Dominica's 4th National Report

to the

Convention of Biological Diversity

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Terms and Acronyms

ABS	Access Benefit Sharing
CBD	Convention on Biological Diversity
CDERA	Caribbean Disaster Emergency Response Agency
CFC	Chlorofluorocarbons
CITES	The Convention on International Trade in Endangered Species of Wild Fauna and Flora
COTS	Caribbean Open Trade Strategy
DARAC	Dominica Association of Refrigeration and Air-Conditioning
DWA	Dominica Water-Sports Association
ECU	Environmental Coordinating Unit
EIA	Environmental Impact Assessment
EMA	Emergency Management Act
ESDU	Environmental and Sustainable Development Unit
EU	European Union
FAO	Food and Agriculture Organization
GDP	Gross Domestic Product
GEF	Global Environmental Facility
IOC	Intergovernmental Oceanographic Commission
IODE	Oceanographic Data and Information Exchange
IUCN	The World Conservation Union
LAMA	Local Area Management Authority
MDG	Millennium Development Goal

NBSAP	National Biodiversity Strategy Action Plan
NBSF	National Biosafety Framework
NLUP	Nation Land Use Plan
OECS	Organization of Eastern Caribbean States
ODM	Office of Disaster Management
OPAAL	OECS Protected Areas and Associated Livelihoods Project
SIDS	Small Island Developing States
SLM	Sustainable Land Management
SSMR	Soufriere-Scottshead Marine Reserve
TPMP	Terminal Phase-out Management Plan
UNDP	United Nation Development Programme
UNEP	United Nation Environmental Programme
UNESCO	United Nation Educational, Scientific and Cultural Organization
USAID	United States Agency for International Development

Executive Summary

In this report an update of the developments which have taken place since the last reporting period is undertaken followed by the 2010 targets which, as listed, despite the prevailing circumstances, are quite attainable as most of them have had the requisite ground-works for their fruition initiated. However, the perpetuation of the environment to foster such deliberations remains a critical challenge.

Since the development and approval of the National Biological Strategy and Action Plan (NBSAP) for the period 2001 – 2005, Dominica has grappled with the elements to try to realise some of the NBSAP's basic components. In the face of a rapidly declining global economic situation, which propagates circumstances that make fiscal prudence the watch-word of any governing authority, the challenges faced by Small Island Developing States (SIDS) like Dominica to implement its NBSAP, become daunting progressively. These circumstances create the situation whereby there is a struggle for governments to decide between long term goals and short term gains.

In the face of all such adversities Dominica can report progress, though not in the projected magnitude. However, environmental challenges continue to be a factor arising from inadequate and inappropriate land use practices and coastal zone management, all of which emanate from inadequate planning, poor regulation and enforcement. The regular onslaughts of natural phenomena such as hurricanes and of late increases in seismic activities signal the dire need to ensure that biodiversity and human livelihoods need to be preserved by the implementation of appropriate policies.

Consolidation and improve policy and regulatory reforms need attention. This must also be complemented by an increase in human resource capacity. Efforts at doubling the level of *in-house* expertise in Dominica must be given due consideration. The programmes that are in trend in Dominica that highlight the importance of conservation of biological diversity must be continued and allowed to continue to spread.

The work of the parties involved in raising the level of public awareness as to the conservation of biological diversity in Dominica has been commendable. The drive to bring to the fore the importance of, and the rights of indigenous people to Access Benefit Sharing can be singled out as one of the major platforms set during the review period. This is coupled by issues relevant to sensitization of the respective authorities to address legislative regimes that should make the hard work of the respective stakeholders meaningful in their quest realize the State's obligation to the convention.

Greater investment in environmental conservation is critical, especially within the private sector and tourism industry. New partnerships with the various sectors of society must be forged in that quest to uplift the awareness and maintain the drive to reduce the destruction of biodiversity.

The importance of establishing uniformly higher environmental standards, strengthening compliance with environmental laws and regulations, and raising public awareness and reporting on environmental issues needs to be taken to a new level. This can be attained if the appropriate and timely review of the NBSAP is undertaken. Since the development of the NBSAP more relevant concerns have come to light as well as the many new players have surfaced and need to be integrated into the action plan. The call to revisit the strategy and action plan is important and should be heeded to with the greatest degree of expedience.

While the report card of Dominica as to its performance during the period in review can be rated as progressive, there is still scope for short term gains. For this a listing of imminent targets followed by a summarization of components that complete the 2010 targets slate are presented.

INTRODUCTION AND BACKGROUND

1. The Commonwealth of Dominica occupies a central location along the archipelago of the Eastern Caribbean, lies between the French islands of Guadeloupe to the north and Martinique to the south, at 15° 30' North Latitude and 61° 25' West Longitude. Dominica is the most northerly and largest of the sub-regional Windward Islands grouping, with a total land area of 750.6 square kilometres (290 square miles).

Figure 1 Location of Dominica within the Caribbean

2. Dominica has 153 kilometers (95 miles) of coastline, which adjoins a 715 sq. km coastal shelf. Its narrow continental shelf, which is more extensive on the east coast along with its steep, undulating underwater contours present special challenges and features for those who harvest as well as those who have to harness its potential.

3. The island's total population recorded in 2001 was 71,727[*]. The population distribution by parish or population zones indicates that the largest communities are

[*] Central Statistics Division Ministry of Finance, Dominica

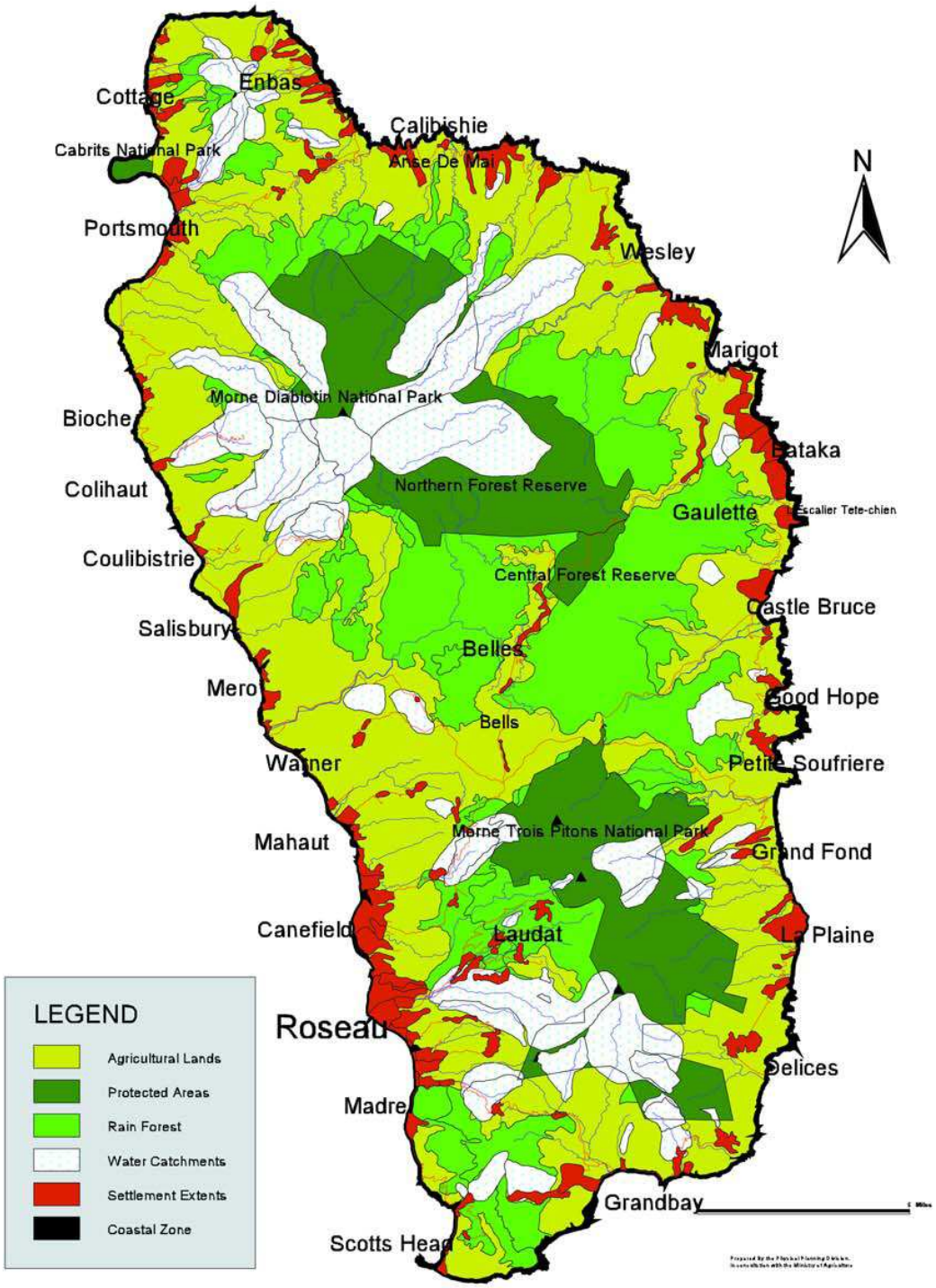
Roseau and its environs with 14 847 persons which represents almost 21% of the total population. Most of the population centers are along the coast.

