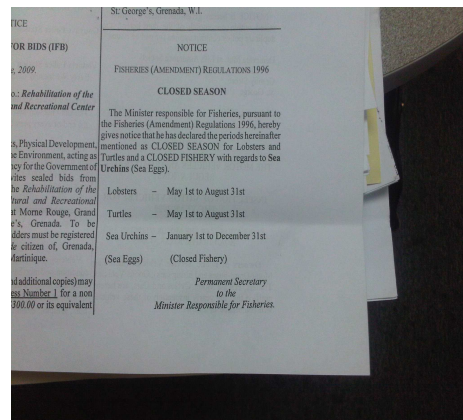
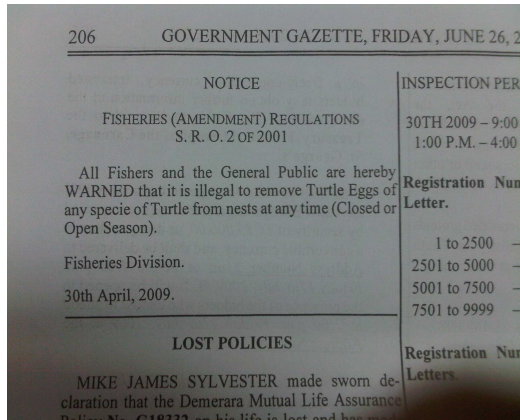
It appears that while some species like the Mongoose and rat are thriving, the numbers for the mona monkey, green parrot, iguana and several species of snakes dropping significantly. Many blame the absence of natural predators for the introduced species for increasing those numbers and for the declining numbers of the native species.

Main Threats:

In general given the regeneration of the forests the wildlife species in Grenada may have again adequate areas of natural habitat in which to live, feed and breed. There are some exceptions to this such as the Grenada Dove, the Grenada hook-billed kite and the iguana which relies on the dry woodland in the south of mainland Grenada and which is rapidly being cleared for construction. The major threat to many of Grenada's wildlife species include the following:

- Habitat destruction
- Unsustainable extraction and hunting practices
- Lack of institutional capacity for public education, enforcement and monitoring
- Lack of adequate legislation
- Invasive alien species and impact on the food chain

The main drivers are population and socio economic dynamics which increase the demand for land from wildlife habitat and income from the wildlife hunting and products from the wildlife habitats



Gazette notices on extraction of marine species

Implications for Changes in Human Well Being:

The importance of wildlife habitat in achieving sustainable development and poverty alleviation is recognized.

Hunting is a popular activity in Grenada for recreation and, for some, as a source of income. The main animals hunted are, the opossum or 'manicou' (*Didelphis insularis*), the armadillo or 'tattoo' (*Dasybus novemcintus*), the mona monkey (*Cercopithecus mona denti*), the Ramier pigeon (*Columba squamosa*), the iguana (*Iguana iguana*) and the crayfish. Cyclone trends are observed in the catch of these species. Thus the over exploitation of these species can negatively impact human wellbeing in the long run.

1.3.4 Marine and Coastal:

Overview:

Grenada has a coastline of 121 kilometers with diverse marine and coastal ecosystems including mangroves swamps, coral reefs, sea grass beds, beaches, lagoons, dry woodlands and cactus shrub. The Island has a relatively large insular shelf with an area of 3000 sq km and an exclusive economic zone of 27,000 sq km.

According to the International Center for Living Aquatic Resource Management Grenada has 233 marine species, 69 marine/brackish water species, and several species of sea birds.

There is a wide array of fish stocks classified as pelagic finfish, demersal finfish, crustaceans, shell fish and unclassified fish species. Four species of turtles are prevalent namely green, leatherback, loggerhead and hawksbill turtles. In addition the kemps Ridley and olive Ridley species are known to be present in the marine environment. Of these species, only the hawksbill and leatherback nest on Grenada's beaches.

With respect to sea birds, the most dominant species are boobies, frigate birds, ramier and rookeries. A large variety of seaweeds and sea eggs species are also present.

Mangroves occupy about 3.4 square kilometers in Grenada. The main types of mangrove include red mangrove, black mangrove, white mangrove and buttonwood.

Coral reefs surrounding Grenada is estimated at 12.5 square kilometers. The main species of coral are Elkhorn coral, Boulder coral, Finger coral, Mustard coral and Brain coral. The main species of sea grass beds are turtle grass and manatee grass. There are also significant quantities and diverse species of marine algae.

There are many beaches throughout the island. The most sheltered beaches are along the west coasts bordering the Caribbean Sea and along the many peninsular on the south coasts.

The east coast is exposed to the Atlantic Ocean and is characterized by rough seas and turbulent coastal activities.

Trends:

Grenada's marine and coastal ecosystems and the inhabited species are under constant threat but there are no recent studies providing quantitative data. A policy of hunting closed seasons is in place for some species. For example, since 1994 a drastic decline was observed in the white sea eggs (*Tripneustes Ventricosus*) catch and in 1995 the fishery was closed and remained closed to date. Other species thought to be in decline are protected by annual no harvest periods. For the commercial fisheries distinct cyclical trends have been observed in production which implies species abundance. The landings of semi sustainance and sustainance species are not routinely recorded and they too are perceived to display annual cyclical variations.

With respect to the coastal ecosystem, it is generally felt that the trend is toward degradation. For much of the coral reefs the consensus is that the reefs have been degraded from prestine to seriously stressed due to overuse, pollution and sedimentation.

The size of the mangroves and coastal wetlands has been declining. Sand mining on the beaches have been noted as a serious problem which recently necessitated a complete ban of beach sand mining for construction related purposes.

In respond the Government has embarked on a policy to designate marine protected areas for some coastal ecosystems.

Main Threats:

The main threats to Grenada's marine and coastal ecosystems are as follows:-

- Overexploitation of commercial species
- Overuse of ecosystem for agricultural, energy , tourism and construction purposes
- Beach sand mining
- Pollution through dumping of solid and liquid wastes
- Poaching and illegal extraction
- Unsustainably terrestrial agricultural farming practices
- Habitat destruction and disturbances in food chain.
- Spillage of oil based substances
- Unsustainable fisheries practices

The main drivers to marine ecosystem degradation are increasing population growth, socioeconomic imperatives, tourism development, housing and infrastructure expansion,

industrial and commercial waste disposal and unsustainable agricultural development including unsustainable fishing practices.

