THE GOVERNMENT OF ST. VINCENT & THE GRENADINES

The Fourth National Biodiversity Report of St. Vincent and the Grenadines to the UNCBD

Ministry of Health and the Environment

March 2010

Preface

This fourth national report of St. Vincent and the Grenadines to the United Nations Convention on Biological Diversity (CBD) is submitted in accordance with the Conference of Parties decision VIII/14. This report has been developed in accordance with the guidance provided in the Reporting Guidelines for the 4th National Report. As requested in the reporting guidelines, the fourth national report is organized around four main chapters, and includes a separate annex on implementation of the Programme of Work on Protected Areas.

The four main chapters are:

Chapter I: Overview of Biodiversity Status, Trends and Threats.

Chapter II: Current Status of National Biodiversity Strategies and Action Plans.

Chapter III: Sub-national Planning and Mainstreaming of Biodiversity.

Chapter IV: Conclusions - Progress Towards the 2010 Target.

The report has been prepared with assistance from the UNDP/GEF.

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List of Acronyms

CARDI	Caribbean Agricultural Research and Development Institute
CBO(s)	Community Based Organisation(s)
CERMES	Centre for Resource Management and Environmental Studies
CGIAR	Consultative Group on International Agricultural Research
CITIES	Convention on International Trade in Endangered Species of Wild Flora and fauna
COP	Conference of the Parties
CWSA	Central Water and Sewage Authority
EU	European Union
FAO	Food and Agricultural Organisation
GEF	Global Environmental Facility
GOSVG	Government of St. Vincent and the Grenadines
IFMDP	Integrated Forest Management and Development Programme
IICA	Inter American Institute for Cooperation on Agricultural
MDG	Millennium Development Goals
MOU	Memorandum of Understanding
NAP	National Action Plan
NBSAP	National Biodiversity Strategy and Action Plan
NCSA	National Capacity Self Assessment
NEMS	National Environmental Management Strategy
NISP	National Implementation Support Programme
OECS	Organisation of Eastern Caribbean States
PoW	Programme of Work
RAPPAM	Rapid Assessment Prioritization of Protected Area Management
SGD	St. Georges Declaration
SPACC	Special Programme on Adaption of Climate Change

SR&O	Statutory Rules and Order
TNC	The Nature Conservancy
UNCCD	United Nations Conversation to Combat Desertification
UNCDB	United Nations Convention on Biological Diversity
UNFCC	United Nations Framework Convention on Climate Change
USAID	United States Agency for International Development
WWF	World Wildlife Fund

Executive Summary

Simply put, biological diversity (biodiversity) refers to the variety of life on Earth, including plants, animals, and micro-organisms, as well as the ecosystems of which they are part. The term encompasses the genetic variations within species, the diversity between species and the variety of ecosystems. Biodiversity results from the interaction between species, including humans, with the environmental conditions in which they live, as well as with one another. Consequently, unique assemblages of organisms have come to characterize different areas of the world. Areas which have an unusually high amount of biodiversity are referred to as hotspots. The Caribbean Islands, of which St. Vincent and the Grenadines is a part, is one such area.

Biodiversity has intrinsic value, but it also provides a variety of goods and services which sustain human life such as clear air, water, food, medicine, fuel and materials for construction. Our cultures are also strongly influenced by the environment in which they have developed. In St. Vincent rural livelihoods are particularly dependent on biodiversity. Our key industries such as agriculture, tourism and fishing are highly dependent on the maintenance of healthy ecosystems and viable stocks of important species. In recognition of the importance of biological diversity to the country's sustainable development, St. Vincent became a party to the United Nations Convention on biological diversity in 1992.

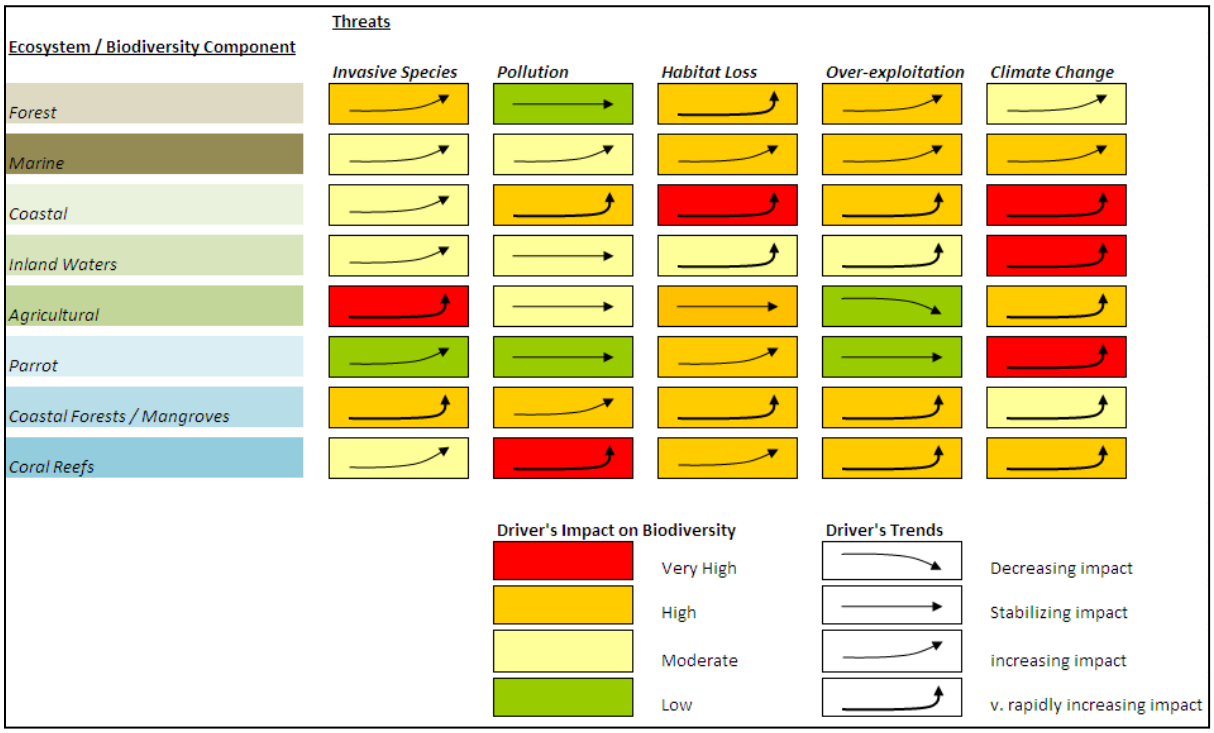
Reporting to the UNCBD is required every four years with the objective of providing the Conference of the Parties (COP) with information on measures taken nationally for the implementation of the Convention and the effectiveness of these measures. The Fourth National Report will also help to identify the lessons learnt, the gaps in capacity and needs of St Vincent and the Grenadines. The COP utilizes information presented in the national reports to formulate appropriate requests and guidance to Parties and to its subsidiary bodies, the Secretariat, the financial mechanism, and other organizations with expertise relevant to the implementation of the Convention.

Importantly, the fourth national report should help a wide variety of stakeholders within SVG – including government agencies and non-governmental organisations to improve their understanding of the importance of biodiversity, to examine how they could contribute towards achieving a "significant reduction of the current rate of biodiversity loss at the global, regional and national level as a contribution to poverty alleviation and to the benefit of all life on Earth" (i.e the 2010 Target).

Status trends and threats

Figure 1A summarises the status, trends and threats to biodiversity as outlined in chapter 1 of the report. Estimation of the impacts and trends was based on expert and practitioner opinions due to the absence of systematic monitoring of biodiversity in the country.

Figure 1A- Summary of the Status, trends and threats to biodiversity



Implementation of the National Biodiversity Strategy and Action Plan

In 2000, the National Biodiversity Strategy and Action Plan (NBSAP) was developed to guide implementation of the Convention in St. Vincent and the Grenadines by systematically addressing what were regarded main threats and key priority areas for action. Assessment of the effectiveness of implementation of the NBSAP in Chapter 2 reveals that resource and capacity constraints have led to implementation progress that has been far from ideal. Most of the specific activities outlined under each of the priority area of the NBSAP have gone undone, and the NBSAP does not routinely inform planning in key sectors.

Nevertheless, some progress has been made through one-off initiatives undertaken by the various sectoral agencies. In particular, significant progress has been made in the areas of developing and enhancing the legal and institutional framework surrounding conservation and sustainable development; thereby addressing the systemic deficiencies that have, thus far, hampered progress.

Table 1B (a contraction of Table 2.0) summarizes the progress towards NBSAP implementation. (See sections 2.1 and 2.2 for further details).

Figure 2B - Summary of Progress made on the NBSAP Priority Areas

Priority Action	Strategies	Progress (0-5 stars)
I. Revision and updating of Environmental Legislation	• Revise and enact national legislation which provides for the Conservation of Biodiversity	★★★★
II. Institutional strengthening for St. Vincent and the Grenadines	• To strengthen the institutions responsible for environmental matters across the numerous different agencies, and promote consolidation of authority on environmental issues under a centralized body.	★★★
III. Resource (Biodiversity) Inventory (Terrestrial and Marine)	• Expand Revise and enhance biodiversity research and inventorying initiatives. • Establish a national programme of on-going monitoring to document the status and patterns of change in terrestrial flora, and fauna species, and their habitats.	★
IV. Development of GIS Database	• Establish a GIS database for biodiversity information which should be updated periodically.	★★
V. Educational Awareness	• Improved public awareness and education on biodiversity issues; and • To ensure broad based support for and involvement in biodiversity conservation initiatives through widespread public awareness	★
VI. Human Resource Development	• To enhance the local capacity to conserve biodiversity through increasing and improving the local expertise in relevant fields & institutional Strengthening. Improve the local knowledge base in terrestrial ecology at the genetic, species and habitat levels that is essential for the effective conservation and management of SVG's terrestrial fauna diversity.	★
VII. Incentives and disincentives	• To provide economic and financial incentives which promote and encourage sustainable utilization of SVG's biological and natural resources.	★
VIII. Mechanisms for monitoring the implementation of biodiversity conservation	• To enhance the capacity for SVG to monitor and assess the progress of its biodiversity conservation programmes and initiatives, and to effectively coordinate the implementation of biodiversity policy.	★★

Financing for biodiversity initiatives will, however, remain a severe constraint if more assistance is not obtained through international financing for concrete work on-the-ground. Moreover, in the absence of a systematic monitoring and evaluation framework, it is exceedingly difficult to determine the actual effectiveness of any of the initiatives undertaken by the various agencies.

Mainstreaming Biodiversity

The agriculture, fisheries, forestry and tourism industries all depend on biodiversity and the ecosystem services that they supply. But, at the same time, activities in these sectors impact on biodiversity. The term mainstreaming refers to the integration or inclusion of actions related to the conservation and sustainable use of biodiversity into strategies relating to these different production sectors. It also refers to the inclusion of biodiversity considerations in cross-sectoral plans like poverty reduction strategies and national sustainable development plans (CBD, 2007). Chapter 3 examines the extent of biodiversity mainstreaming in SVG.

Generally, although most of the sectors examined have incorporated some consideration for biodiversity in their plans and policies, this has not been a direct result of mainstreaming efforts, and there are still a number of gaps.

The forestry sector plans include aspects of forest biodiversity protection and wildlife management, promotion of sustainable utilization of forest resources, public education and awareness; and community participation in forest management. In the Tourism sector, a more systematic approach has been the focus as the sector seeks to diversify its product, whilst at the same it safeguarding the health of ecosystems which underpin the industry. Central to its approach has been the development and strengthening of a comprehensive system of protected areas and heritage sites. Capacity building of community-based organisations to undertake site management is also an integral part of the tourism development plan. (Sections 3.2.1 and 3.2.2)

The fisheries sector policy framework comprehensively addresses what are regarded as the key threats to the sustainability of the fisheries sector; particularly over-exploitation. It is based on the expansion of fish production on a sustainable basis in order to provide a key source of protein for the national population at a competitive price. The protection and restoration of endangered species; maintenance and restoration of populations to maximum sustainable yield capacities (taking into consideration relationships among species) as well as effective monitoring and enforcement regarding fishing activities

are important policy objectives to the sector. Similarly, the agricultural sector policies have focussed on diversification "around the banana" in order to improve food security and to improve export earnings. Affordability of produce and environmental sustainability seem to be important objectives within the agricultural policy framework. (Sections 3.2.3 and 3.2.4)

On a broader level, several cross-sectoral policies and plans now include references to the environment, more generally; whilst a few make specific mention of biodiversity.

The Interim Poverty Reduction Strategy Paper (I-PRSP) is intended to be a the blue print for developing policies and plans and programmes to address key elements of poverty reduction in the short, medium and long term. Specific mention of biodiversity is not made in the I-PRSP, but it does recognise that environmental sustainability is a "critical component of poverty reduction strategies". It further highlights the need to put policies in place to ensure close regional cooperation and collaboration in developing environmental policies. However, despite these general mentions of environmental sustainability in the document, environment is not part of the "recommended strategic programmes" on agriculture or any other sector. (Section 3.3.2)

The (draft) National Economic and Social Development Plan (NESDEP) should be the primary document that will guide economic and social development in St. Vincent and the Grenadines between 2010 and 2020. By far, the NESDP is the most comprehensive national plan to include specific strategies of direct relevance to biodiversity and as such, it can likely act as an important instrument for cross-sectoral integration of biodiversity in SVG. (Section 3.3.3)

Despite the apparent inclusion of biodiversity-related considerations in sectoral and cross-sectoral plans, programmes and policies at the national level; the chronic under-utilization of these documents in practice, makes it is doubtful that this form of "mainstreaming" will in fact be successful at promoting better decision-making and development planning in the country. There is still widespread concern among environmental professionals that the environment is still somewhat of an after-thought, consequently, negative impacts and threats to biodiversity are still rising. Furthermore, the lack of sustained funding and resources to support implementation of the plans makes it extremely difficult to coordinate and enforce the requirements for the protection of habitat areas which support important biodiversity components. Consequently, there is a need to promote a better understanding and awareness of the value of ecosystem services that biodiversity provides and to identify ways to reduce the impacts of economic activities on biodiversity.

Environmental Impact Assessment is one tool/ planning mechanism currently in use which can help improve mainstreaming. Current EIA requirements are not explicit regarding what exactly is required for the biodiversity assessment component. Guidelines for incorporating Biodiversity legislation or processes outlined in the annex to COP decision VI/7 could be added as an improvement. Strategic Impact Assessments (Analyses) are also expected to make their way into current planning practices with the enactment of the draft Environmental Management Act 2009, which has provisions for SIA. Its application would ensure that implementation of the different sectoral and cross-sectoral plans have minimal adverse impacts on biodiversity and better contribute to the objectives of the convention. It would also be easier to identify perverse incentives and to spot opportunities for more win-win strategies. The adoption of the ecosystem approach is another tool for improving the effectiveness of biodiversity mainstreaming and which is needs to be incorporated into policies and plans in St. Vincent and the Grenadines.

Conclusions: Progress towards the 2010 target and the Strategic Plan

Chapter 4 of this report examines the progress towards the 2010 target of the Convention; that is "a significant reduction of the current rate of biodiversity loss...as a contribution to poverty alleviation and to the benefit of all life on Earth". However, St. Vincent has not established any national targets and the global targets have not been explicitly incorporated into the relevant sectoral nor cross-sectoral strategies, plans and programmes. Consequently, progress could only be assessed by looking at what the various sectors have achieved, that in one way or another, contributes to achieving the goals of the Convention. Table 1B (a contraction of table 4.0) summarizes progress towards the goals and objectives of the Convention.

Figure 1B- Summary of Progress towards the goals and objectives of the Convention

Goal	Progress (0-5)
Protect the components of biodiversity	
1. Promote the conservation of the biological diversity of ecosystems, habitats and biomes	✡✡✡
2. Promote the conservation of species diversity	✡✡
3.Promote the conservation of genetic diversity	✡✡✡

Promote sustainable use	
4. Promote sustainable use and consumption.	-
Address threats to biodiversity	
5. Pressures from habitat loss, land use change and degradation, and unsustainable water use, reduced.	-
6. Control threats from invasive alien species	-
7. Address challenges to biodiversity from climate change, and pollution	✡
Maintain goods and services from biodiversity to support human well-being	
8. Maintain capacity of ecosystems to deliver goods and services and support livelihoods	✡ ✡
9. Maintain socio-cultural diversity of indigenous and local communities	✡ ✡
Ensure the fair and equitable sharing of benefits arising out of the use of genetic resources	
10. Ensure the fair and equitable sharing of benefits arising out of genetic resources	✡
Ensure Provision of adequate resources	
11. Parties have improved financial, human, scientific, technical and technological capacity to implement the Convention.	-

Overall, progress towards meeting the 2010 target has been decidedly slow. However, significant progress has been made towards achieving goals one and three. This has been primarily due to the expansion and strengthening of the system of protected areas and through extensive work on expanding germplasm collections to improve agricultural biodiversity. It is clear that much work is still needed to improve progress towards the other goals, particularly goals 4, 5 and 6 due to the rapid

increase in the threats to biodiversity due to unsustainable consumption, pressures from unsustainable land-use and physical development, as well as the invasive species.

The following were identified as **future priorities** for improving implementation of the Convention (Section 4.4.2):

- Adoption of a well-defined monitoring and evaluation protocol for assessing implementation of the Convention
- Development of a biodiversity clearing house mechanism is needed to improve information management.
- Establishment of ecological baselines and standardized monitoring of biodiversity.
- Formation of strategic alliances with regional universities and research institutions.
- Update the NBSAP to include clear national goals and targets and incorporate the ecosystem approach.
- Development of a comprehensive communication, education and public awareness (CEPA) strategy which clearly communicates the linkages between the conservation and sustainable use of biodiversity and poverty alleviation.
- Swift enactment by Parliament of the newly developed suite of draft environmental legislation.
- Development of a policy manual that can serve as an "easy reference guide" to operations within departments, between departments, and between departments and third parties.
- Identification of clearer sources of sustainable financing and assistance in terms of donor funding for concrete (pilot) conservation actions on the ground is of highest priority in order to support evidence-based policy generation.