4. Dominica is very mountainous and of volcanic origin and measures 47 kilometres long and 22 kilometres wide, at its widest point. The topography of the island is dominated by a central line of volcanic peaks that rise to 1,220 metres and from which radiate numerous ridges that extend to the coastline where they sometimes end abruptly as steep sea cliffs. The rich volcanic soils are porous but partly unstable with variable depths and degrees of drainage. The rich volcanic soils are usually well watered by numerous streams and rivers. The terrain is very rugged and steep. The high mountains and deep ravines are covered in rich tropical forests.

5. The central watershed areas are no more than 6.5 km from the sea in all directions and for conservation purposes has been demarcated as Forest Reserve or National Park Reserve in which no agricultural farming is permitted. A number of subsidiary peaks (about 610 metres) are found just outside this central line of ridges, dislocating to some extent the natural radial distribution of the main ridges. The relief is extraordinarily abrupt with highly dissected terrain, numerous steep or precipitous slopes and with relatively little flat land. Estimates of land slope classes as a percentage of the total area indicated that 85% of the land is very steep or mountainous, 13% is steeply undulating and 2% is flat or gently undulating. As a result only a relatively small proportion of the land area is considered available for agriculture. Of an estimated total landmass of 197,500 ha, 94,800 ha have been classified as unutilized, and 17,800 ha classified as suitable for agriculture. According to the 1995 Agriculture Census, 23,473 ha were under farms of which 61% or 13,031 ha were cultivated and 28.1 % or 5,980 ha in forest.

6. Flat land is restricted to the coastal areas and certain isolated pockets in the centre of the island. Population centres are concentrated in these areas. Thus, farming is generally restricted to the many rugged slopes, which already is an indication of how vulnerable these farm lands are, and can become, depending of the method of farming that is being undertaken in these very susceptible areas.

7. *Figure 3 Land Use Map of Dominica*



Climate

8. The climate of Dominica is classified as "humid tropical marine", with average temperatures of 27°C (80°F). Because of the island's elevated and rugged topography, micro-climatic variability can exist over very short distances and is influenced by the high moisture content of the air masses (the northeasterly trade winds) that enter from the Atlantic Ocean and the Caribbean Sea. Average annual rainfall over the island ranges from just above 2,000 mm (79 in) along the west coast to in excess of 7,620 mm (300 in) in the interior. The bulk of the rainfall occurs between June and November, which are the peak months for cyclonic activity. The drier period extends from January to May.

9. High rainfall makes the island susceptible to landslides particularly in mountainous areas. Dominica's rugged topography results in considerable amount of orographic rainfall.

10. **Table 1.1(a) and Table 1.1(b)** below provide rainfall and temperature data. The data provided by both Tables indicates the significant climatic differences that may exist within Dominica, despite the small size of the country.

Table 1.1(a): Data Recorded at Melville Hall Airport Temperature†, Rainfall and Humidity (1994-2007)

Year	Average Maximum Temperature (Celcius)	Min. Average Annual Temperature	Total Rainfall (Mm)	Average Relative Humidity (%)
1994	30.5	21.0	1950.6	75
1995	31.6	20.8	2873.8	76
1996	30.8	21.3	2709.0	77
1997	30.9	21.8	2195.1	76
1998	30.1	24.0	3319.5	79
1999	29.7	23.4	2309.1	77
2000	29.4	23.7	2309.1	77
2001	29.7	23.8	2415.8	77
2002	29.4	24.0	2365.9	78
2003	29.9	23.6	2719.0	76
2004	29.8	23.3	3731.8	75
2005	31.8	21.5	2417.6	75
2006	31.5	21.7	2554.6	76
2007	30.2	23.7	2331.0	74

† Degrees centigrade

Table 1.1(b): Data recorded at Canefield Airport Temperature, Rainfall and Humidity

Year	Max. Mean Annual Air Temperature	Min. Mean Annual Temperature	Total Rainfall (Mm)	Average Relative Humidity (%)
1994	30.7	23.1	1547.2	69
1995	31.1	23.2	1706.2	72
1996	30.8	23.3	1986.3	72
1997	31.0	23.6	1800.3	69
1998	31.5	23.9	2204.2	72
1999	31.1	23.5	1660.8	70
2000	30.6	23.4	1266.1	68
2001	31.0	23.5	1573.2	67
2002	33.3	25.5	1476.8	68
2003	31.0	23.8	1644.0	68
2004	30.8	23.2	2057.3	70
2005	33.6	21.6	1803.1	68
2006	33.0	21.1	1737.8	64
2007	31.3	22.9	1678.0	62

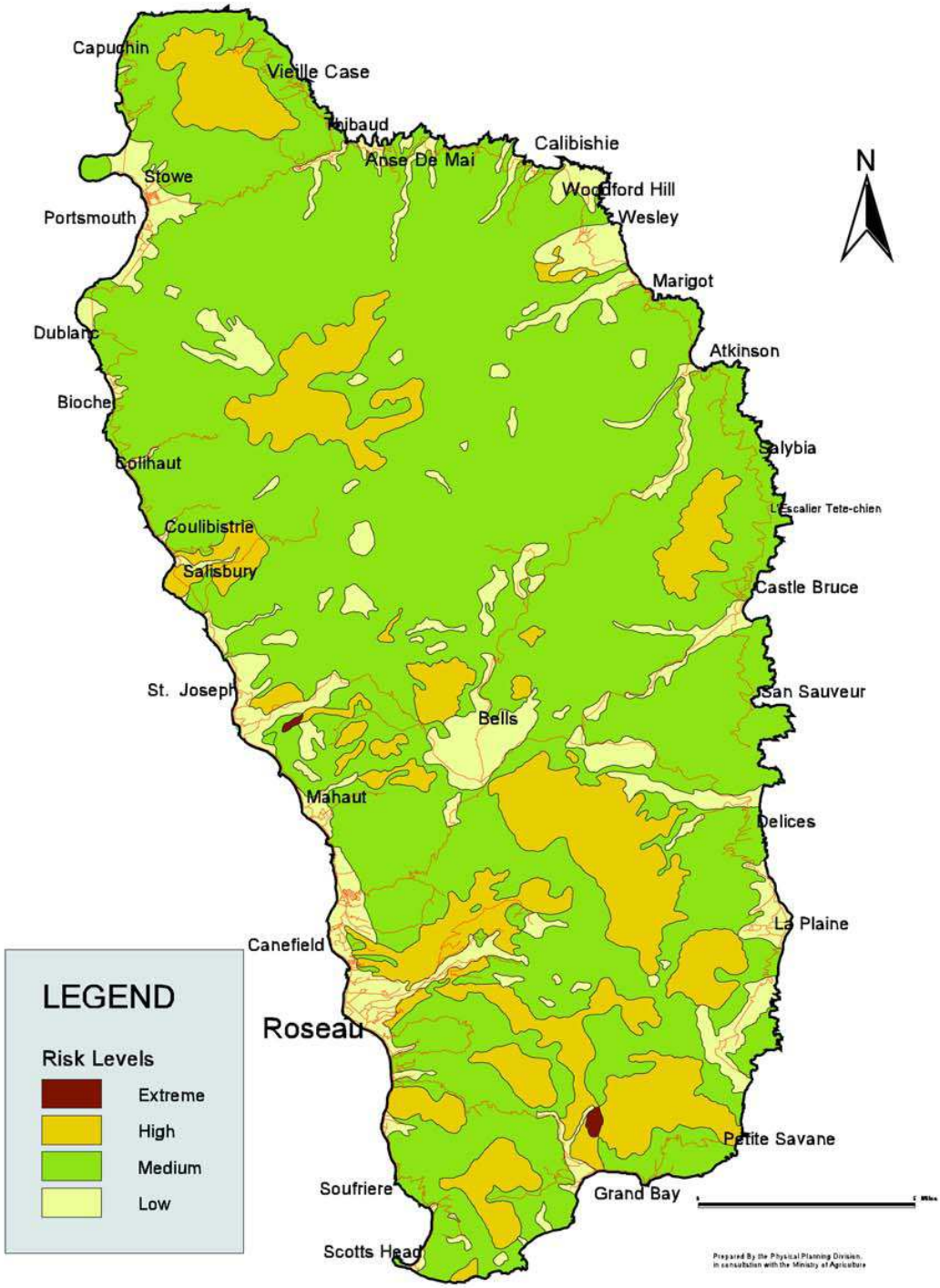
Source: Commonwealth of Dominica Meteorological Office.2008

Natural Hazards and Vulnerability

8. The conclusion of the United Nations Global Conference on the Sustainable Development of Small Island Developing States (SIDS.) held in Barbados in 1994 left no doubt that Small Island developing states, like Dominica are economically, socially, culturally and environmentally vulnerable. The vulnerability of the land resources, human settlements and infrastructure to the consequences of Climate Change has been more apparent recently. Terrestrial and marine biodiversity are coming under increasing pressures from the island's economic development, based primarily on agricultural (bananas) and ago-processing, and manufacturing activities and more recently tourism.

9. The primary natural hazards affecting the island are tropical storms and hurricanes and their attendant impacts, which include erosion, landslides and floods. There may be occasional localized drought spells which is not widespread. The Commonwealth Vulnerability Index rates Dominica as having the sixth (out of 111 countries evaluated) most vulnerable economy (to external shocks and natural hazards) in the world, and the most vulnerable in the Caribbean.