Figure 8, Mangrove destruction



*Destruction of Mangrove in Grenada
July 2009*



*Construction of Marina in Carriacou
June 2009*

Implications for Changes in Human Wellbeing:

A significant segment of Grenada's fisheries are for semi subsistence and small scale commercial operations are mainly for tuna catch. Fishing accounts for 2% of gross domestic products. The yellow fin tuna (*Thunnus albacaves*) is the most sought after species on account of its price in the international market. Yellow fin tuna accounts for the largest commercial catch in national landings. The catch is fairly diversified as follows:-

Tuna 24%, Big eye scad 12%, Flying fish 6%, Sailfish 6%, Dolphin 5%

Crustaceous and other shell fish are also harvested in significant quantities. The near shore and offshore coral reefs provide the base for the fishery and the distribution of the species are linked to the health of the ecosystem that supports them. For example, mangrove ecosystem filters runoff from land, provides substrate for marine organisms and birds, provides feeding and breeding areas and nurseries for the fish stock, habitat for migrant species and shoreline protection. Seagrass beds act as a transition point and energy bridge between the mangrove communities and the reef system and fishing grounds.

The Grenada beaches are dynamic ecosystems which protect the coastal area from wave action and provide habitat and nesting sites for marine species. Many crustaceous inhabit the beaches thus sand mining implies the death of these species and significant disruption to the food chain and food web and this adversely affects biodiversity and human well being.

1.3.5 Fresh Water Ecosystem:

Overview:

As indicated earlier, Grenada is well endowed with respect to fresh water resources. There are many rivers streams and lakes on the main island which contrasts with Carriacou and Petit Martinique where no fresh water streams exist.

On the main island there is 17 fresh water species. The most significant fresh water fish species are yoca, titiree, crevalle jack, mullet, crayfish, zandmey, river coco, tilapia, guppy and sword tail. A wide variety of snails and insects are also present. There are no studies available on the abundance and extraction rates of these species.

Trends:

The fresh water fish species are extracted for subsistence and recreational purposes. There are no commercial activities. No data is collected on the abundance of these species. Cyclical trends are observed and even so on local basis only and is conditioned on activities undertaken in the specific ecosystem.

Main Threats:

The main threats to the fresh water ecosystem are as follows:-

- Improper domestic solid waste and liquid disposal
- Over exploitation of species
- Unsustainable agricultural practices including the use of weedicides and pesticides
- Saline intrusion
- Deforestation
- Introduction of alien invasive species
- Extensive use of fresh water for domestic and commercial purposes

The main drivers to freshwater ecosystem degradation are increasing population growth, socioeconomic imperatives and unsustainable agricultural practices.

Implication for Human Wellbeing:

Freshwater species are extracted for subsistence purposes and a source of income for communities. The freshwater ecosystem is crucial for sustainable livelihoods.

1.3.6 Summary Tables

Table 9: Ecosystems, Trends and Threats

Ecosystem	Trends	Main Threats
Forest	Significant decline	Natural disasters Pest infestation Deforestation Inadequate enforcement legislation
Agriculture	Decline	Natural disasters including droughts Pests & diseases Alien species introduction Tourism & residential development Poor farming practices (burning & clearing Of steep slopes) Climate change Land use change
Wildlife	Cyclical trends decline	Pollution Poisoning of rivers (to capture crayfish) Deforestation & over grazing Agricultural activities Introduction of alien species Hunting of endemic & endangered species Habitat destruction
Fresh water	Cyclical trends decline	Unsustainable agricultural practices Saline intrusion Deforestation Alien invasion species Unsustainable extraction Pollution

Table 10: Ecosystems, Trends and Threats

Marine and coastal	Trends	Main Threats
Mangrove	Significant decline	Loss of mangrove swamps for material, tourism development and jetties Pollution by solid waste dumping, oil and sewage Paints on yachts by marinas Cutting of roots for indiscriminate fishing of oysters Pesticides Lack of baseline data to quantify loss of mangrove Sand mining Lack of Public awareness
Coral reef	Significant decline	Diseases Destructive fishing methods Sedimentation and pollution Bleaching Rise in sea temperature Loss of sea grazers (leading to algal bloom) Coastal development Physical damage Coral harvesting
Sea brass beds	Decline	Pollution Nutrient loading from land-based sources Physical damage
Beaches	Decline	Sedimentation an pollution Beach Erosion (sand mining, sea level rise & Development on beaches)

Table 11: Good and Services provided by ecosystems in Grenada

Ecosystem	Goods	Services
Forest Ecosystems	Timber Fuelwood Drinking water Non-timber products (fruit, plant medicines, wildlife) Genetic resources	Maintain array of watershed functions (infiltration, purification, stabilization) Remove air pollutants, emit oxygen Cycle nutrients Maintain biodiversity Sequester atmosphere carbon Generate soil Provide aesthetic enjoyment and recreation
Agro-Ecosystems	Food crops Crop genetic resources	Maintain limited watershed functions (infiltration, partial soil protection) Provide habitats for birds, pollinators, soil organisms, etc Important to agriculture Build soil organic matter Sequester atmosphere carbon
Wildlife	Food	Recreation and Gaming
Freshwater	Drinking and irrigation water Fresh water fisheries Genetic resources	Dilute and carry away waste Cycle nutrient Maintain biodiversity Provide aquatic habitat Provide transportation corridor Provide for aesthetic enjoyment and recreation
Marine Coastal Ecosystem	Fisheries Seaweeds (sea moss) Wood for charcoal Food	Moderate storm impacts (mangroves, barrier reefs) Provide wildlife (marine and terrestrial habitat) Maintain biodiversity Dilute waters Filtration Provide for aesthetic enjoyment and recreation



Jetty Construction in Grenada

Chapter 2

Current Status of National Biodiversity Strategy and Action Plan

2.1 Overview:

The Government of Grenada elaborated and published the National Biodiversity Strategy and Action Plan (NBSAP) in 2000. The NBSAP was based on an assessment of the major sectors including land use and environment planning; agriculture, forest and wildlife; fisheries, marine and coastal areas and tourism. The NBSAP also identified the gaps in effective management of national resources focusing on the institutional, policy and legal frameworks that supported planning and management of biological diversity. The plan underscored the need for national decision makers to be *“cognizant of the benefits gained from conservation and sustainable use of biological resources and the environmental social and economic costs associated with loss of these resources”*.