Actions to be taken at the regional and global levels to further enhance implementation of the Convention at the national level

Regional Level Actions

- More resource-sharing and research are needed to improve local capacity to monitor biodiversity and to implement conservation actions.

- More active participation of international NGOs with offices throughout the Latin American and Caribbean Region in addressing the threats to marine biodiversity and the introduction of alien invasive species.

Global Level Actions

- More funding should be made available for SIDS to implement action research to determine the impacts and benefits of biodiversity conservation to improving resilience to global climate change.

- Greater synergies should be exploited between the UNFCCC and the UNCBD in order to increase the availability of resources at the national level to undertake biodiversity-related adaptation.

- Sustainable and dedicated sources of financing should also be made available for implementation of more concrete conservation actions on the ground, rather than the multiplicity of studies of the institutional framework and legal structures, which in the past have taken precedence.

Chapter 1: Biodiversity Status, Trends and Threats

This chapter provides an overview of biodiversity in St. Vincent and the Grenadines, and a synopsis of the status and trends of important biodiversity components. Since very little quantitative data is available; owing to the absence of systematic monitoring, trends were evaluated based on the judgments and opinions of various stakeholders and experienced practitioners, rather than using indicators. The main threats to biodiversity in St. Vincent are examined, explanations given as to the underlying drivers of these threats and the consequences of biodiversity loss on ecology, livelihoods and development are discussed.

1.1 Overview of biodiversity in St. Vincent and the Grenadines

St. Vincent and the Grenadines is part of the Caribbean Islands Hotspot which consists of three large groups of islands between North and South America: the Bahamas, the Lesser Antilles, and the Greater Antilles [1]. It is a multi-island State comprising thirty-four islands, islets and cays and is situated 13°15' north latitude, and 61°1' west longitude. It is approximately 150 kilometers west of Barbados, 40 kilometers southwest of St. Lucia and 110 kilometers north-northeast of Grenada. Figure 1.0 is a map showing the location of SVG.

The islands were volcanically formed; the Grenadines being older, and of slightly different geology than St. Vincent. The island of St. Vincent is divided along a north-south axis by a central mountain range; with the active La Soufriere Volcano (1,234 m) to the extreme North; and the Morne Garu Mountain Range (with Richmond Peak, 1077m and Grand Bonhomme, 970m), Petit Bonhomme (756m) and Mount St. Andrew all lying further south. Numerous steep, lateral ridges emanate from the central massif, culminating in high, rugged and almost vertical cliffs on the leeward (western) coast. The windward (eastern) coast, on the other hand, is more gently sloping, with wider, flatter valleys.

1 Conservation International (Content Partner); Mark McGinley (Topic Editor). 2008. "Biological diversity in the Caribbean Islands." In: Encyclopedia of Earth. Eds. Cutler J. Cleveland (Washington, D.C.: Environmental Information Coalition, National Council for Science and the Environment). [First published in the Encyclopedia of Earth May 3, 2007; Last revised August 22, 2008; Retrieved March 17, 2010].
<http://www.eoearth.org/article/Biological_diversity_in_the_Caribbean_Islands>

The Grenadines2, by contrast, have much gentler relief. The hills on these islands are generally not higher than 150-300m. There are no perennial streams (besides a small spring on Bequia). But, the Grenadines boast a number of white sandy beaches and vibrant offshore coral reefs, forming the mainstay of the country's tourism industry. SVG's tropical climate has two distinct seasons: a dry season from December to May; and a rainy season from May through October. The average annual rainfall is 3,800 mm inland, and 1,600 mm on the coast. However, the forested interior of St Vincent can receive as much as 5,100 mm, while the Grenadines may receive as little as 460 mm.

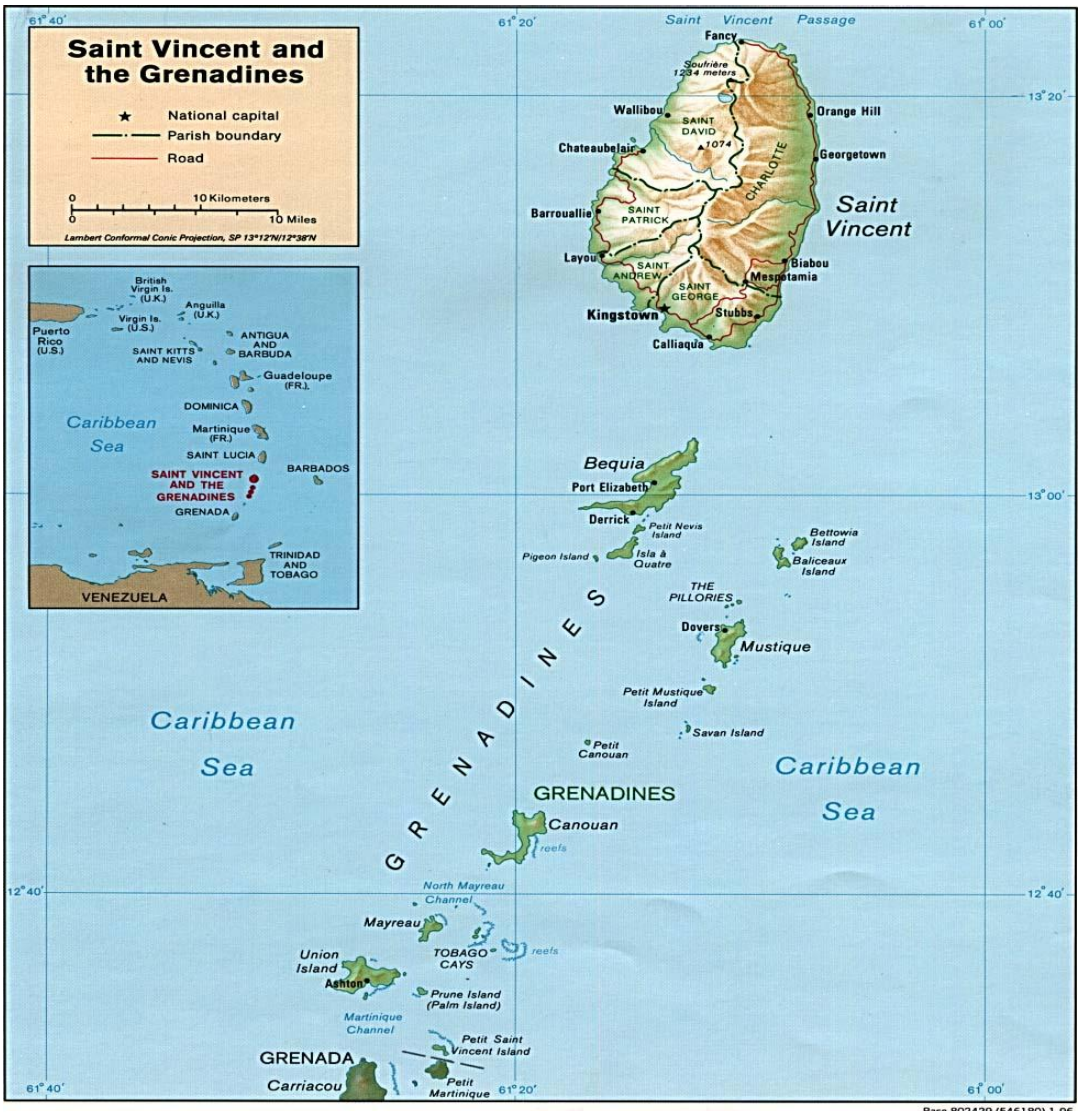


Figure 1.0 - Location Map of St. Vincent and the Grenadines. Source: SVGNT (2008)

2 The major Grenadines Islands are: Bequia, Mustique, Canouan, Mayreau, Union Island and Petit St. Vincent.

These natural variations in geology, elevation, climate and rainfall create a wide range of ecosystems, habitats and species, all representing “assets of tremendous value to present and future generations” of Vincentians.

In total, more than 1,150 species of flowering plants, 163 species of ferns, 4 species of amphibians, 16 species of reptiles, 111 species of birds, and 15 species of mammals have been identified on SVG. In terms of marine biodiversity, over 500 species have been identified. Among these are at least 450 species of fin-fish, 12 species of whales and dolphins, 4 species of turtles, 9 of gastropods, 11 seaweeds and 30 different coral species. These species and the ecosystems which support them form the basis of our civilization. Many are of very high economic value, whilst others perform vital supportive and regulatory services.

Nonetheless, it must be noted that local biodiversity listings are far from complete and are in many respects outdated. Consequently, current data only partially represents the wealth of natural assets which are at risk of being lost or severely depleted due to a multitude of threats. The following sections will look at the status, trends and threats to what are considered to be the most important ecosystems in St. Vincent and the Grenadines.

1.2 Forest Ecosystems

Natural vegetation corresponds to elevation, geology and rainfall, and includes rainforest (mostly between 300m (1,150 ft) and 500m (1,640 ft)), elfin woodland and montane forest (above 500 m), palm break (between the rainforest and montane forest, and in disturbed areas), and mangrove (of which there is just about 50 ha in the country, most of which is on Union Island with some on Mustique). Figure 1.1 is an example of a typical profile transect of vegetation across northernmost part of St. Vincent.

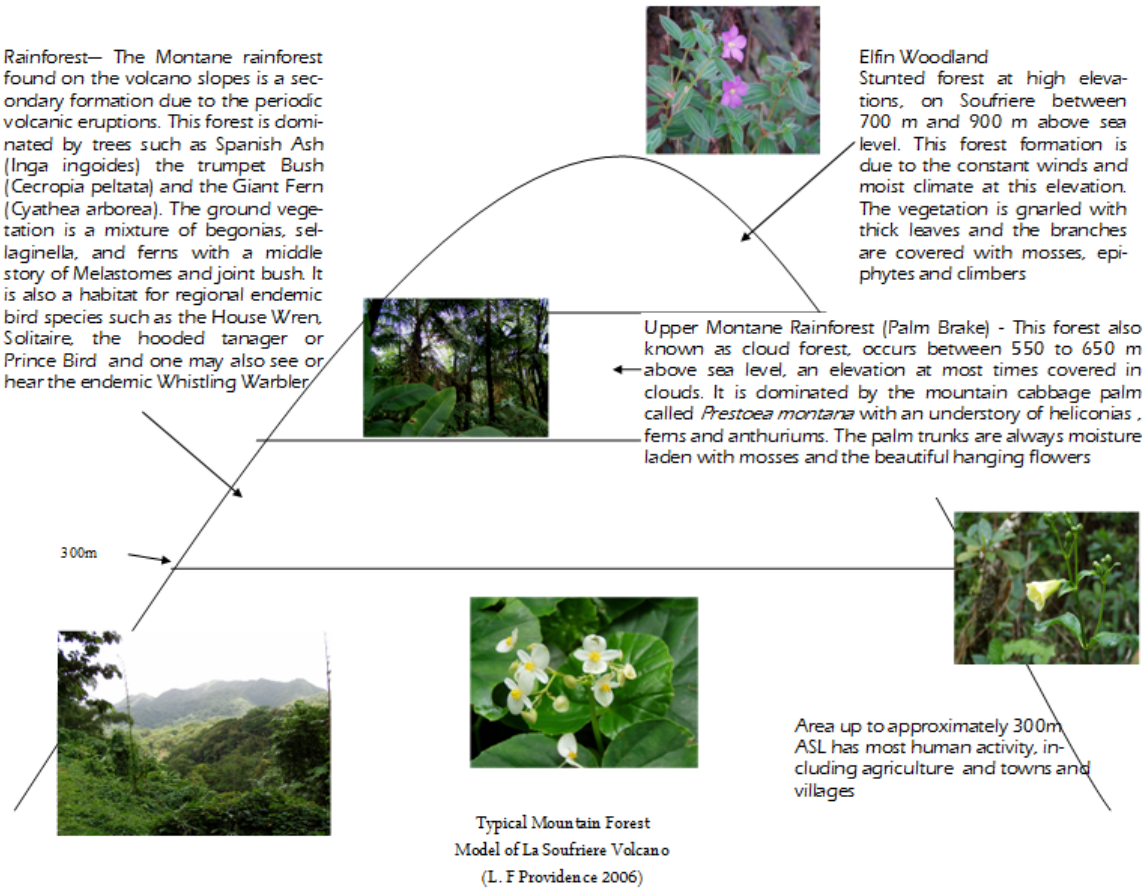


Figure 3.1 Typical Profile Transect Model of Vegetation along the Slopes of the La Soufriere Volcano

Photo: F. Providence

Perhaps the most important contiguous area of forest in St. Vincent occurs in the Central Mountain Range. This encompasses 7 areas: the Colonaire, Cumberland, Dalaway and (the proposed) Kingstown Forest Reserves; the La Soufriere National Park, Mount Pleasant and Richmond Forest Reserves; all of which are key biodiversity areas. The entire area is approximately 132 km^2. The area represents one of the largest remaining tracts of wet forest in the Lesser Antilles, and one of the few that maintains the full altitudinal corridor from sea level to 1,200 meters (CEPF, 2009)[3]. It supports populations of four globally threatened species and comprises all of the island's key watersheds; providing the island's total freshwater supply.

Although little research has been done to determine the actual levels of endemism of the herbaceous plants associated with the primary and secondary rainforests in the area, it is well known that many forest plants are utilized for traditional medicinal purposes and in handicraft creation (although there is no existing inventory of specific uses for different species).

A major problem, however, is that it is currently a disjointed patchwork of protected and unprotected areas. Nonetheless, the entire area is air-marked for listing as a complete, in-tact corridor (the Central Mountain Range Corridor) under the System of National Parks and Protected Areas. This is significant because, although it was traditionally protected from developmental pressures due to the rugged terrain, the area is now threatened by illegal marijuana cultivation and proposed infrastructural development; most notably, the construction of the cross country road (see section 1.2.1.4).

3 Critical Ecosystem Partnership Fund (CEPF) (2009) The Caribbean Islands Biodiversity Hotspot. Available [Online] at: http://www.cepf.net/Documents/Finaldraft_Caribbean_EP.pdf accessed Jan 10,2010

1.2.1 Status of Important Forest Biodiversity Components

1.2.1.1 The Vincy Parrot: *Amazona Guildingi* [4]

Photo : F. Providence

The Vincy Parrot is the national bird of St. Vincent and the Grenadines; a symbol of enormous cultural importance. It is listed both under Appendix 1 of the Convention from the International Trade in Endangered Species (CITES), and as a 'vulnerable' species on the IUCN Red list. "The *Amazona guildingi* is one of the four remaining Amazon parrots in the Lesser Antilles[5]. Culzac-Wilson (2005) quotes Butler (1988) who described the bird as "arguably the most beautiful" of the four because its variable plumage among the two distinct morphs means that "virtually no two birds are alike".

Vincy's range is largely confined to the Rainforest (Moist Montane Forest) and Secondary Rainforest (Cloud transitional forest) types. Although parrots have been seen flying over Palm Break (Evergreen and Seasonal forest), it is generally unlikely that the birds actually utilize these habitats. Instead, it is more probable that the parrots feed in the transition belt of vegetation between the two forest types. Culzac-Wilson (2005) explains that the bird's small population, limited range, the threat of hurricane and volcanic activities (which have in the past proved detrimental to the population), coupled with the threats of continued loss and fragmentation of habitat; and the illegal trade in the species put Vincy in great danger of extinction. Clearly, the loss of this proud icon of Vincentian identity would be deeply felt by Vincentians both at home and throughout the diaspora.

The forestry department conducts a biennial parrot census to keep track of the wild populations. The population of parrots in wild considered to be stable to increasing. Furthermore, there is a successful *ex-situ* breeding programme at the Nichol's Wildlife Complex in the St. Vincent Botanical Gardens which has produced at least one new bird per year since its inception in 1990. Figure 1.2 shows the change in parrot populations between 1988 and 2008.

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4 Culzac-Wilson, L. (2005) Species Conservation Plan for the St. Vincent Parrot *Amazona guildingii*. Puerto de La Cruz, Tenerife: Loro Parque Fundacion.