10. *Figure 4 Landslide Hazard Map*



11. The island is located within the Atlantic hurricane belt. Hurricanes are characterized by strong winds and are generally accompanied by heavy rainfall and by storm surges in coastal areas. Impacts of these storms include loss of life, damage to property, and disruptions to the natural environment. Rainfall associated with the passage of tropical weather systems is an important source of freshwater which to some extend is a supplement for the rich vegetation and water resources Dominica is endowed with.

12. Over the period 1987 to 1997, Dominica was affected by nine tropical cyclonic systems which ranged in intensity from localized wind blows to intense hurricanes. Certain parts of the island and infrastructure are yet to recover fully from the impact of Hurricane David which dealt the most severe blow to the island in history in 1979. This trend continues up to the present whereby weather disturbances of similar range of magnitude persist seasonally.

Figure 5. Storm surge of Hurricane Lenny in 1999 flooding the water front promenade, Roseau

Figure 6 Wave-action during Hurricane Omar (2008) at the water front promenade, Roseau.

13. In November 1999 the latter part of the hurricane season the west coast of Dominica was devastated by Hurricane Lenny. It dumped comparatively little rain but produced waves that were unprecedented and destroyed homes, property and the set the fisheries sector a few years back as most marine resources and fisheries boats and land-base infrastructure there were severely affected. A replica of that incident occurred in September 2008.

14. As late as August 16th – 17th, 2007, the island was struck by Hurricane Dean. Dominica suffered immensely from the passage of this category 2 weather system whose eye or centre travelled between Martinique and St. Lucia but whose outer-bands dumped a total of 8 inches of rain over an 18-hour period on the island and generated wind gusts up to 78 mph. Infrastructure, agriculture, transport and fisheries were severely impacted.

15. The impact of Hurricane Dean was assessed as significant. The high levels of precipitation resulted in landslides which accounted for two deaths and caused sever damage to the island's road network. High winds and flash flooding also resulted in

significant damage to the agricultural sector, commercial and residential buildings and other key physical infrastructure. Damages sustained were in excess of EC $162 million amounting to approximately 24% of Dominica's Gross Domestic Product (GDP).

16. *Figure 6. Waves during Hurricane Lenny battering tourism facilities*

That figure was further revised and set up to about $ EC 225 million (US $ 83.3 million). The island is yet to recuperate from the impact of this hurricane which rendered the main agricultural export crop to its longest period of none production since 1979. *(Office of Disaster Management –Situation Report of Hurricane Dean, 2007).* Replacement or rehabilitation cost is project to exceed the aforementioned.

17. As recent as September 2008 the unexpected impact of Hurricane Omar with 40-foot waves struck the west coast of Dominica and caused considerable damage to marine systems while reaping havoc and consequential loss to the coastal infrastructure, roads, homes and fisheries facilities. Several coastal communities were temporarily isolated because roads were uprooted by heavy seas, disrupting any form of vehicular traffic for days.

18. Much of Dominica's communities are located on the coast and access to them is usually by routes that meander cliffs' that overhang or line the coastline. Any hurricane with accompanying turbulent seas threatens life and property in the many coastal communities that lay there. The overall estimated cost of damage to fisheries infrastructure alone borders around EC $16 million. The frequent devastations to coastal infrastructure by natural phenomenon makes it incumbent to put in place sea defence structures some of which may have adverse impacts of some form on living biota.

19. Evidence of neglect to basis sustainable land management principles and the mentality to focus on short term gains and planning are often exposed with the passage of hurricanes. In a coastal vulnerability assessment undertaken in 2007, "a consistent theme observed was the vulnerability of roads and buildings that are near or on the beach to storm surge flooding. A serious lack of planning was observed, as houses are currently being constructed on the beach, with no guidance of required setback distances and consideration for constructing outside of the wave inundation zone."[‡] The same is true for settlements that are in low lying areas some of which are vulnerable to flooding from river action.

20. In a survey conducted in 2006 to assess which communities were most vulnerable to coastal impacts, inland flooding and landslide hazards, the following show the findings. The communities were listed and then prioritized with respect to vulnerability, with one (1) indicating the most vulnerable, and increasing numbers representing a decrease in vulnerability. The assessment also determined that the following communities (not listed in any specific order) were vulnerable due to poverty: Dublanc / Bioche, Pointe Michel/ Soufriere/Scotts Head, Toucarie, Thibaud, Fond St. Jean, and Layou.

[‡]Inception Report of Coastal Vulnerability Assessment – Dominica

Table 1-2. Prioritization of Coastal Villages' Vulnerability

Coastal	Inland Flooding	Landslides
1 Pointe Michel/ Soufriere/ Scottshead	Layou Valley	Bellevue/Pichelin/ Grand Bay
2 Calibishie	Pichelin	Carib Reserve
3 Thibaud	Melville Hall	Pointe Michel/Soufriere/ Scottshead
4 Grand Bay/ Dubique / Fond St. Jean	Calibishie	Carholm / Layou
5 Mahaut	Dublanc	Calibishie
6 Layou	Roseau Valley	
7 Dublanc/Bioche	Thibaud	
8	Toucarie	
9	Rosalie	

21. Many of the communities appear to be vulnerable to more than one hazard. In some cases the fact that several are listed as being vulnerable by virtue of poverty levels, indicated that these should be included in the assessment listing, particularly where multi-hazard vulnerability was a factor. In summary therefore, the following sites (Table 2-3) were put forward as candidates for the most vulnerable coastal towns and villages.

Table 1-3 Most vulnerable coastal towns and villages.

Towns	Coastal Villages	
	West Coast	East Coast
Roseau	Soufriere to Scotts Head	Calibishie
Portsmouth	Mahaut	Thibaud
	Layou	Dubique to Fond St. Jean
	Bioche	
	Dublanc	
	Toucarie	

22. The mechanisms to counter such level of vulnerability include erecting water defense walls. These are cost intensive structures and while they have been deemed as essential, they cannot be erected due to financial constraints at the rate of seasonal destruction which results and continue to cause loss of biodiversity among others.

23. This and other developments reveal the challenges in the implementation of the some aspects of the CBD convention, many of which are daunting, and emphasizes the need to work concertedly at putting in place the supporting mechanisms to foster realization of the islands commitment to the convention.

24. Seismic activity in Dominica is significant and can be frequent. It is estimated that over 90% of the population live within 5 kilometres of seismic activity zones. In November 2004 the country's vulnerability to seismic hazards was brought into sharp focus with the occurrence of torrential rains delivering over 530 mm over a 5-day period (recorded at the Melville Hall Airport between November 17th and 22nd) that coincided with a strong earthquake[§] on November 21st. The events triggered major landslides at the communities of Thibaud, Vieille Case and Penville situated in the north of the island. Massive flooding with observed heavy soil loss due to erosion contributed to significant silting of major rivers in the east such as the Rosalie River (Rosalie area), the Sari-Sari and Thabari Rivers (La Plaine area), the Mahaut River (Morne Jaune area) along with sedimentation of the near-shore marine environments.

[§] Source: http://earthquake.uszs.gov/recenteqsww/quakes/usrcaz.htp. The earthquake which had a measured magnitude of 6.3 on the Richter Scale occurred at 7:41:07 am (local time at epicenter at location 15.677° N, 61.650° W or 15 miles WNW (300°) from Portsmouth, Dominica, on November 21, 2004. While no fatalities were sustained, there was significant damage to buildings and other infrastructure (including hospitals, schools, churches and dwelling houses) in the north and north east of the island. The official estimate for necessary repairs, rehabilitation and reconstruction work to official buildings as a consequence of the recent earthquake and accompanying heavy rainfall is US$19.1 million. This estimate takes account of funds needed for restoring public works, i.e. roads, bridges, schools and health facilities. It does not include the cost of repairs to private homes and other facilities, nor does it represent a full economic, social and environmental impact of the damage.

CHAPTER 1
OVERVIEW OF BIODIVERSITY TRENDS AND STATUS

1. In the NBSAP some major threats to biodiversity were listed as summarized in the ensuing table with an indication of the rating of progress that has been made in addressing these. Despite the progress ratings so tabulated as captured by assessments of various government bodies, there is still much work to be done and to continue as progressively new challenges and areas of concern become development dynamic.

2. ***Table 2-0 Summary of Biodiversity Threats***

Stated Threats	Rating	Action
Deforestation	Decline	There is a gradual movement from agriculture. Less unsuitable land is being cleared for cultivation. However in some areas agricultural land is being converted into housing/real estate areas
Over-exploitation of wildlife	Decline	An increase in public awareness progrmmes and the more direct involvement of communities in natural resource management. Enforcement of relevant laws is on the rise
Encroachment	Decline	Vigilant forest rangers act as deterrent. Land ownership disputes acted on promptly
Unregulated development	Problematic	Lack of effective and consistent policy and inadequate manpower resources
Introduction of foreign species	Problematic	Illegal trading and trans-boundary movement from nearby French Departments are difficult to control. Introduction of CITES principles and human resource beefing up required
Loss of agro-biodiversity	Problematic	Measures to control this will be featured in legal regimes under consideration
Impacts from climate change	Concern	Comprehensive multi-sectoral measures are being considered
Uncontrolled use of biotechnology	Being addressed	Work in progress by various agencies
Pollution	Being addressed	Measures being introduced to address this concern
Natural disasters	Increasing	Increase in seismic and cyclonic activity. Disaster mitigation measures
Loss of traditional knowledge	Gradual decline	Awareness building ongoing. Legislative support initiated
Inappropriate legal/institutional frameworks	Concern	Manpower resources lacking. Training and legal support initiated

3. The mere inclination from the various agencies concerned that the prevailing situation has not moved to more grave status is a positive sign. However, the task of achieving any degree of forward motion gets more challenging as resources get scarce.