This chapter provides an overview of the implementation of the NBSAP focusing specifically on the main priorities, obstacles and lessons learnt.

2.2 Priorities:

The National Biodiversity Strategy and Action Plan (NBSAP) identified six priority objectives for the five year period 2001 to 2005. These objectives are consistent with the objectives of the Convention and the associated thematic programmes. They are as follows:-

- Provide broad-based support for conservation and sustainable use of biodiversity.
- Protect key ecosystems from negative human induced impacts.
- Develop and encourage sustainable utilisation of biological resources that are essential to the livelihood of local communities.
- Maintain, recover and promote genetic resources necessary for sustainable agriculture.
- Ensure a fair and equitable sharing of the benefits arising out of the utilisation of genetic and ecosystem resources.
- Provide information on key ecosystems for incorporation into national accounts and decisions on national development projects.

The main activities identified to address the stated priorities and the status of implementation thereof are as follows:-

- Public discussions. Media programmes, public service announcements, displays and marketing documents on biodiversity conservation in Grenada will be targeted to selected sectors of the public.

- ✓ Ongoing, school targeted, general public targeted.
- Develop a mechanism for incorporating biodiversity issues into the schools' curriculum.
 - ✓ Limited action, only peripheral activities completed.
- Community and public sector consultations will be used to help achieve consensus on biodiversity conservation and sustainable use policies, plans and programmes.
 - ✓ Conducted and ongoing.
 - ✓ Some progress made.
- Prepare, approve and promote a national land use policy that incorporates biodiversity conservation and sustainable use.
 - ✓ Preliminary work done, national land use policy not completed.
 - ✓ Land use identified as priority activity going forward in many sectoral assessment.
- Ecological survey of major ecosystems for conservation and legal status.
 - ✓ Ecological survey including gap assessment completed, work on legal status not completed.
- Assessment of past, current and future impacts on major ecosystems.
 - ✓ Assessment completed.
 - ✓ Sites damaged by Hurricanes.
 - ✓ OPAAL project ongoing.
- Determine if designated protected areas are adequate for protection of major ecosystems.
 - ✓ Master plan completed.
 - ✓ Management effectiveness study completed.
 - ✓ Sustainable finance plan completed.
- Identify preferred management options for PA ecosystems.
 - ✓ Management options completed.
 - ✓ Sustainable finance plan completed.
- Establish a national herbarium as the repository for research on local plant species.
 - ✓ Not completed.
 - ✓ Limited action plan undertaken.

- Strengthen existing legislation for improved protection of biodiversity.
 - ✓ Draft environmental bill completed.
 - ✓ National Environmental Management Policy and Strategy completed.
 - ✓ Physical Planning and Development Control Act promulgated

- Determine the priority habitats and biological resources for utilisation.
 - ✓ ongoing

- Develop sustainable use plans and programmes for inland and coastal fishery, mangroves, forest resources, and wildlife species through community consultations and technical expertise. These should be linked to or be part of the National Physical Development Plan.
 - ✓ Not completed.
 - ✓ Some work ongoing.
 - ✓ OPAAL project ongoing.
 - ✓ Sustainable Land Management project ongoing.

- Provide relevant support for key stakeholder groups.
 - ✓ Not done

- Implement sustainable use plans and programmes.
 - ✓ Not completed

- Policy, legislation and incentives will be developed to support germplasm and biological pest control research and development.
 - ✓ Not done

- The capacity of key institutions will be enhanced to collect, identify, characterize, store and document plant genetic resources.
 - ✓ Not done

- A national germplasm programme will be developed, to include awareness, certification and standards for seed exchange.
 - ✓ Not done

- Biological pest control will be actively promoted through an education and awareness, certification and standards for seed exchange.
 - ✓ Ongoing, some progress made.

- Linkages will be strengthened with the FAO and its Global System on Plant Genetic Resources, the Caribbean Seed and Germplasm Resources Information Network (CSGRIN), and other relevant agencies and networks.
 - ✓ Ongoing, progress made.
 - ✓ Several FAO projects completed.

- Identify different ecosystems of national importance through consultations with the major stakeholders.
 - ✓ Completed

- Identify and procure technical assistance for conducting the valuation of these ecosystems.
 - ✓ Ongoing.
 - ✓ UNDP project to commence soon.

- Train personnel from relevant ministries in valuation methodologies.
 - ✓ Ongoing.
 - ✓ UNDP project to commence soon.

- Package and present the results of the valuation to selected senior government decision makers.
 - ✓ Not done

- Determine and encourage the most appropriate mechanism for incorporation of the valuation results into the national accounts.
 - ✓ Not done

- Review the incentives require to promote biodiversity preservation and conservation.
 - ✓ Not done but sustainable finance plan completed

- Develop pollution charges and environmental levies for polluters.
 - ✓ Not done, but Sustainable Finance Plan completed.

- Impose user fees for resource utilization (e.g. Recreation areas, national parks).
 - ✓ Not done, but Sustainable Finance Plan completed.

- Enforce environmental laws and penalties for violation.
 - ✓ Not done

- Establish a system to monitor the use of biological resources.

✓ Not done

These main activities detailed above were formulated into discrete project proposals for implementation of selected articles of the Convention and the associated thematic programs.

The priority project proposals were as follows:-

- Building awareness on biological diversity.
- Drafting a national land use policy.
- Strengthening management of key ecosystems.
- Promoting sustainable use of biological diversity.
- Capacity building for germplasm conservation.
- Strengthening biological pest control.
- Incorporating ecosystem valuation in national accounting.
- Strengthening existing legislation for biodiversity protection.