5 The other Amazons are: the St. Lucian *A. Versicolour* ; and the *A. Crausiaca* and *A. Imperialis* of Dominica.

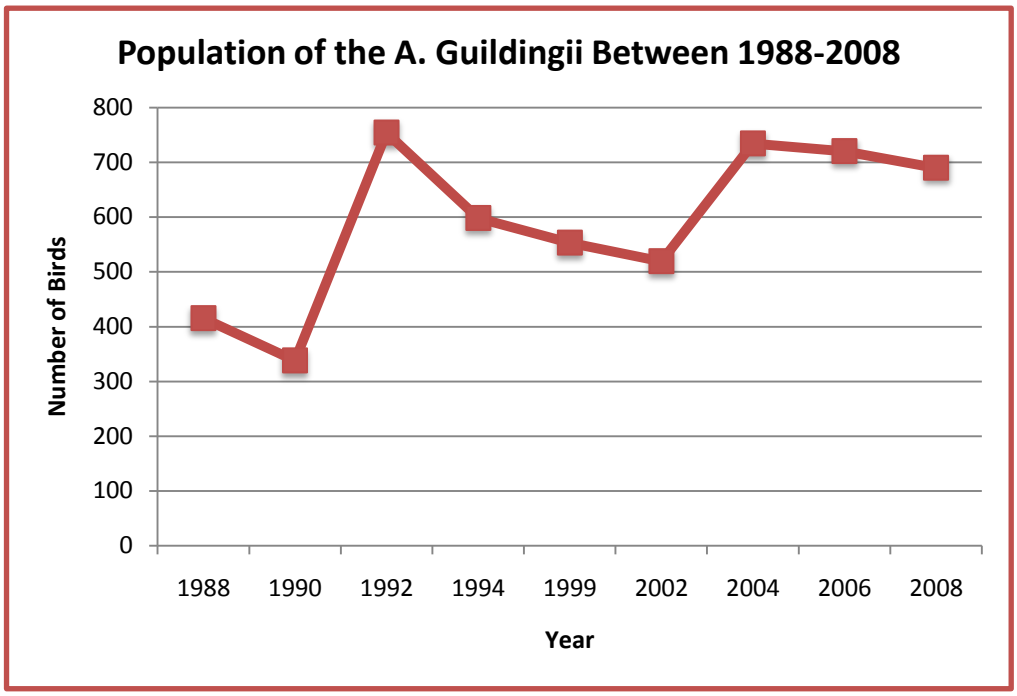


Figure 1.4 Chart Showing Change in Population of the A. Guildingii Between 1998-2008
Source: Forestry Department

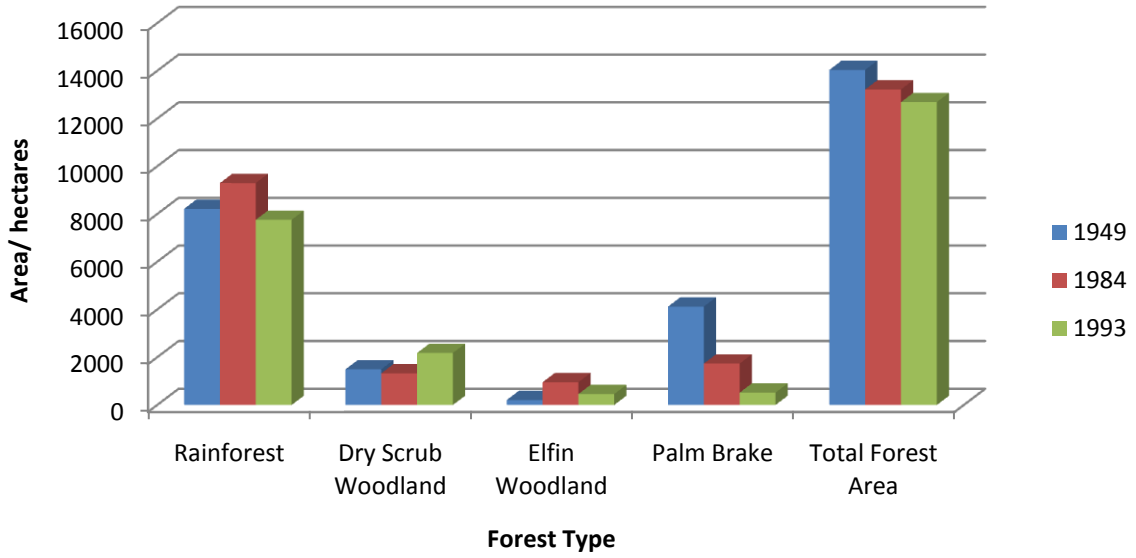
1.2.1.2. Other Forest Endemics[4]

Primary and secondary rainforests are also rich in many other national and regional endemic species. These include the Whistling Warbler, *Catharopeza bishop* (endemic); the Black Snake, *Chinorinus Vincenti* (endemic); the St. Vincent House Wren ,*Trologlodytes aedon (endemic); Rufous-throated Solitaire,* Myadestes genibarbis (endemic sub-species), Hooded Tanger ,*Tangara cucullata* (regional endemic shared with Grenada); the Congo snake, *Mastigodryas bruesi* (regional endemic) and the Piping frog, *Eleutherodactylus shrevei* (endemic).

1.2.1.3 Status of Forest Biodiversity

The country is about 29% forested (Culzac-Wilson, 2008). In 1991, it was estimated that in some watersheds, deforestation rates were as much as sixty to seventy acres per year (CCA, 1991). Figure 1.3 compares the amount of area covered by the various forest types as well as total forest cover over 1949, 1984 and 1993. It can be seen that between 1949 and 1993, total forest cover declined by almost 10%. The current rate of deforestation is estimated to be between 3-5% per annum.

Figure 1.3 -Area covered by different forest types in St. Vincent in 1949, 1984 and 1993



1.2.1.4 Threats to Important Forest biodiversity[6]

Natural threats to the forest ecosystems include volcanic eruptions, tropical cyclones, extended drought and landslides. However, observations have confirmed that the long-term effect of such events on forest biodiversity is minimal, and normal patterns re-emerge soon afterwards. However, the increased frequency of extreme hydrometrological events expected to be caused by Climate Change will likely increase the impact of these threats.

6 Cluzac-Wilson in Wege, D.C, Anadon-Irizarry, V. and Vincentry, M. (2008) Important Bird Areas in the Caribbean: Key Sites for Conservation. Cambridge: Birdlife International

The establishment of monoculture bananas plantations used to be a primary threat to forest biodiversity due to encroachment on forest boundaries. However, these threats have been reduced in recent times due to the influence of European agricultural standards such as EUREPGAP (Good Agricultural Practices), which stipulate strict environmental standards for agricultural crop production. Various initiatives undertaken by the Caribbean Agricultural Research and Development Institute (CARDI) and the Inter-American Institute for Cooperation on Agriculture (IICA) have also contributed to the improvements. Nonetheless, similar, and even more pervasive problems are now being created by illegal marijuana (*Cannabis sativa*) cultivation deep inside key watersheds.

Photo: Deforestation cause by cultivation of marijuana in the upper watershed (red dotted line). Source: N. Weekes

Habitat loss and fragmentation due to squatting for housing and development are now also major factors threatening forest biodiversity in St Vincent and the Grenadines. Deforestation has been identified as a main factor impacting the country's national bird—the vulnerable *A. guildingii*. The proposed "cross-country road" that would bisect the centre of the parrot's range (and primary rainforest habitats) would result in a new axis for deforestation across the centre of St Vincent. Figure 1.4 Shows the proposed inclusive zone of construction of the cross-country road; the green area showing the parrot's range within the major portion of the Central Mountain Range Corridor (home to many of the island's other endemic species).

The road would provide increased access to the parrots for poachers and hunters. Poaching has been identified as one of the main threats to *A. guildingii*, with birds removed to (illegally) supply the international pet trade. Hunting parrots as a source of food is an ongoing (although declining) threat. Furthermore, the road's construction is expected to be very detrimental to the island's watersheds and associated inland water biodiversity. (Culzac-Wilson, 2008)

Figure 1.4 Map Showing Inclusive Zone for the Construction of the Cross Country Road (Green area showing the parrot range)
Source: Forestry Dept., Ministry of Agriculture and Fisheries, 2004.

Invasive species are also on the rise, presenting much challenge to forest biodiversity. One example of this is the Cattle Egret (*Bubulcus ibis*) whose roosting habits have been linked to loss of Mangrove at the Brighton beach area. It appears that toxins caused by build-up of faecal deposits have polluted wetland soil, destroying plant roots. Another example is that of the introduced Armadillo (*Dasypus novemcinctus*) which has done considerable damage to the ecosystem in the Vermont watershed, undermining trees, accelerating erosion and thereby threatening native biological resources. (InERT, 2006: 33)[7]

7 InERT (2006) St. Vincent and the Grenadines National Capacity Self-Assessment for Global Environmental Management. Ministry of Health and the Environment, Kingstown.

1.3 Agricultural Ecosystems and Biodiversity

Agricultural biodiversity is a broad term that includes all components of biological diversity of relevance to food and agriculture, and all components of biological diversity that constitute the agricultural ecosystems, also named agro-ecosystems: the variety and variability of animals, plants and micro-organisms, at the genetic, species and ecosystem levels, which are necessary to sustain key functions of the agro-ecosystem, its structure and processes (COP decision V/5, appendix)8. Agricultural biodiversity provides not only food and income but also raw materials for clothing, shelter, medicines, breeding new varieties, and performs other services such as maintenance of soil fertility and biota, and soil and water conservation, all of which are essential to human survival 9.

In St. Vincent, agriculture has traditionally been the mainstay the economy. But recent down-turns in the market for the the banana, have led to steady declines in production. However, in rural areas, agricultural remains an indispensible livelihood strategy. Nonetheless, current trends show that there is an overall negative trade balance in agricultural goods, due to the "population's increase[ing] taste for foreign food items such as cereals and meat products" (FAO, 2008). Consequently, the local livestock industry, particularly for small ruminants, has been declining. High levels of praedial larceny are also a huge disincentive to many farmers.

The Ministry of Agriculture recognises the importance of plant genetic resources for reducing our vulnerability to climate change. It sees the development or introduction of new varieties able to withstand drought, increased soil salinity, higher temperatures and new pests and diseases as vital to ensuring food security. It also regards genetic diversity as vital to its trust towards promotion of healthier eating habits and reducing the food import bill. It is believed that the consumption of cheaper locally-grown staples as well as a variety of medicinal herbs found in the wild will go a long way towards reducing the incidence of lifestyle diseases such as diabetes, obesity, high-blood pressure and certain types of cancer 10.

8 Secretariat of the Convention on Biological Diversity.What is Agricultural Biodiversity? Available [Online] at: http://www.cbd.int/agro/whatis.shtml

9 Secretariat of the Convention on Biological Diversity. Agricultural Biodiversity. Available [Online] at: http://www.cbd.int/agro/

10 FAO (2008) Second Country Report on the State of Plant Genetic Resources in St. Vincent and the Grenadines.

1.3.1 Status of Important Agricultural Biodiversity Components [11]

1.3.1.1 Musa spp (banana and plantain)

Banana, plantain and coconut are major components of the rural hillsides of St Vincent and Grenadines. There are currently 12 different cultivars of banana and plantain which are cultivated. Of these, nine (3 banana and 6 plantain) are used for commercial production and are exported weekly. Recently, a new cultivar was introduced as part of the banana replanting program after the devastating effects of the Moko disease.

1.3.1.2 Root crops (aroids, cassava, yam and sweet potato)

These root crops are the main staple foods in these islands. The genetic base consists of the following approximate number of varieties:

- Aroids –12
- Cassava –30
- Yam – 26 (*Dioscorea rotundata* 1, *Dioscorea cayenensis* 3, *Dioscorea alata* 20,
- *Dioscorea trifida* 1, *Dioscorea esculenta* 1)
- Sweet potato – 80 (34 local, others introduced from Nigeria, Trinidad, USA and Taiwan).

Photo: F. Homer

The Ministry of Agriculture has recognised the need is to identify genotypes that are better-suited for processing into marketable, value-added products such as flour, chips, ice-cream, livestock feed, starch, *inter alia*. Identifying early maturity, high yielding and low-input genotypes is also a high priority need.

[11] The information in this section is taken from FAO (2008) Second Country Report on the State of Plant Genetic Resources in St. Vincent and the Grenadines.

1.3.1.3 Fruit bearing vegetables (tomato, ochra, eggplant, cucurbits, sweet pepper)

These species are cultivated by commercial and subsistence farmers using imported commercial seed obtained from a large number of international seed houses. Hence, a large number of varieties- inclusive of hybrids, developed varieties, pure lines and landraces, are in circulation. Genetically, this is closest to the ideal situation. At the same time, it also represents one of the greatest threats to food security, especially in the unlikely event of reduced availability of a steady seed supply from overseas. Another related threat is the possible entry of engineered varieties that will prevent the farmers from recouping viable seed from his previous crop (not referring to hybrids) and lead to contamination of the local landraces and wild types.

1.3.1.4 Leafy and flower bearing vegetables (cabbage, lettuce, cauliflower, broccoli, pacchoi etc)

The situation with these species is the same as with the above group. One difference is the fact that seed cannot be recouped by farmers from the previous crop due to the inability of these plants to germinate in tropical climates. This group of vegetables is typically very nutritious and fetches high market prices.

A major challenge is breeding cultivars or accessing germplasms with resistance to tropical pests and diseases.

1.3.1.5 Vegetables with edible roots and tubers (carrot, radish & beet)

Most of the seeds of these crops are also imported. A similar situation exists as in the section above.

1.3.1.6 Fruits (Mango, coconut, citrus, pineapple, guava, avocado, wax apple, breadfruit and dragon fruit).

The propagation of mango, citrus and avocado is mainly done through budding and grafting. Owing to the scarcity of land and planting material, *inter alia*, there are no large orchards of these species.

Many different varieties of mango exist in St Vincent and the Grenadines. The mainland of St Vincent host more than 80% percent of them. Two cultivars of mango are mainly used for export to Europe and North America. Some small amounts are consumed locally. The pineapple is represented by about six commercial varieties. Propagation is done mainly through tissue culture and production systems are fairly well developed.

The Breadfruit (the national fruit, having immense cultural value) is seasonal and there are more than 10 genotypes originally brought by Captain Bligh. However, there is no organized system of propagation

and many of the trees are susceptible to exotic pathogens. There is room for much research into the development more efficient propagation methods, shorten the time to flowering and bearing, create dwarf trees through crossing and selection or through the application of biotechnology. The whole process could be accelerated if high value, marketable, processed products can be developed.

1.3.1.7 Minor crops and underutilized species (Arrowroot, medicinal herbs and spices, christophine, passion fruit, dragon fruit, wild yam, seaside grape, fat pork, star apple, dunks, pomerac etc).

There are several under-utilized fruits which are believed to have the potential for development into important industries. The plants are found in the wild, but are either consumed by wild life or harvested seasonally by small children and other gatherers. Some entrepreneurs also harvest herbs in the wild, processing and selling them as herbal remedies.

The arrowroot is one of St. Vincent's oldest crops; at one time, a major export. Although efforts have been made to mechanize field production, success has been limited. Yields remain low, partly due to the non-selection of planting material. More careful selection of rhizomes of appropriate size, age vigor and variety are needed to improve production. These must be also cleaned and treated to ensure their pest and disease free status.

1.3.2 Status of Agricultural Biodiversity

The decline in the banana industry has led many plantations to be abandoned; leaving large expanses of soil with limited plant cover. However, on those farms which are still under cultivation, adherence to EUREPGAP and Fairtrade standards has led to the application of more environmentally friendly Farm practices. Farm improvements such as the installation of toilets, reduction in pesticide usage and the construction of adequate drainage and terracing are some of the improvements that have taken place.

In terms of crop genetic biodiversity, application of more sophisticated techniques for protection and enhancement of plant genetic resources by the various agricultural research institutes and the Ministry of Agriculture has made a significant contribution to improving food security in St Vincent and the Grenadines. There has been steady production of staples like banana, aroids, yam, cassava, breadfruit, sweet potato, peanuts and fruits and vegetables. Small working germplasm collections *ex situ* are managed on the farms of three institutions (the Ministry of Agriculture, CARDI and the Taiwanese Mission) within their crop development programmes. These collections are maintained *in vivo*, as true seeds and *in vitro.*(FAO, 2008)

However, within the past 10 years, no inventories or surveys of *in* situ plant genetic resources, in terms of wild food plants or those with agricultural value (like medicinal herbs, wild fruits, forage grasses or legumes) have been undertaken.

Inventories and surveys for crop associated biodiversity and wild plants for food production are of high future priority for the Ministry of Agricultre. Emphasis will be placed on the following:

- Seagrape (*Coccoloba uvifera L.*)
- Medicinal herbs
- Dunks (*Ziziphus mauritiana* Lam)
- Legumes and grass forages

1.3.3 Threats to Agricultural Ecosystems and Biodiversity, and Implications of its loss

- Export Markets and Local Preferences – Low and unpredictable prices for agricultural products on international markets has led many famers to abandon the industry. On the other hand, reduced demand for some local produce along with competition from cheaper imported grains and vegetables- threatens the viability of local agriculture.

- Natural Disasters: Hurricanes, droughts and volcanic eruptions have the capacity to wipe out entire crops and can cripple the industry. Climate Change: hyrometeorological hazards will threaten our ability to produce different varieties of crops.

- Genetic Pollution / erosion: The introduction of genetically modified organisms threatens the viability of local species. Especially problematic is the use of seeds that have been genetically altered so that the seeds produced by the plants cannot germinate. Consequently, farmers can become more reliant on imported seeds that are less efficient and less affordable to poor farmers. Dependence on foreign corporations rather than on local germplasm sources could destroy local and traditional seed systems that underlie local crop genetic diversity [12].

- Invasive Alien Species and Introduced Pathogens: Invasive species are introduced through trade in agricultural products as well as the importation of live plant species for landscaping within the tourism sector; illegal trading and inadvertent stow-aways on international trading vessels. The Mango-seed weevil (*Sternochetus mangifera*), the Pink Mealy Bug (*Macollenicoccus hirsutus*), the Citrus Black Fly (*Aleurocanthus woglumi*) and the West Indian Fruit Fly (*Anastrepha oblique*) have all had devastating consequences for the local agricultural industry in recent years.The presence of these invasive species not only threatens the survival of local species, but also impacts on the country's ability to export agricultural produce to other countries, hence, severely affecting the livelihood of farmers.

12 http://www.ukabc.org/itdg_weboflife.pdf

1.4 Coastal and Marine Ecosystems

Coastal and Marine-based activities are a major revenue stream for many Vincentians; particularly in the Grenadines, where tourism and fishing are especially important. But, unplanned development and the unregulated use of the coastal and marine resources of the Grenadines have already led to significant degradation in many areas. Overfishing, coastal habitat destruction, sedimentation, solid waste and sewage disposal from land-based and boat sources, as well as the recreational abuse of coral reefs have been cited as causative factors for this deterioration (Baldwin *et al*., 2009)[13].

Photo: L. Culzac-Wilson

1.4.1 Status of Important Marine and Coastal Ecosystem Components [14]

1.4.1.1 Deep-slope fisheries

Targeted species include snappers (*Lutjanidae*) and groupers (*Serranidae*), which are taken mainly on handlines. Bottom set longlines with about 100 hooks are also used. These species are fished more heavily in the off-season for large pelagics. In the Grenadines, they are harvested all year round and a large proportion of the catch is delivered direct to trading vessels for export.

Anecdotal evidence suggests that this fishery is underexploited. Potential yield estimates range from 32 to 144 t/year (Source: *FAO Fisheries Technical Paper*, No. 313). A precautionary approach is warranted since foreign effort cannot be quantified and some species (e.g. groupers) are extremely vulnerable to overexploitation while they aggregate for spawning.