Biodiversity

4. Dominica possesses an extensive range of terrestrial and marine biodiversity, despite its small size. Sixty-five percent (65%) of the island area is covered by natural vegetation ranging from dry scrub woodland on the west coast to lush, tropical rain forest in the interior and a wide variety of fauna and flora. *(Agriculture Census 1995)* Some 155 families, 672 genera and 1226 species of vascular plants have been identified on the island. A number of plant species are considered endemic to the island including *Sabinea carinalis* (Bwa Kwaib), the national flower of Dominica.

5. Seven (7) distinct vegetation communities are present ranging from montane rainforest to coastal swamp and dry scrub woodland. Fumarole vegetation associated with volcanic activity is also present.

6. The avifauna of Dominica is very diverse and may be the most diverse among States in the Eastern Caribbean. It comprises an excess of 175 species of birds most of which are migratory but 60 of which are known to breed in Dominica, including the endemic parrot species ***Amazona imperialis*** and ***Amazona arausiaca*** that are considered endangered and threatened respectively (IUCN Red Data List). Their population recorded earlier as at 200 and 1500 respectively have increased. They are listed as specially protected birds under Dominican law. Reports of illegal trafficking of some wildlife species out of the State have heightened concern. To address that issue a workshop of stakeholders was held. Stakeholders were brought up to date with some of the measures that are being implemented by CITES authorities globally to combat the trans boundary movement of wildlife products and their implications. It is expected that mechanisms to secure our borders so as to eradicate such activities will be strengthened.

7. Dominica's very youthful and fragile forest landscape makes it very susceptible to the effects of land degradation. Historically, Dominica has had a strong tradition of conserving its land resource base. Early records indicate formal attempts at land preservation and sustainable management of biodiversity dating back to the Botanical Gardens Act of 1898. By the 1950's the first Forest Ordinance was enacted which authorized the establishment of Forest Reserves on Crown Lands and protected forest on private land for purposes of soil and water conservation. *(O. Grell, NCSA Report 2005.*).

8. The efforts of the Division of Forestry, the lead agency with responsibility for the management of the forest, continue at promoting measures to curtail intrusion into the forest reserves along with critical vigilance to enforce laws that govern the harvest of terrestrial wildlife. To that extent, public awareness building through regular radio programmes and meeting with special interest groups and communities have been ongoing. This is also tied in with a nationwide trend at promoting Dominica as an eco-tourism destination. The collaboration of other sectors in this endeavour has been encouraging but lacking in full effectiveness.

9. There has been a renewed thrust in the tourism sector targeting land-base resources. This will definitely bring to bear pressure on the terrestrial resources of Dominica. As a means to ensuring the perpetuation of terrestrial species, government through an EU funded initiative has undertaken the development of a major eco-tourism project named Waitikubuli National Trail. This trail will extend the length of the island from north to south and will traverse the island’s various climatic, vegetative, topographic as well as social communities. This project is anticipated to be a means to reduce adverse impacts of tourism related activities as exist today have on the environment; with a strong tendency to be scattered and unregulated all over the island,. This national trail initiative is a comprehensive approach at sustainable land management and involves the participation of all related sectors. It provides for active roles and derivatives for communities that it traverses. Hence the level of

involvement of stakeholders will be tremendous and consequently their awareness to implementation of components of the NBSAP.

10. Dominica has since 2004 drafted an up-to-date Emergency Management Act (EMA) which is yet to be enacted. Part VI of the Act addresses Specially Vulnerable Areas and makes provisions for the Director of the Office of Disaster Management (ODM) to demarcate especially hazard prone areas for formal declaration by the Minister. It goes further to permit development of special area precautionary plans inclusive of strategies, policies and standards for future development. The proposed act contains sections that are complementary to, and supportive of, existing laws from other agencies as far as sustainable land management is concerned. It adds depth to the 2002 Physical Planning Act which addresses construction practices, sub-division and development review by having provision for prohibitions to land use activities that remove vegetation or disturb soils and geological resources. The inappropriate management of land promotes to a large extent in a Dominican context, vulnerability of biodiversity to natural phenomena.

11. The introduction of plantation agriculture from early colonization and with commercial mono-crop agriculture (bananas in particular), in the post 1940 period, are trends that brought about significant pressures to bear on the fragile resource base and increased levels of potential for biodiversity loss, land degradation and desertification. Presently, the situation is exacerbated by impacts associated with the conversion of large plantations to small farmer holdings, modernization of the economy through the construction and tourism sectors in particular, as well as the gradual acquisition and occupation of farmlands for housing and community expansion, particularly in the rural areas.

12. In Dominica factors such as deforestation, pollution, overexploitation of resources, unregulated development, natural disasters, and impacts from climate change are still considered as the main threats to biodiversity.

13. With a decline in profitability and viability of engagement in the banana industry, a condition brought about by removal of preferential treatment by Europe for our banana exports and the imposition of several global trade restrictions and conditions, there has been a concerted trend towards developing tourism as an alternative and ,or, substitute to agriculture. This initiative is being undertaken by the appropriate authorities with the view that the precautionary approach should be at the forefront of any development to accommodate this tourism development thrust. However, in the absence of the appropriate mechanisms and sound strategic planning, even in the short term, there exists the possibility for ad hoc development for short term gains as is currently evident in the tourism sector. The conversion of prime agricultural lands into housing lots and schemes, resorts and other uses, is a growing trend which dictates the need for immediate and appropriate attention.

14. There has been certain actions taken in the form of land use planning programmes and zoning developed since the last report but full implementation of same has not been forthcoming. In the interim there continues to be a perpetuation of the practices which compromise the integrity of many natural ecosystems. Such developments are not only restricted to agricultural lands but also include beach / coastal areas.

1.3. Protected Areas.

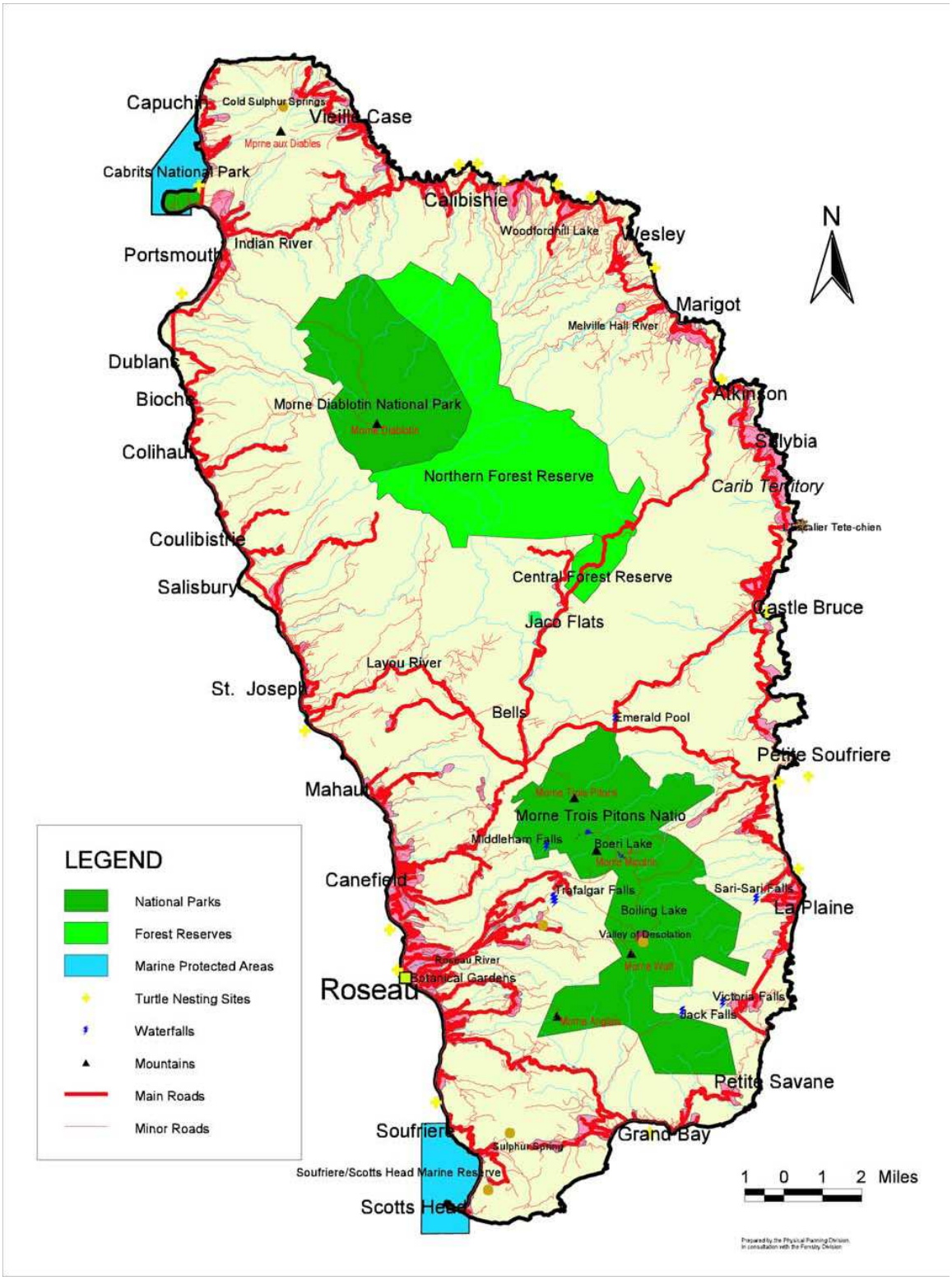
(i). Terrestrial

15. Twenty-five percent of Dominica's forest lands are legally protected either as forest reserves or National Parks. Dominica has two (2) declared Government Forest Reserves namely the Central Forest Reserve (410 hectares) established in 1951 and the Northern Forest Reserve (5,475 hectares) established in 1977. These two Forest Reserves in the north-central part of the island cover over 11% of Dominica's land area.