Building Awareness on Biological Diversity:

Awareness building on biological diversity has largely been done, the various and ongoing adhoc and uncoordinated activities. The issue relating to the conversion of the habitat for the Grenada dove for tourism purposes raised the public consciousness on the need to protect biodiversity. The extension destruction of major ecosystems by two major hurricanes also provided opportunities for building awareness. The NGO community has been pivotal on the issue of awareness building for championing biodiversity conservation.

There continues to be a need for greater involvement at the schools level, the private sector and the media.



Drafting a national land use policy:

A national land use policy is still identified as a major gap for biodiversity conservation. There is a constantly call made by civil society groups for the development of a national land use policy.

The terms of reference for the policy were completed but no further work was done and no resources were identified for the elaboration of the policy. Given the drivers for biodiversity loss in the major ecosystem it is indeed imperative that a land use policy be elaborated and the necessary enabling infrastructure determined for its implementation.

Priority project proposals based on these objectives were completed.

Only a few of these project proposals were developed into full fledged projects and funded for implementation.

The priority project proposals were as follows:-

- Building awareness on biological diversity.
- Drafting a national land use policy.
- Strengthening management of key ecosystems.
- Promoting sustainable use of biological diversity.
- Capacity building for germplasm conservation.
- Strengthening biological pest control.
- Incorporating ecosystem valuation in national accounting.
- Strengthening existing legislation for biodiversity protection.

Strengthening management of key ecosystems:

A significant amount of work was completed on strengthening the management of key ecosystems.

The National Capacity Self Assessment (NCSA) was completed for the biodiversity sector, the climate change sector and land degradation area. The NCSA determined the management gaps and provided a roadmap for addressing the various concerns.

The NCSA was complemented by the elaboration of the ecological gap assessment, a study on the management effectiveness of protected areas and a finance plan for protected areas. The OECS Protected Areas and Associated Livelihoods (OPAAL) projects, the Sustainable Land Management (SLM) project and the Integrated Water Resources and Coastal Area Management Plan provided further impetus for strengthening management of key ecosystems.

Based on these technical studies, the Government of Grenada made a public pronouncement to effectively protect 25 percent of its terrestrial and near shore coastal areas by 2020.

Subsequently, Grenada signed onto a Caribbean wide initiative, named the Caribbean challenge which proposes to effectively conserve 20 percent of its terrestrial and marine space by 2020.

Promoting sustainable use of biological diversity:

There were limited targeted activities for promoting sustainable use. The direct links between sustainable use and livelihoods were promoted through the OPAAL and SLM projects. These two projects are currently ongoing.

Capacity building for germplasm conservation

No significant activities were undertaken on this proposal. The Ministry of Agriculture has indicated that priority must be given to this area, especially in light of the significant loss of biodiversity following the passage of Hurricanes Ivan and Emily. There were no funds targeted to this proposal.

Strengthening biological pest control:

Following the lesson learnt from the Pink Mealy Bug infestation which occurred in the 1990s, the pest Management Unit of the Ministry of Agriculture was strengthened. Existing legislation was strengthened and increased border control measures were instituted. There is however a lack of adequate infrastructure, human resources, research and dedicated funding for further strengthening the Unit.

Incorporating ecosystem valuation in national accounting:

No significant work was done on this proposal. Funding was received from the UNDP and The Nature Conservancy for a study on ecosystem valuation. The project experienced significant bureaucratic delays and the various components have not yet

started. Subsequent to the completion of this study, the outputs must be incorporated into the national planning system.

Strengthening existing legislation for biodiversity protection:

On this proposal several new pieces of legislation were enacted. The Physical Planning and Development Control Unit was promulgated.

A draft Environmental Bill was completed and a National Environmental Policy and a National Environmental Strategy and Action Plan was completed. Despite these developments, enforcement remains a critical issue.

There is indeed need to invest in the enforcement infrastructure and the need to design and implement an appropriate public information and education programme.



2.3 Indicators and Targets:

The NBSAP included a series of indicators for monitoring and evaluation but no targets were set.

The indicators were developed to track changes in land use, habitat, species, national expenditure and agro chemical usage. There were also some subsidiary indicators on public awareness, legislation and national accounting.

In the main the indicators were consistent with three focal areas of the Convention namely, status and trends of the components of biological diversity, sustainable use and threats to biodiversity.

2.4 Lesson Learnt:

It is clear that the NBSAP was not fully implemented even as nine years have passed since its publication. There were several obstacles to the implementation which include the impact of hurricanes on the ecosystem and economy, the lack of political will and adequate funding for implementation, the lack of appropriate focus on environmental issues vis a vis socioeconomics consideration and the lack of clarity on the roles of the different stakeholders and the associated turfism.

Despite the foregoing the NBSAP remains a useful tool for promoting biodiversity conservation and sustainable use. Given its focus on status, trends and threats and priority strategies for implementation, the NBSAP functions as a repository of information to inform national policy decision making.

The major lessons learnt during the implementation process include the following:-

- An aggressive project marketing programme should be developed to secure political buy in ownership and funding.
- Civil society including the private sector and media must be engaged in the process.
- Enhanced collaboration with international nongovernmental organizations facilitates implementation.
- Sustained focus should be placed on implementation while not being solely dependent on national budgetary resources given the state of the national economy.

Chapter 3

Sectoral and Cross Sectoral Integration or Mainstreaming of Biodiversity Considerations

This chapter describes Grenada's efforts to integrate biodiversity conservation and sustainable use into relevant sectoral and cross sectoral plans, programme and policies as required by Article 6(b) of the Convention and in particular the 2010 target and goals and objectives of the Strategic Plan.

3.1 *Policy on Integration:*

The mainstreaming of biodiversity into national policies and the incorporation of relevant elements of the 2010 strategic plan have received only tacit support by decision makers at the national level.

Direct references to the integration of biodiversity conservation are practically non-existent but references to environment conservation are used in this chapter as a proxy for biodiversity conservation.

The measures determined at the national level for environmental conservation have not been fully implemented and so there are no observed positive changes in the status and trends of biodiversity components as a result. The measures are consistent with the NBSAP and if implemented should facilitate the implementation of the NBSAP.

In terms of national policy, the high point is the political statements and documentation on mainstreaming in response to the devastating impacts of recent hurricanes. In fact, it was widely held that while the disasters created a number of severe environmental problems they also presented a unique opportunity to integrate environmental management concerns into the country's development vision, strategy and programme.