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13 Baldwin,K., Mahon, R. McConney. P. & Oxenford, H. Stakeholder engagement in the development of participatory GIS for the Grenadine Islands. Available [Online] at: http://www.grenadinesmarsis.com/uploads/Baldwinet.al_GCFI2007inpress.pdf

14 Information extracted from FAO (2002) Information on Fisheries Management in The Saint Vincent and the Grenadines. Available [Online] at: http://www.fao.org/fi/oldsite/FCP/en/vct/body.htm

1.4.1.2 Coastal pelagic fisheries

The coastal pelagics are nearshore fish found in mid-water or surface waters in beach areas. They are often smaller than offshore pelagics. The main target species are jack, herring, silverside, anchovy, ballyhoo, robin/scad and small tunas.

Coastal pelagics account for approximately 45 to 60% of the total estimated landings. This fishery is one of the most important in St Vincent and the Grenadines. Anecdotal evidence from fishers suggests that stocks are moderately exploited but lack of data precludes the estimation of potential yield.

1.4.1.3 Large pelagic fish resources

The large pelagic fish resources are fast-swimming migratory fish that inhabit the deep sea. The target species include tunas (*Scombroidei*), billfishes (*Stiophoridae*), dolphinfish (*Coryphaena hippurus*), wahoo (*Acanthocybium Solandri*), sharks (*Elasmobranchii*), swordfish (*Xiphus gladius*), whales and porpoises (*Cetaceae*).

The regional large pelagics (dolphinfish, kingfish, etc.) are mainly caught by trolling from pirogues and canoes east of the Grenadines bank. Most of the catch is landed in Kingstown. In the Grenadines, catches of regional large pelagics are primarily incidental to fishing for shallow shelf reef and deep-slope fishes. Ocean-wide pelagics (yellowfin tuna, billfishes and swordfish) are targeted primarily by multipurpose vessels (Management Plan 1997).

Two humpback whale species are taken in the Grenadines, usually in the vicinity of Bequia between January and May. Blackfish or pilot whales and other small whales and porpoises are harvested in St Vincent, mainly from Barrouallie.

The large pelagics make up 25% (214 t) of the estimated average annual landings in St Vincent and the Grenadines (SVG Fisheries Statistics 2000). There are no regulations controlling the harvest of large pelagics in the Eastern Caribbean.

1.4.1.4 The Caribbean Spiny Lobster

The Spiny lobster (*Panulirus argus*) fishery is a very valuable fishery for St Vincent and the Grenadines. Approximately 25 t are exported annually to neighbouring islands such as Martinique and St Lucia. An estimated 10 – 20% of the lobster catch is consumed locally.

Since St Vincent and the Grenadines and Grenada share the same shelf, joint management of the fishery is necessary. The lobster population is considered to be overexploited in nearshore areas. The potential yield is 90 t/year (*FAO Fisheries Technical Paper,* No. 313).

The current regulations stipulate a closed season for lobster (1 May – 31 August) as well as minimum size limits, restrictions on fishing gear, and restrictions on taking berried females or moulting individuals.

1.4.1.5 The Conch

The conch fishery of St. Vincent and the Grenadines is a moderately important commercial activity. Conch is harvested primarily by a number of lobster fishermen during the close season for lobster. There are also specialized free-diving conch teams operating out of Union Island, who harvest the resource all year round. Approximately 500 fishermen and 160 fishing vessels are involved in the conch fishery.

An estimated 10.5 t of conch is landed annually in St Vincent and the Grenadines, and, of this figure, approximately 4 t are exported to neighbouring islands. The current regulations stipulate a size restriction (minimum shell length and meat weight) and harvesting of conch with a flared lip.

1.4.1.6 Mangroves

Approximately greater than 42 Ha of mangroves remain along coastal areas in SVG, mainly on Union and Mustique Islands and a very tiny area on St. Vincent's south coast (See table 1.0). Four distinct species can be found; the red (*Rhizophora mangle L.*), black (*Avicennia germinans L.*), white (*Laguncularia racemosa* (L) *Gaertn.f.*), and button, (*Cococarpus erecta*). Interestingly, all four species are found together in an area of less than 6Ha at Richmond Beach on Union Island.

Mangroves are important coastal ecosystems which provide a variety of essential services such as coastal protection from storm surges, prevention of coastal erosion, purification of water from sediment, human wastes and pollutants which are harmful to other marine ecosystems such as corals and sea grass beds. Mangroves are also nurseries for commercially important fish and invertebrates which support coastal fishing industries in many coastal communities. However, indiscriminate coastal development has resulted in the destruction of many of the mangroves throughout the country. Perhaps

the most notable case was the construction of the Ashton Marina in Union Island which caused severe damage to the country's largest remaining mangrove forest [15].

Table 1.0 Distribution and Composition of Mangrove Forests in SVG.

Location	***Size (Ha)***	***Composition***
St. Vincent	*0.16*	*White mangrove*
Mutique (Lagoon Bay)	*8.09*	*7.69 ha Black mangrove 65%, red mangrove 25%, Manshineel (Hippomane mancinella L.), Kashee-Acacia* spp., *Mimosacea* spp 10% 0.4 ha of Red Mangrove belt.
Mustique (north corner of airport)	*4.05*	*Black mangrove with small clumps of botton mangrove (tree and shrub form)*
Union (Ashton harbour)	*20.24*	*0.81 ha red mangrove belt, 19.43 ha black mangrove (tree and shrub form)*
Union (Richmond beach)	*5.67*	*Red, black, white and button mangrove*
Union (Clifton Bay Reserve)	*1.25*	*Red and black mangrove*

1.4.1.7 Coral Reefs

Coral reef ecosystems provide for a variety of human needs. Among these are coastal protection from storm surges and waves; subsistence and commercial fisheries, tourism (diving and snorkeling), nursery habitats for fish and may even yield compounds that can be used for the development of pharmaceuticals (e.g. coral calcium). Coral reefs are therefore immensely important to St. Vincent's economy. An economic valuation study of the Tobago Cays Coral Reefs (utilizing 3 different valuation methodologies) has yielded estimated values of between $US 466,801 and $US141,136,608 [16].

While the main threat to coral reefs is human pressure in the form of inappropriate land-management, fishing, and coastal development, coral bleaching, as a result of global climate change, is considered one of the greatest threats.

15 More information on the consequences of this project for biodiversity and the livelihoods that depended on it can be found at: http://www.cavehill.uwi.edu/cermes/SusgrenPublications/Ashton_Lagoon_Proposal_NMBCA.pdf

16 IABIN/OAS (2009) St. Vincent and the Grenadines ReefFix exercise: Economic Valuation of Goods and Services Derived from Coral Reefs in the Tobago Cays Marine Park (draft).

Photo: F. Providence

1.5.1.8 Seabirds[17]

St Vincent and the Grenadines supports populations of 76 species of waterbirds (including seabirds). Three species of seabird breed on St Vincent (White-tailed Tropicbird (*Phaethon lepturus)*, Roseate Tern (*Sterna dougallii)* and Brown Noddy (*Anous stolidus*)), and an additional nine species nest on uninhabited or undisturbed islets in the Grenadines (namely Red-billed Tropicbird (*Phaethon aethereus)*, Magnificent Frigatebird (*Fregata magnificens)*, Masked Booby (*Sula dactylatra)*, Red-footed Booby (*S. sula)*, Brown Booby (*S.leucogaster)*, Laughing Gull (*Larus atricilla)*, Royal Tern (*Sterna maxima)*, Bridled Tern (*S. anaethetus)* and Sooty Tern (*S. fuscata*)).

The current status and population of most of the country's seabirds is poorly known. Although poaching of seabird eggs by fishermen is a common tradition practiced on the smaller islets, and could be significantly impacting on a number of species. Similarly, the populations of waterbirds (ducks, shorebirds) are poorly known, but many are listed as game birds that can be hunted between 1 October and 28 February. This hunting is not policed or regulated—numbers of individuals of each species shot and therefore the impact on species populations is unknown.

17 This information is taken from: Culzac-Wilson in Birdlife International (2008)Important Bird Areas in the Caribbean. Birdlife Conservation Series.

The removal of unfledged Scaly-naped Pigeon (*Patagioenas squamosa)* from the nest for meat, collection of seabird eggs (and taking adult seabirds for food), incidental poisoning of birds with agrochemicals (especially pesticides associated with the banana industry), legal but unregulated or monitored hunting of waterbirds, and predation from alien invasive mammals (mongoose (*Herpestes auropunctus)*, rats (*Rattus rattus)* and (*R. norvegicus)*, mouse (*Mus muscalus)* and opossum (*Didelphis marsupialis*)) are also significant threats.

1.5.2 Threats and the Implications of Loss of Important Coastal Habitats and Biodiversity [17]

Coastal Wetland habitats (including beaches, mangroves, and marshland) are suffering as a result of developments such as hotels and marinas, but also due to illegal removal of beach (and dune) sand for the construction industry, and cutting of mangroves for charcoal production. The fragmentation of habitats and degradation of coastal ecosystems is making the country increasingly vulnerable to the impacts of natural disasters such as hurricanes, tropical storms, storm surges and heavy rains; the effects of which are expected to worsen under climate change. Furthermore, destruction of nursery areas and habitats for fish results in a reduction in fish stocks and a decline in livelihood opportunities in fishing communities.

CHAPTER 2: Current Status of SVG's National Biodiversity Strategy and Action Plan

This chapter will provide an overview of the implementation of St. Vincent's National Biodiversity Strategy and Action Plan (NBSAP). Firstly, a brief description of the NBSAP is given and its priority actions identified. Subsequently, progress made towards the NBSAP's implementation is assessed and the successes, obstacles and lessons learn throughout the process are identified. An evaluation of the actual effectiveness of the NBSAP on the ground is also given. Finally, an overview of the progress made towards expansion of protected areas is presented.

2.1 Overview of the NBSAP

The National Biodiversity Strategy and Action Plan (NBSAP) provides a framework for implementing the UN Convention on Biological Diversity (CBD) and achieving its triple objectives in St. Vincent and the Grenadines. The NBSAP was completed in May 2000 18. The set of principles which guided the development of the NBSAP are listed in Box 2.0.

The Plan's objectives are as follows:

1. Develop and articulate a National Biodiversity Policy which fosters the sustainable use of biological resources and the maintenance of biodiversity.
2. Integrate biodiversity conservation into national planning processes.
3. Encourage integrated natural resource management techniques with emphasis given to developing practical and cost effective measures for the preservation of natural habitats.

18 Article 6 (a) of the Convention calls on parties to:

Develop national strategies, plan or programmes for conservation and sustainable use of biological diversity or adapt for this purpose existing strategy, plans or programmes which shall reflect, inter alia, the measures set out in this Convention relevant to the contracting party concerned;

4. Rationalize land use allocation and encourage sectoral and regional planning for human settlements.
5. Create conditions and incentives for effective conservation at both the national and local level.
6. Strengthen the human capacity for conserving and using biodiversity sustainably.

Box 2.0- Guiding Principles of the NBSAP

1. Every form of life is unique, and warrants respect from humanity.
2. All Vincentians depend on local biodiversity and therefore have a responsibility to contribute to the conservation and sustainable use of biological resources.
3. Policy, and institutional strengthening is required in order to create conditions under which national biodiversity conservation can become an integral part of the decision-making process, through effective implementation.
4. All Vincentians should be educated about local biodiversity and be given an opportunity to participate in decision-making that affects biodiversity.
5. Biodiversity is best conserved in the wild (in situ).
6. An *ecological approach* to resource management is central to achieving biodiversity conservation and the sustainable use of biological resources.
7. Management of biodiversity must be ecologically and economically sustainable. Conservation of biodiversity should proceed on the basis of best knowledge available, using approaches that can be refined as new information is gained.
8. Conservation of biodiversity should proceed on the basis of the best knowledge available, using approaches that can be refined as new information is gained.
9. Biodiversity conservation requires the cooperation of government and nongovernment organizations, resource users and the community in general.
10. Regional and international cooperative action and sharing of knowledge, cost, and benefits are essential to biodiversity conservation.

The document also contains Eight (8) Priority areas for action (called *Priority Actions*). These were considered to be the most important or pressing issues that needed to be addressed during the first NBSAP Period (2000-2005). They are as follows:

I. Revision and updating of environmental legislation;

II. Institutional strengthening for St. Vincent and the Grenadines

III. Resource (Biodiversity) Inventory (Terrestrial and Marine)

IV. Development of GIS Database

V. Educational Awareness

VI. Human Resource Development

VII. Incentives and disincentives

VIII. Mechanisms for monitoring the implementation of biodiversity conservation

A set of strategies are also outlined for addressing each of these priority areas and detailed activities (called *actions*) needed to implement these strategies are also given to complete the plan. (See Table 2.0)

2.2 Implementation of the NBSAP

Although the NBSAP should be a vital strategic document for guiding biodiversity and its ecosystems conservation, sustainable use and development, no institution has a clear responsibility for either driving its implementation or monitoring its achievements. Consequently, to date, the document is hardly utilized by key stakeholders to guide their research, planning or decision-making activities.

Nonetheless, the programmes and projects undertaken by several different institutions over the years have contributed to addressing some of the priorities; albeit in an *ad hoc* manner.

Table 2.0 gives a summary of the progress made to date on each of the priority areas and identifies activities that have contributed to implementation of the relevant strategies.

Table 2.0 Summary of Progress made on the NBSAP Priority Areas

Priority Action	Strategies	Progress (0-5 stars)	Further Information
I. Revision and updating of Environmental Legislation	• Revise and enact national legislation which provides for the Conservation of Biodiversity	★★★★	Revision and updating of all the relevant legislative instruments were undertaken under the OECS PERB project. The legislation is expected to be passed by the second quarter of 2010. When this is completed, all the activities outlines under this priority action would have been completed.
II. Institutional strengthening for St. Vincent and the Grenadines	• To strengthen the institutions responsible for environmental matters across the numerous different agencies, and promote consolidation of authority on environmental issues under a centralized body.	★★★	Reviews of existing institutional structure conducted and factors limiting effective implementation were identified in the NCSA. The draft EMA 2009 outlines a set of mechanisms for institutional strengthening (Section. 2.2.2.1). The NPA was also operationalised in 2005 with responsibility for protected areas. (Section 2.2.2.2) Funding and human resource capacity constraints are still major barriers.
III. Resource (Biodiversity) Inventory (Terrestrial and Marine)	• Expand Revise and enhance biodiversity research and inventorying initiatives. • Establish a national programme of on-going monitoring to document the status and patterns of change in terrestrial flora, and fauna species, and their habitats.	★	No systematic efforts made to expand, revise nor enhance biodiversity research and inventorying. Most activities are undone. A few small-scale projects have been undertaken that have contributed in some way to improving knowledge on various aspects of SVG's biodiversity are outlined in sect 2.2.4

Priority Action	Strategies	Progress (0-5 stars)	Further Information
IV. Development of GIS Database	• Establish a GIS database for biodiversity information which should be updated periodically.	★★	A national GIS Unit was set up in 2008 within the Physical Planning Department. There is also some capacity within the Forestry and Fisheries Divisions as well as the NPA. However, the focus of biodiversity-related GIS work has been on determining land-use and acreage rather than the geographic distribution of species. The Unit still faces shortages in equipment and licenses. (Section 2.2.5)
V. Educational Awareness	• Improved public awareness and education on biodiversity issues; and • To ensure broad based support for and involvement in biodiversity conservation initiatives through widespread public awareness	★	No clear CEPA strategy exists. Implementation has been largely ad-hoc. The Forestry Dept. has been involved in television productions and conducts training for police officers in enforcement of wild-life protection laws. Public education is an integral component of the Fisheries Dept.'s sea turtle conservation programme. (Section 2.2.6)
VI. Human Resource Development	• To enhance the local capacity to conserve biodiversity through increasing and improving the local expertise in relevant fields & institutional Strengthening. Improve the local knowledge base in terrestrial ecology at the genetic, species and habitat levels that is essential for the effective conservation and management of SVG's terrestrial fauna diversity.	★	Staff at the Forestry Dept. have been trained in ecological wildlife management. (Section 2.2.7)

Priority Action	Strategies	Progress (0-5 stars)	Further Information
VII. Incentives and disincentives	• To provide economic and financial incentives which promote and encourage sustainable utilization of SVG's biological and natural resources.	★	The Fisheries Division is undertaking research to expand uptake of under-utilized species. Alternative livelihood programmes for marijuana farmers have had little success. No work has been done on removing perverse incentives. (Section 2.2. 8)
VIII. Mechanisms for monitoring the implementation of biodiversity conservation	• To enhance the capacity for SVG to monitor and assess the progress of its biodiversity conservation programmes and initiatives, and to effectively coordinate the implementation of biodiversity policy.	★★	Monitoring the implementation remains a challenge. But, the EMA 2009 sets out specific requirements for coordination, monitoring and reporting that may improve the situation once the Act is passed. (Section 2.2.9)

2.2.1- I. Revision and Updating of Environmental Legislation

This was identified as a priority action in the NBSAP because the prevailing situation of fragmented and outdated legislation- dispersed over several statutes charging different and uncoordinated government bodies, departments and entities with environmental administration; presented a serious barrier to the effective implementation of the Convention. The crux of the associated strategy was to undertake a review of all environmental legislation and to develop a comprehensive environmental legal framework that would provide the legislative and regulatory mechanism for the conservation and sustainable management of all biological resources in SVG. The main recommended output was to be a comprehensive Environmental Protection Act that clearly supports the policy of biodiversity conservation through its legal and regulatory instruments, and appropriate enforcement measures.

Under the OECS Protecting the Eastern Caribbean Region's Biodiversity (PERB) project, consultants were hired to conduct the legislative review of the relevant legislation and to make recommendations for improving legislation in support of the biodiversity convention (and other related MEAs). Additionally, the existing environmental legislation was updated and the requisite regulations drafted.

The outcomes of this process were as follows:

- The Wildlife Protection Act
- The Marine Park Act
- The National Parks Act
- The Environmental Management Act

Among these, the Environmental Management Act is perhaps the most significant as it is comprehensive framework legislation. These pieces of legislation are currently before Cabinet and are expected to be passed by the Parliament by the second quarter of 2010.