16. Three National Parks have been designated. The Morne Trois Pitons National Park (6,872 hectares) was established in 1975, the Cabrits National Park (5,388

hectares), which includes a marine component, was established in 1986, and the Morne Diablotin National Park (3,335 hectares) was established in 2000. The Morne Trois Pitons National Park was officially declared a UNESCO World Heritage Site in 1998. Management Plans have been developed for the three National Parks.

17. **Figure National Parks, Marine and Forest Reserves**



18. There is constant monitoring of the activities executed in these areas and the impacts of these may have on the biodiversity contained therein. One of the major

developing trends within these spaces is development of tourism related activities. Already within the national parks tourism is thriving and efforts at ensuring the limits of the carrying capacity of these areas are critical. However, as a means to allay any negative impacts on carrying capacity brought about by growing interests and investments in tourism activities, the aforementioned new national trail should serve in good stead.

19. The development of many organized tourism activities such as an aerial tram through the More Trois Piton national park, wilderness rides and adventure related theme parks and the development of natural wellness centres are positive attributes towards containing and managing developments that if allowed to persist unregulated can have severe impacts on the State's biodiversity. Many small, private holdings are being converted into localities that are attuned to tourist attractions. In this manner, a certain degree of awareness to the fragility of living biota is perpetuated and consequently realisation of some aspects of the valuable of the biodiversity will take root.

20. There is an increase in the number of sites that have been come under the guise of Protected Areas though not legislated. Some of these include sections of a river or a water fall, an old plantation, a historic site, etc. These are private holdings that have been so designated by the owners or community operations. The activities permitted to be executed are in sync with those executed in the officially designated sites. These sites however tend to have an affinity towards being a tourist attraction. Regardless of the form of shape these take they indicate a growing level of discretionary awareness for the preservation of the biodiversity.

(ii). Marine

Cabrits National Park – Marine Component

21. The marine component of the Cabrits National Park though so designated since the establishment of the Park, has not been made fully operational. At present there is an initiative to model a management scheme to bring to bear a programme

that may make fully operative the said sector. This project is supposed to have a strong community-base component and intends to bring together a grouping of stakeholders to manage the operations. Funding for the initial phase of implementation of that project has been secured under the Protected Areas and Associated Livelihoods Project (OPAAL) as part of the Organization of Eastern Caribbean States Environmental and Sustainable Development Unit (OECS-ESDU)

Soufriere-Scottshead Marine Reserve (SSMR)

22. An expanse of the marine waters of the south of the island was designated as Marine Reserve in 1998. That marine reserve is fully operational. This marine space referred to as the Soufriere-Scottshead Marine Reserve (SSMR) was so developed to avoid user conflicts between traditional users (fishermen) and new entrants in the water-sports sector of the tourism industry. The SSMR allows for the protection of a very unique marine ecosystem including the adjacent fringing coastline. That said space contains some of the islands most wholesome coral reef systems, warm underwater sulphur vents, abrupt underwater drop-offs, ideal location for schooling migrating coastal pelagic fish and cetacean species, thus making the site a focal point for recreation as well as being heavily favoured by the immediate surrounding communities as a traditional area of fishing, for food security and income generation. Components of it are internationally rate as a world class scuba diving destination.

23. That protection status granted to this marine area and adjacent fringing coastline was among others, an attempt to give protection to the biodiversity therein, as well as to establish zones within that marine space for designated sustainable marine related activities, thereby reducing user conflict issues and allaying any possibility of the tourism activities depriving the traditional users access to the resource.

24. The impacts of these have brought about systematic approaches to management of the resource. Increases in recreational activities have been recorded

and the issue of carrying capacity from both activities (new recreational and traditional users) are being kept under close scrutiny.

25. There are ongoing monitoring activities for impacts of natural and other land base processes that may occur. Sedimentation traps as an example are located along various sections of the SSMR for that purpose. The issue of coral bleaching has been a concern but not yet a threat and surveillance for same remains a priority. There is a community base approach to management of the SSMR in place. This is reaping good results and is a mechanism that is used to enhance public awareness. This awareness has been on the upswing.

SSMR-Day

26. Local businesses in the area together with the Dominica Water-Sports Association (DWA) teamed up with the Fisheries Division and the Local Area Management Authority (LAMA) of the SSMR to host schools (35 - 50) from across the island each year to observe **SSMR-DAY** *(Soufriere-Scottshead Marine Reserve Day).* This event allows schools to interact with different features of the reserve. Allows for promotion and appreciation of various components of the reserve and most importantly educate participants as to the rational and importance of setting up a marine reserve in the quest to protect and manage biodiversity. A keenly contested quiz on matters at the SSMR among the visiting schools on that day makes up an integral part of that day's activities. This has become a staple event on the calendar of all schools on the island which has been ongoing since 1992.

27. A feasibility study is on its way in the SSMR with the assistance of GEF Small Grant Project to probe into the establishment of more coral reefs as a means to address future increasing demands on the resource therein, with the increase of cruise tourism being experienced. If successful a Biorock reef development project will come to fruition.

28. Marine Resources

29. The living marine resources in the near-shore space around Dominica are limited due to the narrow continental shelf that lines the island. The reef resources around there are few in comparison to the abundance in other Caribbean States. Exploitation of the living marine resources is relatively under control in that there is a regime of fisheries laws and regulations that are fairly modern and addresses control/management mechanisms. Also trends in further development of that sector are inclined towards offshore pelagic fish species thus reducing introduction of undue stress on coral reef fish species.

Table Status of Critical Coastal Marine Resources

Species	**Status**		**Cause**
	Then	*Current*	
White Sea Urchin	Endangered	*Threatened*	Exact cause is not known. There is no fishery for this resource - some environmental factors such as poor water quality are suspected *Population on the rise where habitat conditions improve – less polluted runoffs, reduced sedimentation, etc*
Marine Turtles	Threatened	*Lessened Threat*	illegal harvesting, loss of habitat and nesting grounds *Above still present but at reduced level. Community conservation initiatives having positive impact*
Corals	Severely Threatened	Severely Threatened	Siltation due to erosion from poor land management practices, anchor damage, scuba diving, collection of coral for export[5], poor fishing practices, natural disasters.
Sea grass	Threatened	*Lessened Threat*	Siltation is the main cause of death of this species. *Population has proliferated where siltation has been absent but concerns remain*
a). Reef Fish and b). coastal pelagic resources	Threatened	a). Threatened *b). Lessened Threat*	Habitat destruction, poor water quality poor fishing practices along west coast of Dominica. *Resource rebounded positively. Lately harvest levels of coastal pelagics are on the rise*

[5] There is a reduction in such activity as mechanisms (CITES and others) are in place. Also a State approved outfit that use to export coral to lucrative foreign market has been banned.

30. Dominica's inshore fisheries resources are already very vulnerable to nature's seasonal deeds but poor agricultural and developmental practices and of late increase in land mining activities add further stress onto that limited resource base.

31. Land base Mining

32. Quarrying for stones, sand, pumice and other construction base material is a growing enterprise in Dominica. It is seen as a major export oriented activity, in light of the existing economic situation. Many coastal ridges and mountains along with portions of Dominica's largest river (Layou River) are major mining centres. Most quarries on island are foreign owned with a substantial export volume of quarry material destined for the French West Indies, the United States of America and to other Organization of Eastern Caribbean States (OECS) destinations.

33. The runoffs from these mining facilities are having devastating impacts on the marine ecosystem. It destroys whatever little remnant of coral habitat that is there, making fishing in these parts a nightmare. The impacts of effluents from these land mining sites on to the ocean after heavy downpours or hurricane is alarming.

34. However, the growing numbers of land mining operations concentrated on the west coast of the island will not be allowed to contribute to the further demise of the coastal resources and by extension the livelihood of approximately 18 fishing communities that are directly affected by the impact of land mining operations. Last year Government took the decision to cease the granting of any further new licences to land mining operations. This is being followed by a number of monitoring programmes to see that the measures suggested to mitigate their impacts on the environment are effective.