In the aftermath of the hurricanes, the espoused national policy was to build greater resilience into the economy by mainstreaming hazard risk reduction methodologies into national planning. A national hazard mitigation policy was elaborated. Whereas biodiversity concerns were not explicitly written into the documentation, there were several provisions of the policy which are consistent with the objectives of the Convention and associated sectoral programmes and policies. The plan explicitly calls for the protection of natural ecosystems as a direct strategy to building resistance against extreme weather events. As a consequence the national cabinet has mandated that all sectoral plans and programme be developed or retrofitted to include strengthened capacity in this regard.

Several sectoral policies were developed and each included elements of environmental management concerns. The National climate Change Policy , The National Agricultural Policy, the Tourism Master Plan, the National Forest Policy, the Poverty Eradication Strategy, the Energy Policy have included, albeit in rather broad terminology, the issue of environment management.

The National Climate Change Policy for example includes a section on the direct linkages between climate change and biological diversity. This has been particularly significant given Grenada's role as chair of the Alliance of Small Island States in the negotiations leading to a new international climate change regime in Copenhagen in December 2010. Grenada assumed the chairmanship of the Alliance in June 2007. On the national level, the issue of climate change has received some traction and any direct reference to biodiversity conservation in the climate change debate is particularly welcome towards the mainstreaming of biodiversity into national planning.

The National Strategic Development Plan and the National Environment Policy and Management Strategy are the two foremost policy documentation that provide extensive treatment to the integration of environmental concerns in national development plans and programmes.

3.2 *National Strategic Development Plan:*

A National Strategic Development Plan was approved by the Government in 2007. The plan identified several priority areas for revitalization of the national economy following a detailed analysis of the major sectors. Environment and physical development has been recognized as priority and the strategic outcomes include a proposal for environmental considerations to be integrally linked to national development.

The plan identified the need to promote awareness of and commitment to environmental considerations. The plan also highlighted the need to promote the enforcement of legislation in relation to environment, the need to promote and provide disaster risks reduction and hazard mitigation and the need to implement the national environment strategy and the national integrated physical development plan. In this regard the key strategies include the following:-

- Advocacy and campaigns on key environmental issues
- Linking livelihoods and environmental sustainability
- Enforcement of laws to protect biodiversity
- Mainstreaming disaster risks reduction

- **Integration of environmental issues in planning and development interventions**

- Institute and use the national physical development plan as a basis for all area development plans and major physical developments
- Implement the National Environmental Management Strategy

With respect to the strategy of integration of environmental issues in planning and development interventions, the plan calls for the sensitization of all sectors on the provisions of the plan and for the necessity to augment the resources allocated to the relevant agencies to facilitate implementation.

3.3 *National Environment Policy and Management Strategy:*

The Government Grenada in 2005 approved a National Environmental Policy and Management Strategy (NEMS). The NEMS is Grenada's formal expression and commitment to arrest and reverse trends of environmental degradation and to ensure that sound environmental management is fully integrated into the national development policy framework.

The espoused vision is to “envision a healthy and productive environment that guarantees the sustainability of development activities and processes and that contributes fully to social and cultural development, to economic prosperity and to the quality of human life”.

The NEMS highlighted seven broad objectives as follows:-

- Maintain the diversity of ecosystems, species and genes
- Maintain and enhance the natural productivity of ecosystems and ecological processes
- Optimize the contribution of natural and environmental resources to the production of trade of economic goods and services
- Optimize the contribution of natural and environmental resources to social and cultural developments
- Prevent and mitigate negative impacts of environmental change and natural disasters and build resilience relative to these
- Maintain and enhance the contribution of the environment to human health

- Fulfill regional and international responsibilities and capitalization on opportunities that accrue from regional and international networking.

With respect to the mainstreaming, specific mention was not made to biodiversity but with mainstreaming of environmental issues generally. The specific provisions are as follows:-

- Integrating the environmental dimension on the reconstruction process
- Integrating the environmental dimension in the fabric of the society
- Creating harmony between environment and development objectives and action
- Establishing appropriate institutional arrangements
- Building capacity for environmental management
- Developing and using appropriate, fair, effective and efficient instruments of environmental management
- Developing and sustaining regional and international partnership for environmental sustainability

3.4 *Legal and Regulatory Framework:*

The national policy on the environment calls for the establishing of an integrated, efficient and effective legislative and regulatory framework for environmental management. The policy mandates a comprehensive review of the current suite of sectoral legislation that addresses environment, natural resource management and sustainable development issues and the enactment of required comprehensive legislation and regulations.

The principal legislation for review was the Physical Planning and Development Control Act of 2002 which focuses on the protection of natural and cultural heritage. The Act establishes the boundaries for physical planning and development control issues including environment impact assessments, the enforcement of development control, the protection of the natural ecosystems and establishes the institutional framework for environmental management.

For example, the Act spells out in great detail issues related to environmental impact assessments, the liability and redress regime and mechanisms for the protection of the natural submarine and subterranean areas and their flora and fauna.

In addition there are several pieces of legislation that deal with various aspects of the environmental management on the sectoral level. As a consequence of the review a Draft Environmental Bill has been elaborated and is now subject to consultation on the national level. The draft bill seeks to address the critical gaps found during the legislative review.

Despite the foregoing there is no explicit record of and direct references to the Convention on Biological Diversity and the integration of biodiversity conservation and sustainable use. References that are consistent with the CBD and its objectives are in the context of the linkages with socioeconomic consideration and livelihoods. The elements of the Millennium Development Goals have been incorporated including environmental sustainability. But the elements of the CBD strategic plan received only tangential mention and not fully integrated into the new draft legislation.

3.5 *Institutional Framework:*

Institutional arrangements and organizational capacities are critical for environmental management.

In the context of a small island developing state like Grenada, it is recognized that the institutional framework should provide for the sharing of environmental management among the state, private sector and civil society actors as well as the effective coordination among them.

In this regard Grenada has established a Sustainable Development Council comprising broad based representation from the major sectors to constitute a forum for discussion, analysis and to advise policy makers on contemporary issues of national development. In fact, the SDC has functioned as a fora for ventilating several issues relating to environmental management. The SDC is widely recognized as the sole unit which encompasses representation from the major sectors.