Additionally, an ecological GAP analysis for the Protected Area System was conducted in 2006 by members of the NISP with technical assistance from the TNC. The analysis allowed a determination of the 'representativeness' of the current system of protected areas (PAs) and the identification of actions that could be taken to ensure better representation of biodiversity in PAs . Hence, this satisfied the activity: "documentation of criteria for designating marine conservation areas so that amendments can be made to the regulations to include other areas to which criteria apply".

2.2.2- II. Institutional strengthening for St. Vincent and the Grenadines

The existing fragmented administration system resulted in a largely ineffective, *ad hoc* approach to addressing environmental issues by different line ministries. Consequently, the strategic action for addressing this priority was to consolidate authority for environmental issues into one centralized body. The main activities under this strategy involved institutional review and clarification of the mandates, capacity building and enhancing communication among the various institutions with environmental management responsibilities; improvement of enforcement mechanisms and the elaboration of environmental assessment procedures.

Progress

2.2.2.1 Reviews of the existing institutional structure for environmental management were carried out under several different projects. In 2005, a National Capacity Self-Assessment (NCSA) –funded by UNDP/GEF was conducted. It assessed the country's ability to implement the three Rio Conventions[19]; identified the factors the limit implementation and highlighted opportunities for integrated capacity building across each of the thematic areas (including biodiversity).

The results confirmed that the absence of an overall policy framework within which individuals and organizations must operate and interact with the external environment, as well as the formal and informal relationships among institutions was the most glaring constraint. Within institutions, a deficit in infrastructural support (and equipment) was pronounced and "turfism" further limited access to available technical resources.

In 2003, St. Vincent and the Grenadines also participated in an OECS Project to promote mainstreaming of integrated environmental management in four of its member states. One of the main suggestions made by the consultants was for the Environmental Services Unit to play a stronger role in coordinating environmental management in SVG by being constituted into a more well-defined Environmental Management Department.

19 The Rio Conventions are the UNCBD, the United Nations Framework Convention on Climate Change (UNFCCC) and the United Nations Convention to Combat Desertification (UNCCD)

2.2.2.2. Environmental Management Act

In 2009 a comprehensive Environmental Management Act was drafted. It creates a set of mechanisms for institutional strengthening inclusive of the following:

1. *Establishment of a Department of Environment* (Environmental Management Department)- This is an improvement over the existing situation where the Environmental Services Unit had a more informal mandate for coordinating the implementation of MEAs and inter-agency collaboration in Environmental Management. The new Department has overall responsibilities for *inter alia*:

Photo: F. Providence

- Coordinating the monitoring of the status of and threats to natural resources and the environment
- Coordinating Pollution Prevention and Control Activities (e.g. issuance of discharge permits, undertaking environmental quality surveys and investigations into pollution incidents, maintaining waste registers, conducting (industrial) inspections to ensure compliance with environmental standards and regulations)
- Public Environmental Education and Awareness Building
- Formulating policy advice regarding the environment and sustainable development (including recommendations for environmental standards and providing strategic direction regarding long-term sustainable development)
- Driving the integration of environmental considerations into the decision-making process governing economic and social development
- Fostering inter-agency cooperation/ collaboration in the conservation and sustainable use of natural resources
- Providing assistance in the development and execution of programmes and projects that foster and encourage regional and international collaboration in the conservation and sustainable resource utilization

2. The creation of a National Environmental Commission- This is a multi-stakeholder committee [20] which will function as the primary mechanism for facilitating the effective integration of environmental and sustainable development considerations into economic and social development planning and decision-making (i.e. "environmental mainstreaming") in SVG.

   The Commission's responsibilities support those of the Department, but its role is primarily advisory. Among other responsibilities, it will:

   - Undertake periodic reviews and advise on programmes, policies and strategies necessary for achieving sustainable development;
   - Advise on the rationalization of roles, responsibilities and functions of all agencies involved in sustainable development;
   - Advise on a comprehensive environmental education strategy both for the general public and government decision-makers
   - Secure inter-agency collaboration in environmental management;
   - Promote and monitor progress towards environmental mainstreaming and the fulfillment of national obligations under the MEAs and other relevant international policies and processes;
   - Identify policy, legislative and institutional gaps and advise on corrective measures;
   - Promote decision-making based on sound research and the results of environmental monitoring as a means for ensuring sustainable development;
   - Promote capacity-building for environmental management

3. A stipulated requirement for inter-agency collaboration. Wherever the Department requires co-operation and assistance of another government Ministry, Department or statutory body, they are required to "render all possible assistance to the Department" if so requested. Likewise, the Department is required to "render all possible assistance" to other agencies wherever its cooperation "would facilitate the carrying out of any public business that is the

[20] The membership is composed of: the heads of the Department of Environment, the Fisheries Division, Forestry Department, Physical Planning Department, Department of Agriculture, Land and Surveys Department and the National Emergency Management Organization as ex-officio members. The heads of the National Parks Authority and the Central Water and Sewerage Authority along with representatives from the Ministries of Tourism and Science and technology; the National Trust and the Chamber of Industry and commerce are also members of the Commission.

responsibility" of one of these public agencies.[21] This is an improvement over the informal working relationships that previously existed.

4. Instruments for exercising power of authority (i.e 'Command and Control' Instruments)- For example: pollution charges; power to issue injunctions; issuance, revocation and stipulation of the conditions on pollution permits.

5. Establishment of an Environmental Trust Fund - this will ensure more sustainable financing for environmental management.

These provisions outlined in the draft EMA (2009) should overcome the problems currently experienced but this will only happen if the act is given legal force by being enacted by parliament in a timely manner.

2.2.2.3 National Parks, Rivers and Beaches Authority (NPA)

The NPA was operationalised in 2005 to promote the establishment of national parks for the preservation, protection, management and development of national, physical and ecological resources and the historical and cultural heritage of SVG (National Parks Act. No. 33 of 2002). The Authority falls under the Ministry of Tourism. As part of its mandate, the Authority also operates a number of recreational facilities within the parks for natural enjoyment, to promote and advance conservation and to educate the public and tourists. It also has responsibility for regulating activities within national parks and buffer zones, and to undertake restorative measures in marine areas. (OECS, 2008)[22]

The National Parks Board is a multi-stakeholder committee established by parliament to oversee/ regulate the operations of the Authority and comprises the following members:

- The Director of Planning or his nominee
- The Chairman of the SVG National Trust
- The Director of Tourism
- The Medical Director of Health

[21] The Director also has also been given authority to delegate powers and duties to other public officers (as is fitting) and to co-opt personnel from other government agencies to act as "authorized officers" to enforce the Act.

[22] OECS (2008) Draft Report on Institutional and Legal Aspects.

- The Commander of the Coast Guard or his nominee
- A nominee from the Chamber of Industry and Commerce
- Three nominees from NGOs
- Two persons nominated by the Cabinet of Ministers
- The Director of National Parks (Secretary to the Board) or his nominee

2.2.4 -III. Resource (Biodiversity Inventory) (Terrestrial and Marine)

Establishment of a national biodiversity database inventory and monitoring program was recognised as being essential to enhancing our understanding and our appreciation of the biological diversity and to enabling identification of the status and trends in ecosystem-health. However the existing gaps in knowledge of biodiversity makes this a high priority.

Photo: F. Providence

Progress

Over the past four years there had not been any systematic efforts to expand, revise and enhance biodiversity research and inventorying. The vast majority of the activities outlined in the action plan to implement this strategy have gone undone. Nonetheless, there have been a number of one-off projects that have, in some way, contributed to improving knowledge on various aspects of SVGs biodiversity. Among these initiatives are:

- The Grenadines Marine Resource Space-use Information System (MarSIS) project implemented by CERMES and the Sustainable Grenadines Project complied information on marine space-use in the Grenada Bank (upon which the Grenadine islands sit) that can be used to identify areas for special management attention such as: critical habitats; representative marine ecosystems, areas of high aesthetic value and cultural importance; areas important for livelihoods, fishing grounds and marine-based tourism; areas of highest human threat and space use conflict. An innovative, participatory approach was utilized by Dr. Kim Baldwin of CERMES, involving a range

of stakeholders in the information gathering and research processes to create the GIS database.

23 Figure 2.0 is an example of one of the maps created through the MARSIS project.

- Under the OECS PERB Project, a biodiversity inventory and assessment was conducted for the Kingshill Forest Reserve. The information collected will be entered into a web-based OECS database that will be periodically updated with the help of the OECS Environment and Sustainable Development Unit (ESDU).
- Fisheries Survey for the South Coast of St. Vincent was conducted in late 2009 by the Fisheries Division in conjunction with the Nature Conservancy. The final report will contain important information on the health of the marine habitat and fisheries stock in the area.

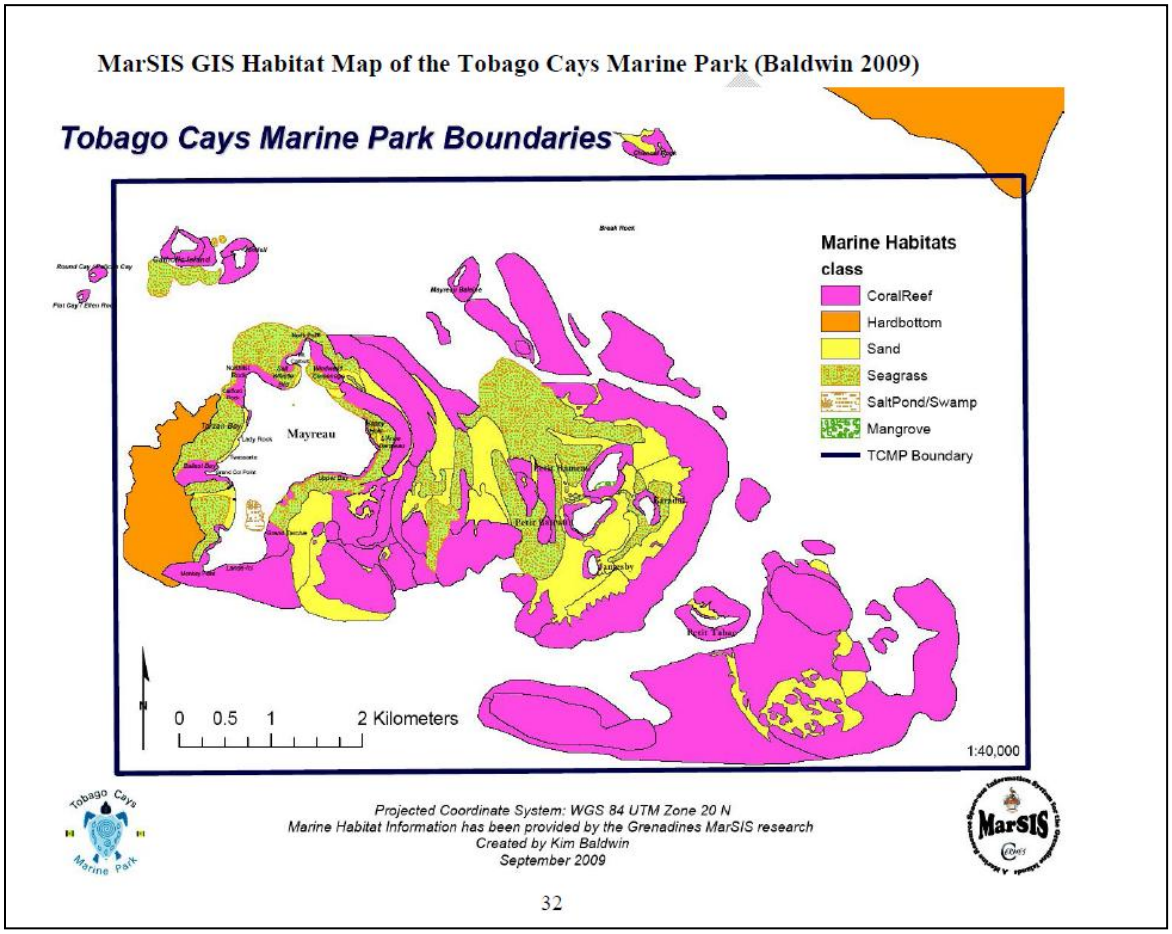


Figure 2.0 Example of a GIS Habitat Map created through the MARSIS Project. Source: Reefix (2009)

23 Source: http://www.cavehill.uwi.edu/cermes/Associated_Projects.html#Grenadines_marine_space-use_information_system_(MarSIS)

- The Tobago Cays Marine Park regularly conducts inventories of the sea grass beds, fish, coral and marine vertebrates found within the Park. Regular assessments are also done on Mustique Island, organized by the Mustique Company.
- The Forestry Division conducts a by-annual Parrot Census as well as regular inventorying of the population of the endemic Black Snake and Endemic Frog.
- Bird Life International and Avian Eyes conduct inventories from time to time on important bird areas / species found in SVG.

Clearly, the establishment of a national programme of on-going monitoring to document the status and patterns of change in terrestrial flora and fauna species and their habitats is still an outstanding priority area for action.

2.2.5 -IV. Development of a GIS Database

An up-to-date Geographical Information System (GIS) database for biodiversity information was deemed essential to improving the effectiveness of biodiversity management. The activities surrounding the implementation of the strategy involved:

• Establishment of a committee to guide general GIS Development Policy within the state.

• Establishment of a set of broad goals and long-term objectives for the establishment of the Biodiversity GIS.

• Establishment of a national Biodiversity database inclusive of data formats and standards for accuracy and detail of all data to be incorporated in any national GIS System.

• Facilitation of data transfer between the various institutions responsible for biodiversity and natural resource management.

Progress

Progress in implementing this strategy has been limited. A National GIS Unit has been set up within the Physical Planning Department and there is limited GIS Capability within the Forestry Department, Fisheries Division and the National Parks Authority. However, none of these set-ups are specifically focused on biodiversity. Furthermore, although the National GIS Unit has primary responsibility for GIS in the country, it faces significant resource constraints in terms of acquiring sufficient hardware and current software licenses. However, the Unit is set to receive assistance under the UNDP/GEF Capacity Building and Mainstreaming of Sustainable Land Management project, to acquire licenses for 5 years

and to update some of its equipment. Memoranda of Understanding between various departments will also be set-up to improve data transfer and information sharing between different agencies involved in natural resource management.

2.2.6- V. Educational Awareness

Widespread public awareness-building on biodiversity issues was deemed essential to garnering broad-based support for and involvement in conservation initiatives. The activities proposed to support this strategy were:

Photo: F. Providence

- Media productions aimed at educating the public as a means of promoting community assistance in enforcement
- Training of government agencies, department staff, as well as local private organizations, and other grassroots groups
- Education and sensitization of regulatory and law enforcement agencies with regards to biodiversity management and conservation issues
- Improvement of extension services (e.g. room for public education seminars/workshops, library with appropriate database of available information)
- Co-management with businesses and NGOs operating in marine and terrestrial conservation areas to encourage more responsibility for the protection of these areas (focusing on activities such as beach clean-ups, sign placements and maintenance, simple beach monitoring, sea turtle watches and closed season patrols.

Progress

Implementation of this strategy has been in a largely ad-hoc, with many with individual agencies pursuing their own primary objectives with regards to public education. The Forestry Department Environmental Education Unit highlights the importance of and threats to forests and encourages public participation in forest management through school and community presentations, brochures, posters, flyers, radio programmes/jingles/announcements, Forestry Focus Month and occasional national campaigns on a specific topic (e.g. conservation of the endemic St.Vincent Parrot, protection of water resources, prevention of bush fires).Successes of environmental education campaigns include a greater awareness of open and close seasons and activities that can reduce bushfires in susceptible areas, knowledge of endemic and indigenous species and their importance. The Department also conducts annual police officer training in order to improve enforcement of the wildlife protection laws.

The Fisheries Department also has on-going awareness-building activities as part of its Sea Turtle Conservation Programme (which involves communities in the protection of turtles nesting on beaches in rural areas).

Nonetheless, the absence of a comprehensive communication, education and public awareness (CEPA) strategy means that public awareness of the central importance of biodiversity to human well-being is still very limited. Resources allocated to public education programmes are still very inadequate.

2.2.7- VI. Human Resource Development

Enhancing local capacity to conserve biodiversity through increasing and improving local expertise in fields such as terrestrial ecology (at the genetic, species and habitat levels) was regarded as being essential for more effective conservation and management of SVG's terrestrial faunal diversity. As such, the two (2) following implementation activities were proposed:

Photo: L. Culzac-Wilson

• Strengthening capacity at Forestry Department by training officers specifically in the areas of ecology research, wildlife management and resource economics.

• Undertaking a GIS user training programme in order to enhance the level of technical competence among relevant government and non-government institutions.

Progress

Thus far, staff at the Forestry Department have been trained in Ecological Wildlife Management and a specialist Forest Technician has been hired. The Physical Planning Department, Forestry Department, National Parks Authority and the Fairtrade organization were also involved in a two (2) day GIS training exercise to familiarize them with the technology. However, completion of these two activities is mostlikely not a true indicator of whether capacity building or human resource development has effectively taken place.

2.2.8- VII. Incentives and Disincentives

The following activities were proposed for implementing a strategy to provide economic and financial incentives which promote and encourage sustainable utilization of SVG's biological and natural resources:

Photo: F. Providence

- Correct imbalances in the control of land resources that contributes to the loss of biodiversity e.g. enhanced regulatory controls of development activity on private as well as public lands.
- Research on potential uses of unutilized and under-utilized terrestrial and marine species, including product development possibilities of species which are economically important or of potential scientific and/or medicinal value.
- Reduce the pressures of urban expansion by the encouragement of higher density housing, in-filling of existing residential and commercial areas, and the enforcement of appropriate zoning control.
- The enactment and enforcement of more effective fines and penalties in order to act as a deterrent of unsustainable physical development and resource exploitation practices.
- Reduce the impacts of agricultural expansion into environmentally sensitive areas by providing incentives to increase the productivity of lands currently under cultivation.
- Provide incentives to reduce the use of toxic chemical pesticides, herbicides, and fertilisers.