35. While there is a freeze on mining operations on the west coast, two new mining operations, one dealing with the extraction of pumice in the south and another on the south east extracting rocks have commenced operations.

Currently Operated

1) West Indies Aggregates, Colihaut
2) R.D.R. Williams Inc., Anse Cola
3) P.H. Williams & Co. Ltd., Anse Gabriel
4) Sodex Enterprises Ltd., Bouleau
5) West Indies Sand, Layou
6) Walsh Trucking, Layou
7) West Indies Sand, Hillsborough Estate
8) Caribbean Aggregate, Mahaut
9) P.H. Williams & Co. Ltd., Les Pointes
10) P.H. Williams & Co. Ltd., Canefield
11) P.H. Williams & Co. Ltd., Cocoyer
12) Carib Sand & Stone Ltd., La Falaise

Planned or Proposed

1) Aggpit Caribbean Inc., Bouleau-Coulibistrie
2) Brookhill Estate, St. Joseph
3) Stone quarry (Stowe – South east)
4) Pumice mining (Soufriere – South)

36. Despite of this aforementioned policy decision by government which is indicative of the level of commitment that is being exhibited for the preservation of the State's biodiversity, it must be noted that Mining and Quarrying (12 percent)[6] were among the three sectors of the economy which registered positive performance in the economy for 2007-2008.

37. In light of the foregoing developments, there is need to look into making adjustments to the NBSAP to address and accommodate the challenges and advancements respectively that have developed since the passage of the strategy and action plan. The new projects, programmes and their requisite authorities, some of which did not exist at the time of the commissioning of the NBSAP will have to be brought on board.

[6] Prime Minister's 2008 Budget Address

38. With the developments that are taking place since the last reporting period, it is imperative that the strategy be revisited by bringing together the stakeholders to take stock and review the issues with a view to forging a management regime to see to the effectiveness of the implementation of the NBSAP. The need for this approach is deemed as being a top priority agenda.

CHAPTER 2
CURRENT STATUS OF NATIONAL BIODIVERSITY STRATEGY AND ACTION PLANS

1. Since the passage of the National Biodiversity Strategy and Action Plan (NBSAP), Dominica has worked hard and steadily towards implementation of the varied components of that plan amidst severe constraints brought about by natural disasters (passage of frequent hurricanes), contracting economies, and implementation of various austerity measures influenced by global economic trends that led to funds becoming a scarce commodity. These were accompanied by a gradual decline in production of the mainstay of the economy brought about by changing international trade regimes. For the first half of 2007 (January to August), export production of the main export crop, banana, reached almost 7000 tonnes bringing in an amount of EC$ 9.6 million. Following the passage of Hurricane Dean, a mere 130 tonnes of banana were exported for the rest of the year, earning only $175,000. Preliminary figures suggest that the agricultural sector contracted by 5.2%.[7]

2. While these persist, the shift from the dominance of the dependence on agriculture moved to tourism, which also recorded a contraction in the vicinity of 5%.[8] The developing global economic meltdown though not being felt in its full magnitude yet, will undoubtedly generate significant challenges that will impact on the living biota and trends of man's interaction with the biodiversity. These exaggerate demands on the need for effective, sustainable and immediate implementation of the NBSAP. Maximizing of profits in a highly competitive environment became the norm.

3. Work on the development of a National Land Use Plan (NLUP) has commenced although not fully realized. To this end a consultancy has been awarded for the development of a Terms of Reference as a precursor. Funding for this initiative was secured in part from the European Union Ecotourism Development Project. Its execution

[7] *Prime Ministers 2009 Budget Address*
[8] ibid

is consistent with the *Physical Planning Act, No. 5 of 2002* and will involve a series of public awareness and consultation. The NLUP and this proposed Sustainable Land Management (SLM) Project are congruent with sustainable development initiatives promoted by the United Nations Development Programme (UNDP) and in support of the MDGs.

4. The NLUP and the recently approved Sustainable Land Management Project (SLM) under the Government of Dominica and UNDP LDC-SIDS Portfolio Project for SLM are complementary with sustainable development initiatives promoted by the United Nations Development Programme (UNDP) and in support of the MDGs. This project has several components that address training of personnel, establishment of data bases, procurement of appropriate tools and materials and community participation. These will definitely enhance the fulfillment of the commitment of Dominica under the CBD obligations. The process on implantation of the SLM project is in progress as recruitment of personnel to lead different components of the project has began.

5. The USAID Caribbean Open Trade Strategy (COTS) Project, which is consistent with the NLUP, is ongoing. It seeks to support the effective management of natural resources and the integration of disaster risk reduction and mitigation concepts into the region's economic planning and implementation. This undertaking in Dominica is under the purview of the Physical Planning Department and involved development of land use programmes in Grand Bay, an area in the northeast and the Pont Cassé/Sylvania/Layou Park/Belles area in the western interior. This project will serve as a model to be replicated in other regions. It will build on existing capacities in land management plan development and produce natural hazard maps for these areas and complement the NLUP in integrating SLM principles in development planning.

6. The USAID/COTS outfit also during the reporting period executed a Coastal Area Vulnerability Assessment project that identified areas (communities and structures) that are susceptible to threats from natural and environmental processes. From this project a map of the respective areas vis-à-vis vulnerability to different phenomenon was

developed. This exercise is an important tool that can be and will be given due consideration in any review of the NBSAP.

7. Because of the importance of agriculture and its role in the foreseeable future as a major sustaining element in rural livelihoods and contribution to economic growth, government according to the 2008 budget address, plans to modernize that sector. A sector must be globally competitive with a critical role in providing citizens with food security and employment. To this end among the other programmes that will come on stream is the development of legislation and regulations for land use and land availability with regard to the establishment of a land bank.[9] This is very much in sync with the issues raised earlier and demonstrates the government's mainstreaming intentions.

8. PUBLIC AWARENESS

9. During the period of review, efforts at creating a greater sense of awareness among the various stakeholders were an ongoing priority. Many activities were executed targeting stakeholders on a continuous basis and many different sectors of society. These took several different formats and used varied medium to transmit the message to the targeted stakeholders. These ranged from school marches to direct encounters with various interest groups. Print and mass media were also used to reach various sectors of the population.

10. These activities include:

- Regular public radio programmes "Environment and Social Development", hosted by the Environmental Coordinating Unit (ECU), featuring issues of national interest on biological diversity and hosting regional and local personalities as guests. This follows several other radio episodes that have been hosted by the ECU during the period in review.

- The Forestry Division hosts a weekly radio programme "A Moment with Nature" and a television programme "Environmental Corner". These

[9] Prime Minister's 2008 budget address

promote environmental conservation, provide an opportunity for public dialogue on matters of biological diversity among others and highlight aspects of the NBSAP that relate to public sensitization.

- Schools' visits undertaken by the various government agencies promoting issues relating to the convention. These are planned in keeping with annually designated activities. Such activities involve the ECU and the Divisions of Agriculture, Forestry, Fisheries and Environmental Health.

- Observances of designated international events such as Earth Day, International Biodiversity Day, Water Day, etc., relative to environmental management are highlighted throughout the year. These usually involve public addresses (over the mass media) by a Minister of Government, public panel discussions as well as public demonstration events such as public school marches, open-house, etc.

- Essay writing competitions, poster designing contests, etc.. These are among some of the activities that involve the schools and other civil society groups to articulate their views and knowledge on relevant environmental issues.

- Publication of annual calendars that highlight various aspects of management and related policies relevant to the biological diversity are made for distribution to the general public. Highlighted on these calendars are different conventions that Dominica is party to, inclusive of dates of signing and ratification. These usually contain photos that reveal messages to the public on aspects of environmental conservation.

- Publication of brochures and booklets. A series of educational material are being published for consumption by the public and schools, e.g. "Protect our Earth – Save the Ozone Layer", " National Biosafety Framework

(NBSF)", etc. The ECU also undertook to distribute on a regular basis material to public institutions and private stakeholder entities relevant documents and other medium such as a DVD entitled "OZZY Ozone" produced by UNEP.

TRAINING

11. It is accepted that a cadre of personnel to improve on the capacity of the State to manage its own affairs is of extreme importance. Efforts in that area have never ceased and as such the exposure of personnel from various sectors of the public service and civil society to training in related fields continues. These have taken several formats and involve participation in locally hosted workshops and selected overseas training for individuals who in return would impact of the local environment and population. The spin-offs of these have been very significant in local capacity building.

12. Staff member of the ECU and other stakeholder entities attended various discipline-specific designed regional workshops as well as those held further a-field. Upon return these individual assist in shaping policy documents for the attention the higher echelon in the decision making process.

13. Several individuals attached to the aforementioned entities as well as private individuals have since the inception of the NBSAP, proceeded to pursue bachelors and masters degree and other forms of specialized training qualifications in areas related to conservation of biological diversity.

14. In order to meet the demands of the convention on ozone levels depletion, a three-week certification training session for refrigeration technicians was conducted as part of the *Terminal Phase-out Management Plan (*TPMP) of *Chlorofluorocarbons* (CFC's) initiative under a UNEP project consistent with the Montreal Protocol on Substances that Deplete the Ozone Layer. This was preceded by workshops that brought together personnel from the Department of Customs and Excise and refrigeration technicians to

deal with the TPMP. As a precursor to these developments, a survey was conducted by a UNEP consultant in collaboration with local entities to undertake an inventory of the Chlorofluorocarbon gases in Dominica and to establish the mechanisms for phase-out.