The institutional arrangement for environmental management which includes biodiversity is best characterized as a state sector dominated institution but several state actors from the various sectoral areas have varying levels of responsibilities. Research shows that there were at least twenty government and quasi-government bodies with some environmental related function. The state apparatus can best be describes as uncoordinated and adhoc. There is no effective operational central authority. There were in the past many attempts to establish a specific coordinating mechanism but to date all efforts were unsuccessful. Within recent times a Ministry of the Environment was created with the expressed purpose of establishing an appropriate institutional framework for environmental management.

The National Environmental Policy calls for institutional arrangements to be established for effective coordination as per the following:-

- Coordination, partnership and cooperation between state agencies, the private sector and civil society;
- Integration of policies, institutions and interventions within the state, and use of coordinating mechanism among all agencies involved, directly and indirectly, in environmental management;
- Avoidance of duplication and use of a coordinated approach to enforcement;
- Clarity and accountability in the allocation of roles and responsibilities among the various institutional actors;
- Integration of institutions and actions at the local level, through effective systems of local governance;
- Creation and promotion of equitable and effective partnership involving public sector agencies, private sector bodies, civil society and communities;
- Effective delegation of relevant regulatory functions to regional institutions whenever desirable and feasible;
- Integration between national policies and institutions on the one hand and the regional and international institutional environment on the other.

It is envisaged that these institutional arrangements will require the redistribution of the main roles and responsibilities in environmental management among the various key institutions. The effective functioning of these institutional arrangements will also require that capacities be built, strengthened and sustained at all levels within government, civil society and the private sector.

The national policy calls for efforts to develop and sign formal partnership agreements and memoranda of understanding among agencies, in order to improve efficiency, avoid the duplication of roles and efforts, and optimize the use of human, technical and financial resources. For example, Grenada has signed a Memorandum of Understanding with the Nature Conservancy which involves the augmentation of national resources by the TNC Team.

3.6 *Other Issues on Mainstreaming Biodiversity:*

Ecosystem approach:

The ecosystem approach has not been adopted in mainstreaming biodiversity nor even mainstreaming of environmental issues in sectoral and cross sectoral plans. Nevertheless, Grenada has subscribed to and is currently implementing the project on Integrated Watershed and Coastal Areas Management and the OECS Protected Areas and Associated Livelihood Project both of which demonstrate elements of the ecosystem approach.

Environmental Impact Assessments:

Biodiversity conservation is not directly featured in the legislation on environmental impact assessment.

The legislation calls for the determination of minimum contents of an EIA report and has established procedures for public participation in the process and for public scrutiny of any report. The legislation also provided a schedule of matters for which an EIA is required. These include any coastal development, and development in wetlands, marine parks, national parks, conservation areas, environmental protection areas or other sensitive environmental protection areas. The contents of these report are to be spelt out in regulations that have not been promulgated, therefore at best issues relating to biodiversity conservation are dealt with on an adhoc inconsistent basis in the EIAs.

3.7 *Financing for Integration:*

A sustainable finance plan for environmental management has been completed. The report showed a sizable gap in the level of financing required. While the report identified a diverse range of financing instruments, the bulk of resources comes from contributions of the international community in particular the Global Environmental Facility. While the stated policy calls for significant public investments of programmes and projects that address environmental matters, and for integration of the environmental dimension in all sectors, the reality shows that very limited resources from the national budget have been earmarked for the environment let alone for biodiversity conservation.

The sustainable finance plan therefore envisages the imposition of user fees, payment for environmental services, environmental tariffs, fines and levies to augment the funds for environmental management.

The plan also envisages the establishment of a system of fiscal incentives and tax breaks to promote environmental friendly behavior and technology, while at the same time conduct a review to remove any perverse incentives. The sustainable finance plan is yet to be implemented.

3.8 *Communication for Integration:*

Public awareness and information programming on biodiversity conservation has been a feature of national programming but much more needs to be done.

The national policy mandates that a targeted communication programme is critical for the Grenadian public to have a strong commitment to environmental management and for the integration of key elements of environmental policy into policies and programmes in the relevant economic, social and cultural sectors. There must be increased awareness and improved understanding of the rationale for and the provisions of environmental policy. This is necessary for behavioral changes and improved coherence and consistency within environmental policy.

The Policy calls for a wide medium to be used to carry the appropriate messages. These medium include enhanced participation in planning and management fora, media and public information campaign, environmental education programme and environmental award schemes.

The key messages are to include ownership, responsibility and appropriate environmental behavior for sustainable development targeted to government and quasi-government officials, the private sector, civil society and the youth. At the public policy level, an ecosystem based policy driven approach to biodiversity conservation can be promoted. With respect to public sector operations the messages are to be targeted to enhance coordination, cooperation and collaboration and integration in all sectors. With respect to the private sector the messages are to include a fuller recognition of the symbiotic relationship between biodiversity conservation and economic prosperity. With respect to civil society the messages can include the direct links to livelihoods and for the youth the messages are to tackle intergenerational equity issues and the need to adopt behaviors and consumption patterns that minimize negative impacts.

Chapter 4

Conclusion: Progress towards the 2010 Target and Implementation of the Strategic Plan

This Chapter provides summary information to assess how actions taken to implement the Convention on the national level have contributed to achieving progress towards the 2010 target and the goals and objectives of the Strategic Plan of the Convention.

4.1 Progress Towards the 2010 Target:

Goal 1. Promote the conservation of the biological diversity of ecosystems, habitats and biomes

Target 1.1: At least 10% of each of the world's ecological regions effectively conserved.

Target 1.2: Areas of particular importance to biodiversity protected

- In 2008 at COP 8 in Brazil, Grenada made a public announcement to effectively protect 25 percent of its near shore marine and terrestrial areas by 2020. This has been dubbed the Grenada Challenge being motivated by the Micronesian Challenge which was also launched at that event.
- Subsequently, Grenada joined forces with seven other Caribbean countries under the Caribbean Challenge Initiative (CCI) which sought to expand and consolidate the Caribbean network of protected areas, both marine and terrestrial. The countries pledge to effectively conserve 20 percent of its resources by 2020.
- The CCI includes a Sustainable Financing Mechanism, the Caribbean Biodiversity Fund (CBF) which is an endowment to ensure that the recurrent expenditures for protected areas management are available on a sustainable basis.
- Grenada is currently preparing to establish a National Protected Area Trust.
- Sustainable finance plan was completed.
- Six new protected areas have been designated and awaiting formal adoption of the relevant legislation following a study on areas of particular importance to biodiversity.