<u>Progress</u>

The Fisheries Division has been undertaking research into the promotion of squid in order to expand up-take of this under-utilized species and, in so doing, ease the strain on other over-exploited fisheries. Sea moss cultivation is also being experimented with. In addition, the Division has recently purchased a long-liner vessel to encourage fishermen to exploit deeper waters to alleviate the pressure on near-shore

areas. In 2007/08 a ban in seine species; which at the time were being over-exploited for sale to foreign trawlers, was implemented.

Land-use planning/ zoning and the application of EIAs are being utilized by the Ministry of Planning to reduce development pressures in sensitive areas. But prosecution of offenders who do not comply with land-use restrictions or comply with EIA requirements remains a major challenge to the effectiveness of these controls.

It should also be noted that although the promotion of high-density housing (e.g. multi-family apartments) is listed as an activity under this strategy, it is not considered to be culturally appropriate and as such, execution of this activity is largely unrealistic.

The expansion of formal agricultural activities (especially bananas) into environmentally sensitive areas no longer considered to be the major threat due to the general decline in the industry and the more stringent requirements of the Fairtrade regime to which the farmers subscribe. Fairtrade requirements encourage farmers to utilize more environmentally friendly practices and the Ministry of Agriculture promotes the application of integrated pest management on farms as a means of reducing pesticide usage.

On the other hand, the cultivation of illegal marijuana in sensitive watershed areas is an ever-increasing threat which is not adequately addressed under the priority VII (incentives & disincentives) of the NBSAP. Although, alternative livelihood programmes have been initiated; both through the Department of Agriculture and the Forestry Department's Integrated Forestry Management and Development Project, these efforts have so far experienced minimal success since the recommended alternatives are not perceived to be as financially lucrative 24.

In light of the prevailing constraints (financial and human resources) to effective enforcement of command-and-control measures (e.g prosecution and fines), it is perhaps even more vital that greater emphasis be placed on the creation of economic incentives for conservation and the removal of perverse incentives (i.e those conditions or policies that actually encourage practices that are destructive to biodiversity).

24 Ministry of Health and the Environment (2006) Third National Biodiversity Report to the UNCBD. MOHE: Kingstown.

It is therefore noteworthy, that although work on incentives and disincentives is seen as a priority issue; the associated strategy focuses solely on incentives. No work has been done on addressing perverse incentives (disincentives). It is therefore likely that strategies such the policy on promoting integrated pest management being forwarded by the Ministry of Agriculture, might actually be undermined by other policies on provision of subsidies on fertilizers and pesticides. It is clear that the implications of various approaches to addressing incentives are complex, but there is a definite need for more focused action on the creation of a 'bag' or 'mix' of incentives or disincentives during the next phase of NBSAP planning and implementation.

2.2.9 -IX. Mechanisms for monitoring the Implementation of Biodiversity Conservation.

To execute the strategy "to enhance the capacity for SVG to monitor and assess the progress of its biodiversity conservation programmes and initiatives, and to effectively coordinate the implementation of biodiversity policy", the NBSAP recommended that the Ministry of Health and the Environment "embrace its role as the lead agency for biodiversity, and protected area management, and also seek to establish specialized sub-committees to effectively administer and monitor the implementation of biodiversity management and conservation programmes and activities".

It recommended that the following functions be considered:

- Policy formulation
- international agreements and protocols
- legislation and regulations
- compliance
- assessment, licensing and approvals
- guidelines and standards
- pollution prevention
- monitoring
- education and development, and
- environmental reporting

Progress

Monitoring the implementation of the Convention continues to be an enormous challenge. However, the draft Environmental Management Act (2009) sets out a comprehensive framework for addressing these issues as outlined previously (under the section on progress on priority I).

More specifically regarding monitoring and reporting, section twenty-eight (28) of the draft EMA requires the Dept. to "facilitate the coordination of the activities" of all relevant Government agencies in relation to "the continuous or periodic collection, collation and analysis of data concerning the status of the terrestrial and marine environment; the continuous or periodic sampling and analysis of effluents, emissions and discharges into the environment". Each year, the Department will prepare a report on its environmental monitoring activities which will be laid before Parliament and published for public access.

Additionally, every 2 years, a State of the Environment Report must be published. It will make particular reference to any significant events or changes occurring over the period. A description of the activities of the Department, an assessment of the effectiveness of coordination between the Department and other Ministries, departments of Government and statutory authorities to which environmental management functions and duties have been allocated.

2.3 Progress on the Expansion of Protected Areas

At the 7th Conference of the Parties (COP7) of the Convention on Biological Diversity (CBD) in 2004, governments adopted an ambitious global Programme of Work on Protected Areas (PoWPA). At COP7, a group of 8 international NGOs committed to support government partners in the implementation of this Programme of Work. As a result, the Nature Conservancy, CERMES and RARE signed a Memorandum of Understanding (MOU) with the Government of St. Vincent and the Grenadines, in which parties commit to work together in the implementation of this program of work. This MOU is commonly known as the Protected Areas National Implementation Support Partnership (NISP).

The NISP committee of St. Vincent and the Grenadines undertook an initial analysis of the PoWPA in 2005. The analysis included review of the CBD PoWPA Early Actions and of current and planned work by the government and NGOs related to the PoWPA. This information was organized in a detailed spreadsheet that allowed for gaps to be identified and work to be prioritized.

In 2005, the priorities for St. Vincent and the Grenadines included baseline environmental surveys, conducting and completing a management effectiveness assessment, a sustainable finance plan, a capacity development plan, and an ecological gap analysis for the protected area system. The following activities were all completed through the NISP between 2006-2007:

- Draft Sustainable Finance Plan for Protected Areas System (2007);
- Management effectiveness assessment (2006) based on the World Wildlife Fund's Rapid Assessment and Prioritization for Protected Area Management (RAPPAM);
- Protected Area System Management Capacity Plan partially based on the results of the RAPPAM;
- An Ecological Gap Analysis for the system of protected areas, with recommendations for additions to the system;
- Training in site level management planning, GIS, biological survey methods, master planning, Capacity Planning, RAPPAM, environmental risk assessment, reef and spawning aggregation surveys, and institutional self assessments for NGOs.

Each of these documents identified gaps to be filled in order to complete the CBD PoWPA. These documents have been incorporated into the National Parks and Protected Areas System Plan that was completed in 2009 with funding from the European Union as part of the Tourism Development Project. The issues addressed in the National Parks System include:

- The protection of natural resources including ecology and culture;
- The management of development in high hazards areas;
- The management of development to protect the integrity of coastal waters;
- An orderly processes for the siting of major facilities;
- The redevelopment of urban waterfronts and ports to preserve and restore historic, cultural and aesthetic coastal features;
- Stakeholder involvement in decision making; and
- A comprehensive plan for the management of living marine resources.

The objective of the Ecological Gap Analysis conducted in 2005 was to determine how the current system of protected areas represents St. Vincent's biodiversity and to identify actions which could be taken to ensure good representation of that biodiversity.

The analysis indicates that Moist Forest, Dry Forest, Freshwater Systems and Marine Ecosystems are currently represented within established protected areas. Analysis results were reviewed in February of 2007 by a working group of in-country protected areas management agencies and organizations, leading to recommendations for inclusion of additional areas in the protected areas system to allow St. Vincent to fulfil its commitment to the Convention on Biological Diversity.

Sites were prioritized based on ecological importance, overall threat level to the biodiversity and feasibility of establishing effective management at the site level. A timeline has been created to achieve the CBD commitment to protect 10% of terrestrial resources by 2010 and 10% of marine resources by 2012. Highest priority was given to Soufriere. High priority sites included the Southern Grenadines Management Unit, Buccament/Vermont Corridors, Leeward Coast MPA and the Fenton Corridors. Medium priority was assigned to the Northern Grenadines Management Unit, Cumberland Corridors and Owia and Fancy. Table 2.1 in Appendix V lists the proposed protected areas comprising the System.

2.5 Effectiveness of the NBSAP

As the name suggests, the NBSAP is supposed to be a "*strategic instrument* for achieving concrete outcomes; not a publication that sits on a shelf. Its role is to drive public policy and generate the activities and changes that it identifies as needed in order to meet the objectives of the CBD at a national level" (UNEP, 2007). However, as outlined in the preceding sections, implementation of the St. Vincent and the Grenadines NBSAP has been far from ideal. Most of the specific activities outlined under each of the priority area in the NBSAP have gone undone and the NBSAP does not routinely inform planning in key sectors. Although some progress has been made through one-off initiatives undertaken by the various sectoral agencies, the absence of a systematic monitoring and evaluation system makes it difficult to determine the actual effectiveness of any of these initiatives.

The following have been identified by stakeholders as the main constraints to effective implementation of the NBSAP and integration of biodiversity into national planning processes:

- Capacity Constraints: The technical capacity to undertake research (both in terms of trained personnel and technology/ facilities).
- Funding for activities outlined in the NBSAP is poor and implementation is almost entirely reliant on adequate donor funding.
- Lack of awareness of the NBSAP and the value of biodiversity to human well-being- There is a clear need for enhanced awareness-building both at the level of the general public and at the political (policy) levels.
- Absence of a functioning NBSAP management and oversight committee (due to breakdown of the NEAB)
- Lack of integrated planning -Agencies work in isolation from each other and there is a lack of awareness of how the planning system works and about how to get involved; or of where there might be appropriate entry-points for collaboration within the system)
- Poverty and Population pressures
- Weak enforcement of environmental legislation

In addition, looking at the inherent design of the NBSAP document, the following issues are also very likely to be limiting factors to its success:

- Absence of a defined monitoring and evaluation protocol for assessing implementation of the plan.
- Failure to incorporate measurable national or global targets and indicators
- Poor prioritization (in terms of time-scales for different aspects of the plan)
- The lack of dedicated / identified sources of sustainable financing for implementation
- Lack of clear responsibility for implementation of different strategies

2.6 THE WAY FORWARD: How to revise and improve implementation of the NBSAP?

2.6.1 Improve Biodiversity Monitoring and Research

The lack of systematic monitoring is a major problem, not only in terms of monitoring and evaluation of progress towards meeting the goals of the convention, but simply because our ignorance of the characteristics of pristine ecosystems puts us in a precarious situation where we might not realise the extent of ongoing damage until critical species reach "tipping points", from which there will be no hope of return.

More concerted effort needs to be made towards the development of a biodiversity information system that should be part of a *clearing house mechanism* (CHM). This would facilitate the management of data so as to support research, education and policy-making on Biodiversity.

Alliances with Universities, research institutions and environmental NGOs should also be a key component of a strategy for improving monitoring and research capacity. The Centre for Resource Management and Environmental Studies (CERMES) has, in the past, made important contributions to improving knowledge about marine ecosystems in the Grenadines. It would be mutually advantageous to partner more consistently with this organisation through coordinated Masters and PhD research projects.

2.6.2 Include Targets and Indicators

It is exceedingly difficult to track progress towards meeting national and global targets without having appropriate indicators for measurement. This is a serious deficiency in the current NBSAP.

The Working Group on Review of Implementation of the Convention has recommended that parties establish national targets within the framework adopted by the COP and to establish mechanisms, including indicators, to monitor implementation of the NBSAP. Such targets and indicator systems are used to guide implementation and to assess progress. This could be further enhanced by the development of a web-based information system that could facilitate the collection and dissemination of the necessary data to various agencies and to the general public.

2.6.3 Improve Communication of NBSAPs

Many of the key agencies that have an impact on biodiversity conservation do not currently utilize the NBSAP in planning their operational activities. In some cases, there organisations were not even aware of the existence of an NBSAP.

The Working Group on Review of Implementation of the Convention has recommended that parties develop and implement *communication strategies for their NBSAPs*. A strategy should communicate the importance and relevance of the NBSAP across sectors and ministries. Linkages between the strategies outlined in the NBSAP and national MDG targets should be clearly demonstrated to generate a better understanding of the biodiversity-poverty nexus among decision-makers.

A clear communication strategy should help to generate support for actions to protect biodiversity as well as leverage funds for conserving and sustainably utilizing biodiversity. It should also enhance engagement of civil society groups and the general public.

2.6.4 Improve assistance from international donors for achieving concrete actions on the ground

More sustainable and predictable sources of funding for implementation of more concrete actions on the ground are desperately needed. Now that much of the institutional and legal groundwork has been complemented, more tangible projects must be initiated.

Chapter 3: Sectoral and Cross-Sectoral Integration (Mainstreaming) of Biodiversity Considerations

The term *mainstreaming* refers to the integration or inclusion of actions related to the conservation and sustainable use of biodiversity into strategies relating to various production sectors, for example, agriculture, fisheries, forestry, tourism and mining. It also refers to inclusion of biodiversity considerations into cross-sectoral plans like poverty reduction strategies and national sustainable development plans (CBD, 2007). This chapter evaluates the extent of such biodiversity mainstreaming in SVG and highlights the processes by which this integration or mainstreaming has been taking place. The degree of inclusion of biodiversity considerations into environmental impact assessment (EIA) and strategic environmental assessments (SEA) is also examined.

3.1 Sectoral Coordination

The following sections will outline the various mechanisms for coordination between the various agencies involved in biodiversity conservation and management in St. Vincent and the Grenadines.

3.1.1 Inter-Ministerial Coordination

The Ministry of Health and the Environment (MOHE) has overall responsibility for coordination of environmental management activities in SVG. However, several other government ministries, departments, statutory organizations and NGOs have varying responsibilities for different aspects of biodiversity management. Long-standing problems with this arrangement Include:

- Inadequate cross-sectoral communication and coordination among key resource sectors
- Agencies environmental management functions are sometimes ambiguous and overlapping, resulting in redundancy and inefficiency
- Fragmentation of some key governmental environmental management functions like development control, resource protection, enforcement of existing regulations and resource development among different agencies.

Several studies of the institutional capacity for environmental management in SVG concluded that the Environmental Services Unit (ESU) of the Ministry of Health and the Environment (MOHE) was best

poised to play the coordinating role in environmental management. Consequently, new framework legislation has been drafted (the draft Environmental Management Act, 2009) which has given a formal mandate for coordination to the Environmental Management Department (a conglomeration of the environmental sub-units of the MOHE, including the ESU) for this role. The draft EMA (2009) has also set out provisions for the establishment of a broad-based National Environmental Commission (NEC) to assist the EMD in its function. Further discussion of the main tenets of this Act can be found in section 2.2.2.2

3.1.2 The Environmental and Biodiversity Coordination Act

A draft Act on Environmental and Biodiversity Coordination was developed in 2006 as part of an OECS effort to develop and harmonize comprehensive biodiversity legislation across the territories. The key objectives sets out in the Act were as follows:

(a) To enable compliance with the obligations of global MEA's including the Convention on Biological Diversity (CDB), the Convention on the international Trade in Endangered Species of Wild Fauna and Flora (CITIES), the SPAW Protocol to the Cartagena Convention, the Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention), and the Convention concerning the Protection of the World Cultural and Natural Heritage (World Heritage Convention).

(b) To provide for the sustainability of biodiversity, culture, livelihoods, heritage, watershed protection and other ecosystem services through an adaptive approach;

(c) To protect wilderness areas;

(d) To facilitate the implementation of the requirements, goals, and aims of applicable international agreements

(e) To assist in the mitigation of natural and anthropogenic disasters; and

(f) To prepare for and respond to the impacts of climate change.

However, this Act was subsumed by the draft Environmental Management Act (2009) and therefore has no legal standing of its own. (See Section 2.2.1)

3.1.2 Multi-sectoral Committees

The Physical Planning Development Board- The Physical Planning Unit performs its duties with the help of the Physical Planning Board; whose members include: The Director of Planning; the Manager of the Development Corporation; the Chief Engineer; the General Manager of the Central Water and Sewerage Authority (CWSA); the General Manager of the St. Vincent and the Grenadines Electricity Services Ltd.; the Commissioner of Police; and 3 persons who are not in the Public Service and appointed by the Cabinet of Ministers. This is the largest multi-sectoral board in SVG and it makes decisions on a range of issues ranging from development control to forward planning (including allocation of Forest Reserves and National Parks). Decisions on EIAs therefore falls directly under the mandate of the Board; making it an important platform for ensuring integration of environmental (including biodiversity) considerations into national physical development decisions.

The National Environmental Advisory Board (NEAB)- The NEAB is a multi-disciplinary, multi-sectoral, statutory body established in by Cabinet 1996 to guide implementation of the National Environmental Management Strategy (NEMS). The Board was also required to advise the Minister on all environmentally-related matters; and to oversee, review and monitor all projects and development activities with environmental considerations. The 11 member Board consisted of the Environmental Services Coordinator (Chairman) and representatives from the following sectors:

- Ministry of Communication and Works,
- Community Development,
- Legal Department,
- Planning Division,
- Forestry,
- Fisheries,
- Agriculture,
- Environmental Health Department,
- National Trust,
- National Youth Council; and

- an NGO representation

Although the NEAB was an important mechanism for improving environmental coordination (integration), its effectiveness was limited by a number of factors. Among these were:

- Slowness of decision-making- the board only met once every 2 months
- Lack of decision-making authority- the board's role was largely advisory
- Inconsistent participation- Many times junior staff (with limited experience or authority) were sent as representatives to attend board meetings.
- Lack of compensation for board members – Members of similar national boards received compensation whereas the NEAB was entirely voluntary

Consequently, the NEAB has been practically defunct for a number of years.

The National Environmental Commission- Provision for the creation of this new multi-sectoral board has been set out in the draft EMA (2009). (Section 2.2.2.2)

3.2.5. Co-management Partnerships

The National Parks and Protected Areas System Plan indicates that the "Government's policy to involve community NGOs and Community Based Organizations (CBOs) will be advanced through co-management arrangements for heritage sites and selected Cultural or Natural Landmarks where appropriate". These arrangements will be formalized through memoranda of understanding (MoUs) made between the NPA and qualified NGOs or CBOs. It further states that private sector participation would be encouraged through incentives to stimulate enterprise development associated with protected areas and heritage sites, and by negotiated concessions to operate in selected sites. Public/private sector partnerships are also expected to be forged in cooperative arrangements to support effective management of important heritage assets.