15. The commitment of Government to develop a pool of expertise to foster implementation of the various protocols and conventions that impact of this CBD and others related agreements is progressing. There are several (government funded as well as private initiatives) student pursuing training overseas at higher institutions of learning in various disciplines that relate to conservation of biological diversity.

16. Despite the aforementioned there remains a dearth in training opportunities for persons at the policy, management and implementation level as well as at the stake-holders level. Actions to counteract this (particularly in the case of the latter), will form the basis of a thrust to be pursued in the upcoming period. Stake holders will be a significant focus of such training exercises which will be conducted based on areas of interest and at different set zones on the island as was set up for the Access Benefit Sharing (ABS) workshop and training last year.

FUNDING

17. During this period in focus, attempts were made to develop programmes and projects to secure funding as well as to tap resources available for capacity building. The recent approval of the LDC-SIDS Portfolio Project for SLM is a significant line of financing which will contribute towards realization of some meaningful advancement.

18. Funding from other sources to execute related programmes has come from the EU and USAID. Government continues to pursue other avenues for funding and is strategizing new methods to harness assistance mechanisms locally and from outside.

19. The Zoological Society of London assisted the Forestry Division through fiscal and technical initiatives to establish a captive breeding facility for mountain chicken

Leptodactyllus fallax , a frog species that is being harvested for food and showing signs of a stressed population. Funding was also accessed for the development of management plans for Morne Diablotin and Cabrits National Park to include the marine section.

20. The government continues to source funding from traditional spheres to assist in meeting the obligations of the convention. In view of the global economic meltdown, the scarcity of funds and made difficult in allocation of resources whenever they become available. The government recently in the 2008 budget deliberations announced the support it had received to help with ‘legislative review for better management of genetic resources and biodiversity” from the FAO.

CHAPTER 3
SECTORAL AND CROSS–SECTORAL INTEGRATION OR MAINSTREAMING OF BIODIVERSITY CONSIDERATIONS

1. The work towards sectoral collaboration was greatly influenced by events of the moment, one notable being the impact of natural disasters. The passage of the onslaught of Hurricane Dean caused a diversion of attention as this ravaged the agricultural and transport sectors of society. It brought vividly to many (authorities and general public) the resultant impacts of disregard for the fragility and management of the country's biodiversity. However, it gave cause to reflect on the need to take due cognizance of the development trends that pay little attention to the issue of sustainable land management.

Coastal Vulnerability

2. Work on coastal vulnerability assessment with emphasis on storm surge, coastal erosion and coastal flooding hazards had been undertaken under a USAID/COTS project. This will definitely continue in the area of development planning as it will play a significant role in the preservation of the country's biological diversity.

3. The havoc wreaked by Hurricane Omar in September 2008 on the marine and coastal resources and physical infrastructure, was yet another eye opener to ensure that development thrusts do give due cognizance to natural processes and the manner in which the man's interaction with various components of the of the environment needs to be delicately planned.

4. Since these yearly occurrences continue to threaten lives, livelihoods, investments and biodiversity, government embarked on construction of sea defense structures to help reduce the impact of these storms. It currently is installing structure along the west and south coasts of the island where these threats are most prevalent. Notable in all these developments is modification in design for accommodation for biological processes to continue unimpeded such as, the yearly / seasonal migration of crabs to the shoreline for reproduction. The structures being erected make allowances from young crabs to find their way back to the hinterland after birth.

5. Dominica does not have a national hazard mitigation policy and plan. In the absence of that, supportive components of various projects have addressed issues that bring to bear positives on the conservation of Dominica's biodiversity. In the initial stages of the coastal vulnerability assessment, work focused on creating the necessary institutional framework for risk reduction by:

(1) Conducting hazard mapping and a vulnerability assessment;

(2) Developing a hazard mitigation policy; and,

(3) Initiating the national hazard mitigation plan development process, based upon a model developed by CDERA *

**(USAID/COTS review)*

6. Based on the results of the finding of this assessment it is deemed that the Office of Disaster Management (ODM) will meet the various stakeholders as a way forward to nationalize hazard mitigation approach. The Disaster Management authority has been very proactive in reaching out to other agencies to deal with mitigation measures. In this sphere meetings with the media in the form of workshops to sensitize the different media houses on matters of disaster management have been regular.

Preservation of Species

7. The works of the Forestry and Wildlife Division, Fisheries Division and the Department of Tourism have been in tandem with the determination to see to preservation of Dominica's biodiversity while promoting the tourism product. Work initiated on maintaining and restoration of National Parks following the passage of Hurricane Dean was a prime example of what augurs well for the environment. The execution of the Waitikubuli National Trail project and the public sensitization aspect as well as community involvement are welcome as continuing vehicles of public education.

8. The continuing vigilance of the Divisions of Forestry and Fisheries to enforce observance of closed seasons for some terrestrial and aquatic species of flora and fauna and the involvement of community based groups in these endeavours speak volumes.

9. Works on the protection of wildlife as far as trans-boundary illegal trading of species were enhanced. A workshop under the auspices of CITES to upgrade and augment a level of stakeholders awareness on the status of that trade and the means to counteract any illicit activities was held. The workshop brought together all relevant government departments and agencies to deliberate on this issue.

10. The Forestry Division continues its work on the protection of avian species. There are laws that prohibit the capture of birds at all times. And likewise the Fisheries Division they both have closed and open seasons for hunting certain organisms.

11. The work of the Division of Agriculture as far as the control of alien species introduction has been commendable. It has always been quick in response to allay any introductions or invasion of alien species based on any suspicions or known occurrences of potential sources or avenues by which such could reach the State. This Division has had a good public relations reputation and collaborates very effectively with other agencies in hosting workshops and seminars as required. The Division has a full-time presence at all Air and Sea – ports.

12. The Division of Agriculture has also been involved in the area of genetic material pooling. It has over the years been involved in the setting up tissue culture laboratories and the introduction of specific strains of planting material.

Marine

13. The Fisheries Division became an affiliate of the Intergovernmental Oceanographic Commission (IOC) International Oceanographic Data and Information Exchange (IODE) which was established in 1961 to enhance marine research, exploitation and development by facilitating the exchange of oceanographic data and information between participating Member States and by meeting the needs of users for data and information products. The Division held meetings of relevant government departments and civil society agencies to launch a major undertaking of this network; to develop a Caribbean Marine Atlas. This exercise will better equip the relevant

stakeholders (inclusive of private sector entities such as shipping agents, etc) with a readily available real-time database that can be used for management of marine resources.

14. There has been a focus on alternative means of energy as a future for Dominica. To this end the State has granted licences to two separate entities to undertake landbase geo-thermal exploration activities. This is being pursued with the view to reducing petroleum hydrocarbons usage in electricity generation and a consequential reduction in emissions. In addition it is envisaged that based on the amount of geothermal resources in Dominica, a considerable amount can be put it for sale to the neighbouring French Departments of Guadeloupe and Martinique.

15. The Fisheries Division collaborates with other sectors to control activities that impact on the marine biota. It partners with the Division of Tourism to regular activities that pertain to uses of the coral resources; extraction of coral from the sea is prohibited. It collaborates with agencies such as the DWA and the LAMA of the SSMR to regulate scuba diving activities and other water-sports which impact on the marine ecosystem.

Physical Planning

16. There have been commitments by Government to ensure that most development trends in the island are insync with the dictates of the NBSAP. It is now a requirement consistent with the policies and supporting legislation (the Physical Planning Act No. 2 of 2002) that EIAs are prerequisites for all forms of physical development initiatives. This was further enhanced when Dominica hosted the Organization of Eastern Caribbean States (OECS) Regional Symposium on the Management of Environmental Impact on March 4-5, 2009. This symposium would make recommendations to governments following reviews of laws, regulations, policies and institutions that manage Environmental Impact Assessments (EIA). Such an event according to the Government Minister at that gathering, in addition to strengthening the aforementioned would strengthen public awareness and capacity building. This is evident of the government's desire to advance the process of Biodiversity responsibility.

17. The ECU among other government agencies are consulted for technical review of all such proposals, there are laws in draft for matters relating to harvesting, movement and ownership of biological material, to name a few.

Access and Benefit Sharing

18. There is a deep commitment by government to give greater attention to promoting the various aspects of the NBSAP particularly the rights of the Indigenous People as they pertain to their culture. Late last year Dominica hosted a regional workshop on Indigenous Peoples Right to Genetic and Biological Resources, it brought participants from the Wider Caribbean (inclusive of Haiti, Jamaica, Ethiopia, Philippines, Malaysia) together to deliberate on that subject area and to set in motion mechanisms that would see to the appropriate legislation to facilitate this. This workshop was preceded by four other zonal workshops leading up to the regional (Caribbean) consultation. This initiative was funded by the Christensen Fund grant, the ECU, the Small Grants Programme of the GEF, Edmonds Institute, Third World Network and Tebtebba Foundation. Some of the regional (Caribbean) representatives contacted Third World Network for help with ABS concerns. And the Edmonds Institute, in cooperation with the Tebtebba Foundation engaged a researcher to investigate biopiracy in the Caribbean.

19. Government has approved and granted manpower resources to the proposal for a project to see into putting appropriate legislation and mechanisms in place.