- Management effectiveness study was completed.
- National capacity self assessment was completed.

Goal 2. Promote the conservation of species diversity.

Target 2.1: Restore, maintain, or reduce the decline of populations of species of selected taxonomic groups.

Target 2.2: Status of threatened species improved

- National Environment Management Strategy completed.
- Legislative review completed.
- Draft Environmental Bill completed.
- Efforts to establish a national germplasm bank ongoing.
- Conservation strategy ongoing for the endemic and endangered Grenada Dove.

Goal 3. Promote the conservation of genetic diversity

Target 3.1: Genetic diversity of crops, livestock and of harvested species of trees, fish and wildlife and other valuable species conserved, and associated indigenous and local knowledge maintained.

- Efforts to establish germplasm bank ongoing.

Goal 4. Promote sustainable use and consumption

Target 4.1: Biodiversity-based products derived from sources that are sustainably managed, and production areas managed consistent with the conservation of biodiversity

Target 4.2: Unsustainable consumption, of biological resources, or that impact upon biodiversity, reduced.

Target 4.3: No species of wild flora or fauna endangered by international trade.

- OECS Protected Areas and Associated Livelihoods Projects ongoing.
- Sustainable Land Management Project ongoing.
- Public awareness and education programme on illegal extraction ongoing.
- Enforcement of legislation on illegal extraction enhanced.

- Adherence to EIA provisions.
- Signatory to Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

Goal 5. Pressures from habitat loss, land use change and degradation, and unsustainable water use, reduced

Target 5.1: Rate of loss and degradation of natural habitats decreased.

- Disaster risk reduction strategies implemented.
- Sustainable Land Management Project ongoing.
- National Land Use Policy to be developed.
- National Water Policy developed.
- Implementation ongoing for the Forest Policy.
- Forest Rehabilitation Exercise launched.
- Mangrove Restoration Project ongoing.
- EIA has become a feature of all development projects.

Goal 6. Control threats from invasive alien species

Target 6.1: Pathways for major potential alien invasive species control

Target 6.2: Management plans in place for major alien species that threaten ecosystem, habitats or species.

- Pest Management Unit strengthened and stationed at major points of entry.
- National Environment Management Strategy developed.

Goal 7. Address challenges to biodiversity from climate change, and pollution

Target 7.1: Maintain and enhance resilience of the components of biodiversity to adapt to climate change

Target 7.2: Reduce pollution and its impacts on biodiversity

- National Climate Change Committee established.
- National Climate Change Policy developed.
- National Adaptation Programme of Action to be developed.
- Initial National Communication to UNFCCC completed.

- Second National Communications to UNFCCC ongoing.
- Asbestos Management Project ongoing.
- National Hazard Waste Policy completed and implementation ongoing.
- National Oil Pollution Control System designated and strengthened.
- Solid Waste Management Authority established and strengthened.

Goal 8. Maintain capacity of ecosystems to deliver goods and services and support livelihoods

Target 8.1: Capacity of ecosystems to deliver goods and services maintained

Target 8.2: Biological resources that support sustainable livelihoods, local food security and health care, especially of poor people maintained.

- National Forest Management Project ongoing.
- National Agricultural Rehabilitation Programme ongoing.
- OECS Protected Areas and Associated Livelihoods Project ongoing.
- National Water Policy completed.
- Tourism Master Plan completed with implementation ongoing.

Goal 9. Maintain socio-cultural diversity of indigenous and local communities

Target 9.1: Protect traditional knowledge, innovations and practices

Target 9.2: Protect the rights of indigenous and local communities over their traditional knowledge, innovations and practices, including their rights to benefit-sharing.

- No discernible activities since this is not an area of priority in Grenada.
- Cultural traditions and national heritage are protected through legislation.

Goal 10. Ensure the fair and equitable sharing of benefits arising out of the use of genetic resources

Target 10.1: All access to genetic resources is in line with the Convention on Biological Diversity and its relevant provisions.

Target 10.2: Benefits arising from the commercial and other utilization of genetic resources shared in a fair and equitable way with the countries providing such resources in line with the Convention.

- National Biosafety Framework completed.

- This is not an area of priority for Grenada but elements of this goal are incorporated into the Draft Environment Bill.

Goal 11. Parties have improved financial human, scientific, technical and technological capacity to implement the Convention

Target 11.1: New and additional financial resources are transferred to developing country Parties, to allow for the effective implementation of their commitments under the Convention, in accordance with Article 20.

Target 11.2: Technology is transferred to developing country Parties, to allow for the effective implementation of their commitments under the Convention, in accordance with its Article 20, paragraph 4.

- Grenada receives resources from the International Community for implementation of the Convention.
- No significant transfer of technology recorded

4.2 *Progress towards the Goals and Objectives of the Strategic Plan of the Convention.*

Goal 1: The Convention is fulfilling its leadership role in international biodiversity issues

- NBSAP completed and implementation ongoing.
- Grenada signed and ratified the Cartagena Protocol on Biosafety and elaborated the National Biosafety Framework.
- Draft Biosafety Bill was completed.
- Integration of biodiversity concerns into relevant sectoral and cross sectoral plans, programmes and policy ongoing – (Chapter 3)
- Grenada collaborates with other countries of the Caribbean on a range of biodiversity related projects e.g. OPAAL, SLM, IWCAM, CCI.
- Several regional and sub regional workshops held.

Goal 2: Parties have improved financial, human, scientific, technical and technological capacity to implement the Convention.

- Significant gaps exist with respect to resources available for the implementation of priority actions of the NBSAP.

- Significant resource gaps exist in resources and technology transfer available to implement the biosafety protocol.
- Technical and scientific cooperation is making a significant contribution to building national capacity on the individual level through training received but there is no capacity to retain the trained human resources.
- Technical and scientific cooperation are mainly from FAO and TNC.