3.2.6 Professional Networks: Fostering Multi-scale Integration

In the Agricultural Sector, networks have been developed with various organisations that promote sustainable agriculture and plant conservation. The organisations include the Caribbean Agricultural Research and Development Institute (CARDI), the Inter-American Institute for Cooperation on Agriculture (IICA), the U.N. Food and Agriculture Organisation (FAO), CAB International, University of the West Indies (UWI) and the Consultative Group on International Agricultural Research (CGIAR), among others.

Linkages are also facilitated through the Caribbean Agricultural Science and Technology Network System (PROCICARIBE) and its associated thematic networks. PROCICARIBE was set up by CARDI in response to a mandate given by Caribbean Heads of Government to provide an "institutional framework within which Caribbean governments, R&D institutions, the private sector, NGOs, farmer groups and other stakeholders design and implement strategies for the integration and co-ordination of agricultural research and development efforts at both the national and regional levels with linkages to international organisations." The main purpose of the network is to foster "the sustainable development of the Caribbean's agricultural sector while ensuring food security, poverty alleviation and environmental protection". In Fisheries, similar arrangements exist between the Caribbean Regional Fisheries Mechanism (CRFM) and other agencies.

These networks foster the integration of the national, regional and global scale actors involved in shaping sectoral policies and their implementation.

3.2 Integration of biodiversity concerns in sectoral plans and policies

3.2.1 Forestry Sector plans and policies

Various elements of the forest Programme of Work (PoW) have been incorporated into the Forestry Resource Conservation Plan, the Forestry Department Corporate Plan, and the Integrated Forest Management and Development Programme (IFMDP). This incorporation is, however, not by design but because national policies, plans and programmes share a number of common goals with the PoW on Forest Biodiversity.

Priority actions outlined in the Forestry Department Corporate Plan include:

- Maintenance of forest boundaries
- Forest protection
- Wildlife management
- Sustainable utilization of forest resources
- Environmental education

- River bank Stabilization
- Reduction of forest fires through public education, advocacy and involvement of stakeholders

Priority actions outlined under the Integrated Forest Management and Development Programme (IFMDP) includes:

- Development of appropriate policy and legislative framework
- Increasing awareness at all levels of society about the importance of forest conservation
- Implementation of an alternative livelihoods programme for forest farmers
- Promotion of community initiatives to manage forest resources
- Strengthening of the Forestry Department
- Protection of forest biodiversity
- Development of appropriate coordinating mechanism

To address the treats to the St. Vincent Parrot outlined in section 1.2.1.1 , the Forestry Department runs a captive breeding programme at the Nicholls Wildlife Complex housed in the Botanical Gardens. There is also an international consortium (St. Vincent Parrot Conservation Consortium) of persons who acquired St. Vincent Parrots before 1987 when the Wildlife Protection Act came into force. After 1987, it became illegal to acquire these parrots.

3.2.2 Tourism Sector Plans

In response to the economic downturn in the agricultural sector, the Government made a strategic decision to fill the void in the national economy by specifically targeting development of the tourism sector. The government was assisted in its thrust through the European Union funded, Tourism Development Project (TDP). The project sought to diversify the tourism product beyond the traditional sun, sea and sand that is promoted in the Grenadines, towards a more comprehensive one. Recognizing that healthy natural ecosystems are the basis for sustaining the industry, development of a system of national parks and protected areas was seen as the most practical mechanism for addressing the interlinked concerns of tourism, the environment and rural development in an integrated and holistic manner. The TDP therefore aimed to achieve this by:

1. Upgrading and developing infrastructure at 19 designated sites.

2. Developing a National Parks System the components of which are:
    - Building capacity of CBOs to undertake local management of the sites
    - Assisting with the development and strengthening of the recently launched National Parks Authority.
    - Development of an SVG National Parks and Protected Areas System Plan through a collaborative process which includes public participation. (See section 2.3)
    - Development of MoUs between the NPA and the key stakeholders (government, NGOs, and CBOs)
    - Developing the Regulations and Orders for the National Parks Act 2002.
    - Development of a Financing Plan for the SVG National Parks System.
    - Develop a monitoring and auditing system for the NPA
3. Develop and implement a marketing programme for the designated sites

Over the medium term, the government intends to further develop a master plan for tourism development that will encompass issues such as the management and operation of designated sites; protected area; recreational sites; and natural and natural and man-made attractions.

3.2.3 Fisheries Sector Policy[25]

The policy framework for the SVG fisheries sector is based on the expansion of fish production on a sustainable basis to provide a key source of protein for the national population at a competitive price. In order to support increased production of fish, it is essential that the marine environment is adequately protected.

The specific fisheries management objectives are:

- Develop and increase the potential of marine living resources to meet human nutritional needs, as well as social, economic and development goals;
- Ensure that the fishing industry is integrated into the policy- and decision-making process concerning fisheries and coastal zone management;
- Take into account traditional knowledge and interests of local communities, small-scale artisanal fisheries and indigenous people in development and management programmes;

[25] FOA (2002) Information on Fisheries Management in Saint Vincent and the Grenadines. Available [Online] at: http://www.fao.org/fi/oldsite/FCP/en/vct/body.htm

- Maintain or restore populations of marine species at levels that can produce the maximum sustainable yield, as qualified by relevant environmental and economic factors, taking into consideration relationships among species;
- Promote the development and use of selective fishing gear and practices that minimize waste in the catch of target species and minimize by-catch of non-target species;
- Ensure effective monitoring and enforcement with respect to fishing activities;
- Protect and restore endangered marine species;
- Preserve rare or fragile ecosystems, as well as habitats and other ecologically sensitive areas, especially coral reef ecosystems, estuaries, mangroves, seagrass beds and other spawning and nursery areas;
- Promote scientific research with respect to fisheries resources;
- Cooperate with other nations in the management of shared or highly migratory stocks.

3.2.3.1 Management Objectives of the Fisheries Sector Plan for addressing threats to marine biodiversity identified in Chapter 1 [25]

The Over-exploitation of Shallow-shelf and reef-fish resources

Management measures include size and gear limits, close areas and seasons; effort reduction and co-management arrangements. So far, the modification of traps to improve selectivity has not yet been implemented, primarily as a result of declining use of traps. Exploratory fishing for deep-slope demersals and large pelagics are continuing as an initial step in the diversion of effort from the shallow shelf and reef fishery. Management teams have been appointed to manage the Tobago Cays Marine Park. Permission for the use of spear guns is granted only to commercial fishers.

The (Possibly) Underexploited Deep Slope Fish Resource

There are no specific regulations for this fishery except the restriction on mesh size for traps. Joint management with Grenada is seen as necessary since St Vincent and the Grenadines share the banks and shelf area with Grenada. The main management objective of this fishery is to maximize catches within the limits of the potential yield. It was recognized that can be achieved by (1) minimizing illegal foreign fishing; (2) protecting stock from overfishing, by the adoption of appropriate management measures to limit fishing effort, particularly during the spawning season for groupers; and (3) integrating and improving the collection of biological and catch and effort data.

Current government policy is that the St Vincent and the Grenadines Coastguard Services designate 15 sea days to fisheries surveillance and enforcement. Data on catch rates and size frequency are also being routinely collected for a number of grouper and snapper species.

The Moderately exploited Coastal Pelagics

Currently, there is a size restriction on mesh gear, with the use of trammel (tangle) nets prohibited and restriction on the use of ballahoo nets. The management objectives are: (1) to encourage co-management of the fishery; and (2) maintain the artisanal nature of the fishery.

Management measures in place include (1) minimum mesh size for seines (this has already been legislated); (2) expansion of the marine reserve areas; and (3) control of land based pollution and coastal development.

The Over-exploited Lobster Resource

Management objectives have implications for the level and methods of resource utilization and the management of the resources. The general management objectives for the lobster resources are:

(1) *to manage the resource on a sustainable basis* – Resource depletion can be prevented, where it has not already occurred, by controlling fishing effort. This would contribute to the maximization of net national benefit, including maximization of foreign exchange earnings; and

(2) *to rebuild stock in depleted areas* – this could be accomplished by various management measures. Unless fishing pressure is reduced, the viability of the fishery is threatened, and could result in complete loss of foreign exchange earnings, employment and income.

Further potential management measures include:

- enforce more rigorously the existing regulations;
- control land-based pollution and coastal development;
- enforce regulations on illegal fishing;
- evaluate the feasibility of using artificial habitats to rebuild depleted stocks; and
- initiate collection of biological data and improve the collection of catch and effort data.

The Threatened Conch Fishery

The general management objective for the conch fishery is to manage the resource on a sustainable basis, preventing resource depletion – where it has not already occurred – by controlling fishing effort.

Other management measures in place are: (1) more rigorous enforcement of existing regulations; (2) efforts initiated to map the critical habitat of conch to refine estimates of potential yield; (3) expansion of marine protected areas; and (4) support to CITES conservation measures regarding Appendix II. St Vincent and the Grenadines is party to the CITES convention and participates in all CITES meetings. CITES forms are issued for all conch exported from St Vincent and the Grenadines.

Conservation and Sustainable Use of Biodiversity is clearly high on the fisheries sector policy agenda but the ability to achieve these objectives hinges on a multiplicity of factors, including the availability human, financial and technical resources.

3.2.4 Agricultural Sector Policies[26]

Due to the decline in the banana industry, the main policy position of the government has been to "diversify around banana" and to increase production and exports of root crops, fruits and vegetables. The major components of St. Vincent's Agricultural Policy Framework (1997-2006) were as follows:

(i) Export development based on selected commodities including fisheries to generate higher levels of foreign exchange earnings

(ii) Food and nutrition security through the production of selected commodities including fish and fish products. Affordable food prices, self-sufficiency and environmental sustainability

(iii) Import substitution which involves production of special commodities for import replacement, saving foreign exchange, increasing linkages particularly the tourism sector, and development of export-based agro-industries

(iv) Employment creation for the rural population with particular emphasis on the fisheries sub-sector. Protection and preservation of the environment

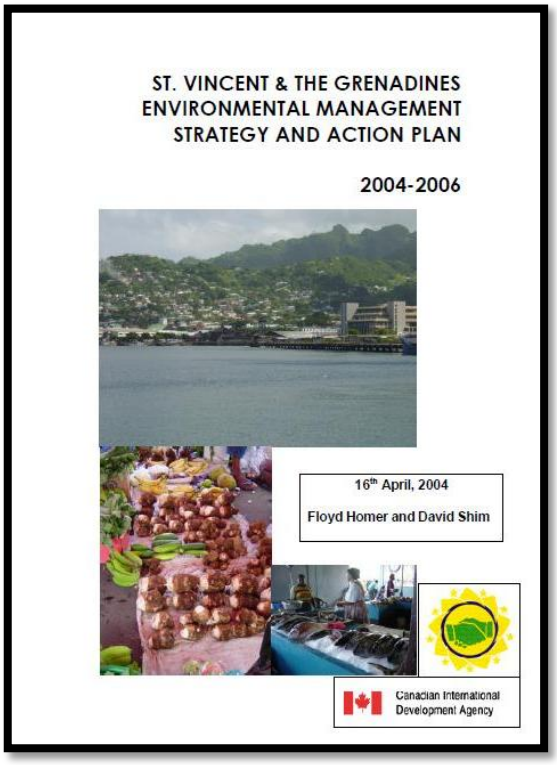
26 Singh, R.H , Rankine, L.B. & Seepersad, G. (2005) A Review of Agricultural Policies: Case Study of St. Vincent and the Grenadines. Dept. Of Agricultural Economics and Extension. University of the West Indies, St. Agustine, Trinidad. Available [Online] at: http://www.caricom.org/jsp/community/agribusiness_forum/agri_policy_st_vincent_grenadines.pdf

Although there is no policy specifically governing plant genetic resources in food and agriculture (PGRFA), the main thrust of the Government has been to "diversify around banana" and to increase production and export of root crops, fruits and vegetables. The goals of management within the crop development programmes, are to meet the challenges of life style diseases (obesity, diabetes, high blood pressure and certain types of cancer), of climate change and the changing tastes of the populace for home grown foods, herbs, spices and herbal medicines. Special efforts are invested into processing and exporting local products from hot pepper (*Capsicum chinense* Jacq.), cassava and herbs.

3.3 Cross-sectoral integration (Biodiversity mainstreaming)

3.3.1The National Environmental Management Strategy and Action Plan (NEMS)

The NEMS was developed in 2004 through a process of district and sectoral consultations and review of key national policies and programmes. The NEMS was intended to guide programmes in environmental management over the long-term, but was designed with an intial 3 year implementation period (2004-2006) in consideration of ongoing funding cycles and public sector investment programmes. The document's structure mirrors that of the St. George's Declaration of Principles for Environmental Sustainability in the OECS (SGD).



The NEMS attempted to address what were regarded as the major hindrances to the effective utilization of most existing national strategies and action plans. The first was that these strategies and plans were not integrated into the work programmes of existing institutions; and the second, the prevailing misconception they added strain on the human, financial and material resources of these agencies for their implementation. To correct this, "approximately 80% of the activities in the NEMS came from the operational plans the Government agencies which have a mandates that affect environmental management, taking into consideration approved annual budget estimates. These agencies were expected to adopt the relevant sections of the NEMS into their workplans, then at the end of the initial period, review progress and plan for the next 3-year cycle; in keeping with adaptive management.

Nevertheless, the NEMS implementation has been less then desirable and the document has not been updated since 2004.

3.3.2 The Interim Poverty Reduction Strategy Paper

The Poverty Reduction Strategy Paper (PRSP) is intended to be the blue print for developing policies and programmes to address key elements of Poverty Reduction in the short, medium, and long term. Specific mention of Biodiversity is not made in St. Vincent's Interim Poverty Reduction Strategy Paper.

However, it does recognize that environmental sustainability is "a critical component of poverty reduction strategies" and highlights the nexus between environment and poverty alleviation. It also acknowledges that despite "the progress made over the last decade in strengthening the policy and institutional arrangements for natural resource planning and management at the national and regional level, the environment in the region is still gravely at risk." (p.37).

The IPRSP further notes that:

"SVG must put in place policies that ensure close regional cooperation and collaboration in developing environmental policies. In addition, policies that support education, sensitisation and strict enforcement of environmental contraventions need to be urgently effected. Such policies will include land and sand use management; solid waste management; "cleaner and more energy efficient and environmentally desirable technologies, systems and methods". All sectors of civil society must be involved in the understanding and fulfilment of their responsibilities in maintaining environmental quality and sustainability". (p.37)

Specifically in relation to the policy on job-creation and livelihood security in the agricultural sector, a strategy on implementation of soil and water conservation measures and management of marine resources is also proposed in the document. Further, with regards to supporting job creation in the tourism sector, there is mention of the need for public education programs and training in and out of schools on, among other things, environmental protection. Despite the general recognition of the importance of environmental sustainability in the document, "the environment" is not part of the "recommended strategic programmes" on Agriculture, or any other sector. This may have been an oversight in the design of the document.

Another related issue addressed in the IPRSP is the need for strengthening data collection and management "so that policies and programmes could be guided by accurate and objective data". It notes that "it is imperative that systems be in place to increase and ensure sound capacity for improved data generation and analysis", and recommends that "*a Monitoring and Coordinating Unit be established in order to operationalize the recommendations of the I-PRSP and to develop the parameters of actions that would comprise the full PRSP that should be completed by 2004".* (p.39) Such a Unit should no-doubt, be able to assess progress in implementation of the environmentally related recommendations of the PRSP and would, perhaps, serve a vital function in achieving environmental mainstreaming.

3.3.3 The (draft) National Economic and Social Development Plan (NESDP)

The NESDP is intended to be the primary document that will guide economic and social development in St. Vincent and the Grenadines between 2010 and 2020. The plan was developed in a bottom-up fashion wherein a wide-reaching series of consultations were held to solicit the views of nationals living both within the State and throughout the Diaspora on their "vision 20202; that is, what they would like the country to be like in 10 years time. The resulting plan consists of 5 goals and accompanying objectives and strategies. Of particular relevance is goal four (4): Improving Physical infrastructure, preserving the environment and mitigating the impact of climate change. Objectives 4.4, 4.5 and 4.6 especially address issues that are relevant to the UNCBD. The details of these Objectives and their associated strategies are outlined in table 3.1.

By far the NESDP is perhaps the most comprehensive strategy that can act as an instrument of cross-sectoral integration of biodiversity in St. Vincent and the Grenadines.

Table 3.1 Biodiversity-related objectives and strategies of the SVG 2010-2020 NESDP

Objective	Strategic Interventions
4.4 To conserve the natural resources of the country through effective utilization and management.	4.4.1 Develop appropriate measures to protect and restore the rich natural resources of the country. 4.4.2 Develop alternative and sustainable livelihood programmes for local communities in protected areas. 4.4.3 Develop and employ methodologies for the economic assessment and accounting of natural resources.
4.5 To preserve or effectively manage the biological resources.	4.5.1 Manage and restore where possible the biological diversity. 4.5.2 Develop and implement an Integrated Watershed management plan. 4.5.3 Develop and implement a Coastal Area Management Plan. 4.5.4 Adopt measures to restore environmentally degraded areas. 4.5.5 Strengthen the capacity of non-governmental organisations in environmental management. 4.5.6 Strengthen the existing legal and institutional frameworks to discourage environmental degradation. 4.5.7 Generate and maintain wildlife buffer stock for reintroduction into their natural habitat. 4.5.7 Develop research on biological resources, their management and their intrinsic socio-economic and cultural values.

Objective	Strategic Interventions
4.6 To ensure a clean, safe and healthy environment.	4.6.1 Adopt and implement appropriate measures to adequately manage solid and liquid waste, including hazardous waste, and atmospheric pollutants. 4.6.2 Develop a sustainable waste management system. 4.6.3 Manage terrestrial, marine and atmospheric resources, organisms and eco-systems in a sustainable manner. 4.6.4 Encourage the adherence to SVG's commitment under Multilateral Environmental Agreements (MEAs). 4.6.5 Enhance the capacity at the ministry responsible for the environment as well as NGOs in environmental protection and management. 4.6.6 Develop fiscal and other policy incentives to encourage environmentally sustainable imports and the use of local products with low waste degradable content.