20. The issue of Access Benefit Sharing for particular interest groups in Dominica has been another area where progress has been made. Following the aforementioned regional meeting a local committee has been set up to work with various stakeholders to guide the process of setting up local laws compatible with the various international protocols.

21. Also the Carib Community primarily through the efforts of the its chief, continued to maintain close ties with the Tebtebba Foundation and continued to investigate how best to protect indigenous rights and the viability of Carib biodiversity

and traditional knowledge. Efforts are afoot with funding from the Edmonds Institute, to ensure the carib people sustain their links to indigenous peoples in other places and continue to remain informed about international venues that affect their biodiversity and traditional knowledge. By extend funding is being sought to help the Carib people attend an ABS meeting of the CBD and to help the ECU sustain the meetings and work of the National Stakeholders Committee on ABS.

22. As of May 2009 a consultation organized by the FAO and the government of Dominica is scheduled in Dominica. It will seek to provide support for the TCP on Dominica's legal systems to develop laws governing access to genetic and biological resources and benefit sharing. The consultation will give recommendations on the best way forward and best practices in preparation of a draft legislation for Dominica's biodiversity.

Terminal Phase-out Management Plan of CFCs dependent refrigeration systems.

23. As a signatory to the Montreal Protocol on Substances that Deplete the Ozone Layer, Dominica is committed and obligated to undertake various activities, as stipulated within its country programme, in order to remain in full compliance with the Protocol.

The country programme has initiated a project entitled Terminal Phase-out Management Plan for the air conditioning and refrigeration sector. The objective of the project being to minimize the release of Ozone Depleting Substances (ODS) into the atmosphere during service and disposal of Chlorofluorocarbons (CFCs) dependent refrigeration systems and to recycle and reclaim a substantial part of the refrigerants through the provision of the appropriate tools and equipment.

On March 18th, 2009, the Environmental Coordinating Unit (ECU) in conjunction with the United Nations Environment Programmes (UNEP), handed-over such appropriate tools and equipment to the Dominica Association of Refrigeration and Air-Conditioning (DARAC), preceding a training session for technician refreshers.

Biosphere Reserve

24. Another initiative to support the government's desire to realize the ramifications of the NBSAP is the move to begin the process of establishing biosphere reserves in Dominica in tandem with the UNECSO Man and the Biosphere programme. Earlier this year the Dominica National Commission for UNESCO authority and various government departments met under the tutelage of a UNCESCO Consultant to advance this process of selection of specific areas for a biosphere reserve. These areas will be protected zones set aside for certain species, ecosystems, habitats and genetic pools for presentand future generations.

CHAPTER 4
PROGRESS TOWARDS THE 2010 TARGET AND CONSIDERATION FOR IMPLEMENTATION OF THE STRATEGIC PLAN

1. The 17 indicative action plan activities outlined in the NBSAP document must serve as the measuring stick to assess strides that have been accomplished in implementing the fabric of the convention. Work has started on most of the stated points but may not have been sustained to anticipated levels as a result of the several mitigating factors highlighted earlier. It is anticipated that most of the initiatives that began in the years in review will be further elaborated, placed in proper perspective and carried over to the ensuing years so that thy may be fulfilled

2. In order to continue any meaningful progress there must be constant dialogue across a wide spectrum of stakeholders and civil society. The NBSAP will have to come under review. This will include a stock taking exercise to see where the implementation of that action plan has fallen short, deviated or needs realignment based on new development thrusts that are in trend or may be projected.

3. An assessment of the implementation of the NBSAP by a team external to the Steering Committee may be required. The findings of this will be the basis for future action to be undertaken.

4. For this purpose 4 major workshops will be required. The first of which will bring together stakeholders who will address the various sectors of the NBSAP that they think needs realignment if not completely changed. The findings mentioned above with recommendations which will be carried over to an ensuing technical seminar, comprising of experts who will put these information into proper perspective. Material emanating from this gathering will form a major component of the matter to be dealt by the assessment. The report of the assessment by that external team (i.e. external to the persons who make up the NBSAP's Steering Committee and original Project Team), will be presented to the stakeholders at a subsequent special forum for their vetting. The

Steering and Project team or committees along with the assessment team will meet to review the concerns of the stakeholders and place it in tandem with current and future demands, developments and perspective so as to be appropriately assimilated into Government's plans and policies.

No.	WORKSHOPS	PARTICIPANTS
1	NBSAP Review meeting	All stakeholders (including public sector and civil society representatives)
2	Technical workshop	Experts (inclusive of government high level policy/decision makers)
3	Tabling of Assessment	Consultants, Steering & Project Committee
4	Final Revision of NBSAP	All Stakeholders

5. This is deemed necessary so as to give any semblance of advancement towards the 2010 Target. A new and or revised NBSAP will then be presented to the general body for discussion and adoption before being forwarded to the Cabinet of Ministers for approval.

6. It is anticipated that government will continue to pursue its commitment to enact appropriate legislation that will give prominence to the NBSAP. In the same vein, building and augmenting the capacity of the legal expertise components of the government to be able to repond to the dictates of the various sections of the convention is important and expected to be a priority. This should be a 2010 indicator target.

7. It is an acceptable premise that the public awareness strides that are undertaken by the entities involved in the promotion of the convention can be thwarted without the requisite legislative framework to give validity to the policies so structured. Despite the unexpected, increasing the momentum of public awareness initiatives should be given

foremost attention. In this light, the involvement of private sector entities in the promotion of such awareness and forging relevant partnerships will be 2010 target.

Keeping progress towards the 2010 Target in focus, the following components of the will form the critical element of the NBSAP that will pursued:

- Implement a fiscal incentive program to encourage commercial ventures to make sustainable use of biodiversity (Strategy No.24)

- Development Plan for Indigenous Carib Peoples (Strategy No. 27) tied in with the enactment of legislation on Rights to Genetic Resources and Access Benefit Sharing

- Program for the Conservation of Traditional Knowledge, Culture and Values (Strategy No. 26)

- Develop a program that captures and shares traditional knowledge and encourages practice of self reliance (Strategy No. 11 and 22, 25).

- Public Information, Awareness, and Education Program (Strategy No.3, 8, 18, 20, and 31). Though elements of these are in progress it is expected to be taken to a higher level on issues of environmental protection and conservation of coastal and marine biological diversity.

And in keeping with the newly launched programme on reduction of CFC's, it is anticipated that a 2010 target will be a reduction to acceptable levels. This may be recorded in either of, or both in, *in situ* measurements or by inventory records,

Realization of 2010 targets though not exhaustive, but however, set within the context of challenging times to come, can be realized once the environment conducive to wholesome public participation is maintained.

In the ensuing Appendix 1, a tabular summarization of other tangible 2010 targets are listed.

Appendix 1

D/ca's Progress	***2010 Target Indicators***	***Growth towards 2010 Targets***
Implementation and review of NBSAPs	*Official development assistance provided in support of the Convention*	*(Sub-Target 11.1.) New and additional financial resources transferred to developing country Parties*
Development of NLUP	*Areas of forest, agricultural and aquaculture ecosystems under sustainable management*	*Step towards land zoning*
Approval of SLM Project (LDC-SIDS Portfolio Project)	*> Official development assistance provided in support of the Convention > Areas of forest, agricultural and aquaculture ecosystems under sustainable management*	*Development of a sustainable land management policy in place*
Public Awareness	*Official development assistance provided in support of the Convention*	*Mainstreaming of Biodiversity*
Training	*Official development assistance provided in support of the Convention*	*(Goal 11:) Parties have improved financial, human, scientific, technical and technological capacity to implement the Convention*
Funding	*Official development assistance provided in support of the Convention*	*(Sub-Target 11.1.)*
Development of 4th National Report	*Official development assistance provided in support of the Convention*	*Continue work in monitoring and evaluation*
Fisheries Division affiliate of IOC/IODE	*Trends in abundance and distribution of selected species*	*(Sub-Target 2.1:) Restore, maintain, or reduce the decline of populations of Sp's of selected taxonomic groups.*
Conservation/Preservation measures - Forestry Div.	*>Coverage of protected areas >Trends in abundance and distribution of selected species >Trends in extent of selected biomes, ecosystems and habitats*	*(Sub-Target 1.1:) At least 10% of each of the world's ecological regions effectively conserved. (Sub-Target 1.2:) Areas of particular importance to biodiversity protected.*
Coastal vulnerability assessment	*Connectivity/fragmentation of ecosystems*	*(Sub-Target 7.1.) Maintain and enhance resilience of the components of biodiversity to adapt to climate change.*

Forestry Division and Department of Tourism in preservation of Dominica's biodiversity while promoting the tourism product	*>Area of forest, agricultural and aquaculture ecosystems under sustainable management* *>Proportion of products derived from sustainable sources (indicator under development)*	*(Sub-Target 4.1:) Biodiversity-based products derived from sources that are sustainably managed, and production areas managed consistent with the conservation of biodiversity.* *(Sub-Target 8.1.) Capacity of ecosystems to deliver goods and services maintained.*
The GEF SGP COMPACT – funding of the "Kalinago Youth Empowerment Initiative" project	*Indicator to be developed*	*(Sub-Target 9.2.) Protect the rights of indigenous and local communities over their traditional knowledge, innovations and practices, including their rights to benefit sharing.*