Goal: National biodiversity strategies and action plans and the integration of biodiversity concerns into relevant sectors serve as an effective framework for the implementation of the objectives of the Convention.

- NBSAP completed.
- National Environment Management Strategy completed.
- National Forest Policy completed.
- Draft Energy Policy completed.
- National Biosafety Framework completed.
- Draft Environmental Bill completed.
- Draft Biosafety Bill completed.
- Physical Planning and Development Control Act promulgated.
- Biodiversity integration (Chapter 3).
- Some priority areas in NBSAP implemented (Chapter 2)

Goal 4: There is a better understanding of the importance of biodiversity and of the Convention, and this has led to broader engagement across society in implementation.

- Public awareness and public education programme ongoing for biodiversity and biosafety.
- The NGO communities are involved to a large extent as an advocacy group with respect to convention implementation.
- The private sector is not involved to a satisfactory degree.

4.3 *Conclusion:*

In the main Grenada has made some progress towards the 2010 target and the implementation of the Strategic Plan. A mix of national and global targets has been adopted and indicators in NBSAP were used in assessment.

Generally the implementation of the Convention has had a positive impact on improving conservation and sustainable use of biodiversity. The Convention has facilitated the flow of financial resources for conservation activities and indeed provided a fulcrum for action while ensuring that some level of attention is paid to the issue of biodiversity conservation.

The third objective of ensuring the fair and equitable sharing of benefits arising from the utilization of genetic resources was not a priority at this moment in Grenada as such very limited efforts were focused in this area. Nonetheless Grenada actively participates in the international fora on access and benefit sharing and expects that at the appropriate time this issue will be afforded greater priority.

The major obstacles encountered were inadequate levels of resources (financial, human), the lack of baseline information for informed decision making, lack of consistency in decision making, devastating impacts of hurricanes, lack of focus on conservation in part is due to deteriorating socio-economic conditions and the lack of political will to advocate for change.

With respect to lessons learnt regarding implementation, it is clear that implementation can be retarded by external shocks, like natural disasters and socioeconomic developments, but by implementing the objective of the Convention is in fact addressing these conditions posed by the external shocks.

The direct, dynamic and mutually reinforcing linkages between biodiversity conservation and livelihoods and between biodiversity conservation and economic development were key lessons. In addition the utility of spreading the targeted messages through appropriate medium greatly improved the commitment, political will and the conditions for enabling change.

As stated earlier, the development of the policy, legislative and institutional frameworks are key outcomes, necessary but not sufficient. Implementation of these frameworks must be facilitated through the provision of dedicated human and financial resources for further national level implementation of the Convention.

Additional resources, capacity building and technology transfer remain as priority items based on the findings of the National Capacity Needs Assessment and the consultations held during the elaboration of this report. Additionally a sustained communications programme bearing the key messages of the linkages between

biodiversity conservation and improved livelihoods and economic prosperity is invaluable for the effective implementation for the Convention.

Appendix I: Information concerning reporting Party and preparation of national report

A. Reporting Party

Contracting Party	GRENADA
NATIONAL FOCAL POINT	
Full name of the institution	Ministry of Finance
Name and title of contact officer	Mr. Timothy Antoine
Mailing address	Ministry of Finance, Carenage, St. George's
Telephone	1 (473) 440-2731
Fax	1 (473) 444 -4115
E-mail	timothy.antoine@gov.gd
CONTACT OFFICER FOR NATIONAL REPORT (IF DIFFERENT FROM ABOVE)	
Full name of the institution	Ministry of Finance
Name and title of contact officer	Dr. Spencer Thomas
Mailing address	P.O Box 341, St. George's
Telephone	1 (473) 443-6872
Fax	1 (473) 435-2132
E-mail	sthomas@ectel.int
SUBMISSION	
Signature of officer responsible for submitting national report	
Date of submission	

B: Process of preparation of national report:

Grenada commenced the preparation of the Fourth National Report in 2007. The Sustainable Development Council was used as the forum for engaging the various stakeholders. The format for the report and the process as per the CBD guidelines were discussed and found to be consistent with the Grenadian circumstances. A team of local Consultants were chosen and thereafter further work was suspended in part due to the unavailability of financial resources.

Work of the report recommenced in 2009. The materials used as the basis for the report was public policy documentation published by the Government of Grenada. These include sectoral policy papers, the Government websites and departmental related websites, Acts of Parliament, draft legislations, position papers and public pronouncements by Government officials on official duties and items in local media.

The local Consultants conducted a series of interviews and consultations with the major stakeholders and prepared Chapter 1 which provided the situation analysis on the biodiversity status, trends and threats. This Chapter was open for consultation through various media by the many stakeholders who were principally members of the Sustainable Development Council. Unfortunately the Council as a group did not meet to discuss the draft report. The comments received were incorporated into the document.

The process above was then followed for the remaining three Chapters as a whole. Comments received were incorporated and the Draft Final Report was prepared by the Consultants. The Draft Final Report was then subjected to review and final verification by stakeholders and then finalized by the Consultants.

The cover page is a copy of a portrait of the Grenada Dove donated by Mrs. Jennifer Ellard-Alexis to the Convention on Biological Diversity (CBD) Museum of Nature and Culture.

Appendix II: Further sources of information

Websites:

www.gov.gd

http://grenada.biodiv_chm.org

http://chm-root.eea.europa.eu/chm_grenada

www.oecs.org

www.cdb.org

www.caribank.org

www.cdera.org

www.caricom.org

Publications:

Government of Grenada. 2000. Biodiversity Strategy and Action Plan

Government of Grenada. 2000. Poverty Assessment Report

Government of Grenada. 2004. National Environmental Policy and Management Strategy for Grenada

Government of Grenada. 2004. Towards a Sustainable Recovery for Grenada: National Consultation Report

Government of Grenada. 2006. National Capacity Self Assessment

Government of Grenada. 2006. National Strategic Development Plan

Government of Grenada. 2007. Ecological Gap Assessment

Government of Grenada. 2007. Management Effectiveness Report

Government of Grenada. 2007. Sustainable Finance Plan