3.3.4 The (draft) National Physical Development Plan (NPDP)

A draft National Physical Development Plan was prepared in 2001 by the Ministry of Finance and Economic Planning.. It was intended to outline a set of appropriate policies and strategies that would promote sustainable integrated national development through judicious spatial planning. Some of the key provisions related to the protection of biodiversity articulated in the draft plan include:

- Facilitation of poverty alleviation initiatives;
- Conservation and protection of the country's natural resources;
- Promotion of order in the settlement pattern in the country;
- Promotion of satisfactory standards in the built environment;
- Development of an efficient system of transportation and public utilities;
- Allocation of land and infrastructure for adequate housing;
- Guarantee of an equitable distribution of community social facilities.

However, this plan is yet to be completed. Furthermore, because of the changes in circumstances that have taken place since the preparation of the original draft, the plan is also in significant need of updating.

3.4 Integration of Biodiversity in EIAs and SEAs

The Town and Country Planning Act, 1992 provides a mechanism for consideration to be given to environmental consequences of national projects, by requiring EIAs required for projects likely to have adverse effects on the environment. EIAs are also required for Government projects with external funding. The Act gives the Physical Planning and Development Board the authority to require EIAs for projects likely to cause pollution or have adverse effects on the environment. Nonetheless, EIA requirements in the Town and Country Planning Act do not guarantee adequate consideration of environmental impacts of development projects and current actions to minimize adverse impacts on biodiversity are inadequate. Efforts should be made to apply the Guidelines for Incorporating Biodiversity-related Issues into EIA legislation or Processes and in Strategic Impact Assessment, as contained in the annex to decision VI/7.

The EMA (2009) outlines the requirement for some plans, policies and programmes likely to have a significant impact on the environment to undergo Strategic Environmental [Analysis] Assessment upon recommendation by the Director of the EMD. But the specific requirements are not outlined in this act.

The application of strategic environmental assessment would ensure that implementation of the different sectoral and cross-sectoral plans have minimal adverse impacts on biodiversity and better contribute to the objectives of the convention. It would be easier to identify perverse incentives and to spot opportunities for more win-win strategies.

3.4 The Effectiveness of Mainstreaming [27]

The purpose of mainstreaming is to generate a "better understanding of the capabilities of environmental assets, the consequences of environmental hazards and the real or potential impacts of development on the environment" (CANARI, 2008) [28]. The hope is that this new understanding would lead to better decision-making. Consequently, the mere existence of policies that have in one way or another incorporated biodiversity or wider environmental considerations are not in themselves indicatives of the effectiveness of mainstreaming in St. Vincent and the Grenadines. More often than not, many plan and policies are not widely utilized by all the key agencies in their planning and decision making. There is still widespread concern among environmental professionals that the environment is still somewhat of an after-thought and that the consequences for biodiversity are still steeply rising. Furthermore, the lack of sustained funding and resources to support implementation of the plans makes it extremely difficult to coordinate and enforce the requirements for the protection of habitat areas which support important biodiversity components.

3.5. The Way Forward: Enhancing Cross-Sectoral Integration (Mainstreaming) of Biodiversity in SVG

3.5.1Sensitize key decision-makers/ policy-makers

There is a need to promote greater understanding and awareness of the ecosystem services that biodiversity provides. As outlined in section 2.6.3, a clearly defined communication, education and public awareness strategy must be developed and implemented. Champions for conservation must be identified both within government and civil society, and used as mouth-pieces for biodiversity issues.

Other tools/ strategies which should be more effectively utilized to encourage better decision-making regarding biodiversity conservation and sustainable use include[28]:

- Payment for Ecosystem Services and other economic incentives

27 These sentiments were shared by stakeholders at the national consultation on the 4th National Report.

28 CARDI (2008) User Guide to Effective Tools and Methods for Integrating Environment and Development: Findings of a recent CANARI/IIED Project. Presentation to regional CBD NBSAP/CEPA workshop. Regional and Sectoral Perspectives on mainstreaming session. Trinidad, 2 November, 2008. Available [Online] at: www.cbd.int/doc/nbsap/nbsapcbw-car.../nbsapcbw-car-01-**canari**-01-en.pdf

- Involving key stakeholders in all aspects and at all stages of environmental mainstreaming. This involves: stakeholder analysis; participatory mapping; collective or community visioning; conflict management; facilitating effective multi-stakeholder processes; participatory policy processes; partnership building; strategic alliances; stakeholder mobilisation.

- Lobbying, advocacy by environmental NGOs
- Multi-agency committees/interagency collaboration
- Data-sharing and accessibility protocols, databases

By implementing these tools in a more coordinated and systematic manner, more effective mainstreaming is likely to take place.

3.5.2 Link the NBSAP process more closely to the National Planning Cycle

The NBSAP should not be a static document, but rather should by continually revised and updated as more information about threats and trends in biodiversity are understood. Revisions should therefore be tied to other national planning cycles so that the changes could be more effectively integrated into other sectoral and cross-sectoral plans and policies.

Many stakeholders are desperate to find out how they could better "tap-in" to the national planning and decision-making process at the most appropriate stages [29]. The National Capacity Self Assessment identified that "the absence of a policy manual at the departmental level that can serve as an easy reference to guide operations within a department, between departments and between departments and third parties" is a major constraint in this regard. Such a document is greatly needed as it would "lead to consistency, clarity and accountability in programme delivery" and would identify greater opportunities for collaboration between agencies.

3.5.3 Adopt the Ecosystem Approach

The COP describes the ecosystem approach is the primary framework for action under the Convention. It is a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way. Thus, the application of the ecosystem approach

[29] This is a view that was repeatedly expressed by stakeholders at the national workshop on the fourth national report. Many persons were concerned that their many of their proposed plans do not gain approval or allocated sufficient budget and they are not given appropriate advice on how they should improve their plans to make them more viable within the national planning system. Other concerns had to do with the levels of stakeholder involvement in land-use planning decisions.

will help to reach a balance of the three objectives of the Convention: conservation; sustainable use; and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources. 30

Although all OECS countries have committed to adopting the ecosystem approach in the form of *Island Systems Management* 31, as outlined in the St. Georges Declaration of Principles for Environmental sustainability; none of the current national plans nor policies in St. Vincent have adopted an ecosystem approach 32. This should therefore be a top priority. Box 3.0 lists the 12 principles of the Ecosystem Approach as outlined by the CBD.

3.5.4 More comprehensively address biodiversity in the Poverty Reduction Strategy Paper

Currently, although general recognition is given to the importance of environmental management to poverty alleviation, none of the recommended strategic programmes specifically address environmental or biodiversity conservation. As St. Vincent moves towards from an I-PRSP towards a full Poverty Reduction Strategy paper; it is critical that biodiversity conservation and sustainable usage be more explicitly addressed in this key policy document. Clearer linkages between biodiversity and MDG targets should be stated.

30 The CBD. The Ecosystem Approach. Available [Online] at: http://www.cbd.int/ecosystem/

31 The SGD defines Island Systems Management as "An integrated process of information gathering, planning, decision-making, allocation of resources, actions and formulation and enforcement of regulations related to the linkages in small island states between ecological systems and between these systems and human activities and incorporates terrestrial, aquatic and atmospheric environments" (p.29).

32 Note, however, that in 2002, with funding from the FAO, the Fisheries sector in St. Vincent became involved in the Lesser Antilles Pelagic Ecosystem (LAPE) project which was a regional project, promoting the cross-border application of the ecosystem approach. Its main purpose was to improve fisheries resource management in the Lesser Antilles region by balancing economic and ecological concerns and promoting sustainable use within Exclusive Economic Zones (EEZs).

Box 3.0 : The 12 Principles of the Ecosystem Approach

1. The objectives of management of land, water and living resources are a matter of societal choice.
2. Management should be decentralized to the lowest appropriate level.
3. Ecosystem managers should consider the effects (actual or potential) of their activities on adjacent and other ecosystems.
4. Recognizing potential gains from management, there is usually a need to understand and manage the ecosystem in an economic context. Any such ecosystem-management programme should:

   (a) Reduce those market distortions that adversely affect biological diversity;

   (b) Align incentives to promote biodiversity conservation and sustainable use;

   c) Internalize costs and benefits in the given ecosystem to the extent feasible.

5. Conservation of ecosystem structure and functioning, in order to maintain ecosystem services, should be a priority target of the ecosystem approach.
6. Ecosystems must be managed within the limits of their functioning.
7. The ecosystem approach should be undertaken at the appropriate spatial and temporal scales.
8. Recognizing the varying temporal scales and lag-effects that characterize ecosystem processes, objectives for ecosystem management should be set for the long term.
9. Management must recognize that change is inevitable.
10. The ecosystem approach should seek the appropriate balance between, and integration of, conservation and use of biological diversity.
11. The ecosystem approach should consider all forms of relevant information, including scientific and indigenous and local knowledge, innovations and practices.
12. The ecosystem approach should involve all relevant sectors of society and scientific disciplines.

Chapter 4: Conclusions: Progress Towards the 2010 Target and Implementation of the Strategic Plan

This chapter draws on the findings of the previous chapters in order to assess how actions taken to implement the Convention at the national level have contributed towards achieving the 2010 target and the goals and objectives of the Strategic Plan of the Convention. It outlines the obstacles encountered along the way as well as the future priorities and capacity building needs. The chapter rounds up with general recommendations for actions that should be taken at the global level to enhance St. Vincent's ability to implement the Convention.

4.1 Progress towards the 2010 Target

In 2002, at its sixth meeting, the Conference of the Parties to the Convention on Biological Diversity committed themselves to a more effective and coherent implementation of the CBD, to achieve by 2010 a significant reduction of the current rate of biodiversity loss at the global, regional and national levels as a contribution to poverty alleviation and to the benefit of all life on earth (decision VI/26).

At its seventh meeting, it went further by adopting Decision VII/30 which is a framework for assessment and communication of progress towards the 2010 target. Its purpose is to promote coherence among the programmes of work of the Convention; and to provide a flexible framework within which national and regional targets may be set, and indicators identified.

In addition, COP VIII (Decision VIII/15) provided a provisional framework of goals, targets and indicators to facilitate parties to consistently and coherently assess progress towards the 2010 targets. Table 4.0 outlines the progress St. Vincent has made relevant to these targets.

4.1.1 National Targets and Indicators for Measuring Progress

St. Vincent has not established any national targets and the global targets have not been explicitly incorporated into the relevant sectoral nor cross-sectoral strategies, plans and programmes. Furthermore, the NBSAP does not contain any national indicators to specifically measure progress towards the 2010 target. Consequently, progress could only be assessed by looking at what the various sectors have achieved, that in one way or another, contributes to achieving the goals of the Convention.

Section 2.2 provides the details of these activities whilst table 2.2 is a summary of the progress toward implementing the NBSAP (the national mechanism for implementation of the Convention).

4.1.2 Obstacles Encountered

- Capacity constraints; particularly with respect to the technology and institutional capacity to undertake monitoring and research
- Attitudes towards the environment: lack of sensitivity towards the importance of biological diversity to human well-being
- Poverty and population pressures are undermining the effectiveness of environmental interventions and the associated challenges of balancing development with environmental protection.
- Weak enforcement of regulations
- Insufficient integration of biodiversity considerations in planning and decision-making processes
- Lack of awareness of the NBSAP among key stakeholders
- Absence of an integrated CEPA strategy, an overall lack of human, financial and technical capacity and inadequate regard for the importance of CEPA activities.

Sections 2.4 and 2.5 explain these problems in further detail.

Goals and targets	Global Indicators	Progress (scale: 0-5)	Justification
Protect the components of biodiversity			
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.	• Coverage of protected areas • Trends in extent of selected biomes, ecosystems and habitats • Trends in abundance and distribution of selected species	✡ ✡ ✡	Baseline environmental surveys, development of a Protected Areas System Plan, an ecological gap analysis, inter alia were carried out to improve coverage and management effectiveness of protected areas. However, the absence of systematic monitoring makes it difficult to assess trends in abundance of more than a few species. See Section 2.3
Target 1.2: Areas of particular importance to biodiversity protected	• Trends in extent of selected biomes, ecosystems and habitats • Trends in abundance and distribution of selected species • Coverage of protected areas		
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.	• Trends in abundance and distribution of selected species • Change in status of threatened species	✡ ✡	Increases have been seen in both captive and wild population of the endemic parrot *Amazona guildingii*. Population in wild considered stable to increasing with an estimate of just over 700 parrots. There is a general lack of scientific information on the status of other threatened species, but anecdotal evidence suggests that the population of other species may be declining. These include seas turtles, which are considered severely over exploited in the Western Atlantic as a whole; lobster, conch and commercial species of shallow-shelf and reef fish, which are considered over-exploited in near-shore areas.
Target 2.2: Status of threatened species improved.	• Change in status of threatened species • Trends in abundance and distribution of selected species • Coverage of protected areas		

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.	• Trends in genetic diversity of domesticated animals, cultivated plants, and fish species of major socio-economic importance • *Biodiversity used in food and medicine (indicator under development)* Trends in abundance and distribution of selected species	✡ ✡ ✡	The Ministry of Agriculture and various research institutes have been involved in several germplasm plots that conserve species important to agricultural diversity. *Ex Situ* Conservation is taking place at the Taiwanese Mission and at the Ministry of Agriculture's Agricultural Station at Orange Hill. See Sections 1.3 and 3.2.4
Promote sustainable use			
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.	• Area of forest, agricultural and aquaculture ecosystems under sustainable management • *Proportion of products derived from sustainable sources (indicator under development)* • Trends in abundance and distribution of selected species • Marine trophic index • Nitrogen deposition • Water quality in aquatic ecosystems		There is currently no available information on the productive area under sustainable management. The water quality analyses currently undertaken are focused on fitness for human consumption (sanitary parameters at abstraction points) rather than indicators of aquatic ecosystem health.
Target 4.2. Unsustainable consumption, of biological resources, or that impacts upon biodiversity, reduced.	• Ecological footprint and related concepts		Unsustainable consumption of some marine species (e.g grouper) is a problem. (Section 1.4.1) In terms of terrestrial species, there are open and closed hunting seasons, but there is some evidence that adjustments to the season may need to be made due to observed changes in population behaviors.

Target 4.3: No species of wild flora or fauna endangered by international trade.	• Change in status of threatened species		The St. Vincent Parrot is listed as an Article 1 species under CITES. In the past poaching and smuggling of the bird's eggs was a problem, which is likely to increase due to proposed plans for development within the parrot habitat (See Section 1.2). CITES forms are also issued for all conch exported from St. Vincent and the Grenadines (See Section 3.2.3) Apart from the strict procedures that must be followed for species listed under CITES, trade in other species is monitored through trade licences and mandatory inspections of all imports and exports of terrestrial and marine species. However, due to the archipelagic nature of the country, opportunities for smuggling of species for the illegal pet trade, food industry and other uses are prevalent. Public education and patrols are ongoing as means of solving the problem of illegal trade.
Address threats to biodiversity			
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.	• Trends in extent of selected biomes, ecosystems and habitats • Trends in abundance and distribution of selected species Marine trophic index		The rate of loss of and degradation of natural habitats is thought to be increasing across the board. See figure 1.4 in section 1.6

Goal 6. Control threats from invasive alien species			
Target 6.1. Pathways for major potential alien invasive species controlled.	• Trends in invasive alien species		The threat of invasive alien species is ever-increasing. The trend is particularly noticeable in the agricultural sector where exotic pathogens have cause many problems in recent times. See section 1.3.3 The Marine pathways remain open (e.g. threat of the Lion Fish) and requires transboundary cooperation.
Target 6. 2. Management plans in place for major alien species that threaten ecosystems, habitats or species.	• Trends in invasive alien species		
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.	• Connectivity/fragmentation of ecosystems	✡	Ecosystems are still heavily threatened by fragmentation. However, the sites identified as part of the System of Parks and Protected Areas aims to enhance the resilience to climate change of the important ecosystems represented within the network. See Section 2.3 There is no research, monitoring or implementation of specific measures in land-use and coastal zone planning and strategies to strengthen local-level biodiversity resilience to climate change (Goal 3 PoW island biodiversity)

Target 7.2. Reduce pollution and its impacts on biodiversity.	• Nitrogen deposition • Water quality in aquatic ecosystems		Little work has been done with regards to actually reducing pollution due to capacity constraints. However, new pollution regulations have been developed which set the legal and institutional framework for greater pollution prevention and control. See sections 2.2.1 and 2.2.2
Maintain goods and services from biodiversity to support human well-being			
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.	• *Biodiversity used in food and medicine (indicator under development)* • Water quality in aquatic ecosystems • Marine trophic index • Incidence of Human-induced ecosystem failure	☼ ☼ (NOTE: Not able to measure recommended indicators)	A ban has been introduced on the sale of small pelagic fish to foreign vessels to ensure the availability of these fish to local markets (and to protect fishing livelihoods. (See section 2.2.8) The Fisheries Division implements a programme for the strengthening of fishers organisations to ensure sustainability of the industry. The Dept recently introduced a network of fish aggregating devices (FADs) to improve fish catch, whilst at the same time reducing harvesting pressure on over-exploited near-shore areas. They have also been promoting the development and use of selective fishing gear that minimize by-catch. The Sustainable Grenadines project and the OPAAL project continue to provide opportunities for the sustainable use of biodiversity in pursuit of poverty alleviation in the Southern Grenadines by promoting sustainable tourism and resource management (including sea-moss farming). The Ministry of Tourism promotes ecotourism activities such as annual training programmes for tour guides who work in areas rich in biodiversity (e.g. the Botanical Gardens and the Vermont Nature Trails).
Target 8.2. Biological resources that support sustainable livelihoods, local food security and health care, especially of poor people maintained.	• Health and well-being of communities who depend directly on local ecosystem goods and services • *Biodiversity used in food and medicine*		

Protect traditional knowledge, innovations and practices			
Goal 9 Maintain socio-cultural diversity of indigenous and local communities			
Target 9.1. Protect traditional knowledge, innovations and practices.	• Status and trends of linguistic diversity and numbers of speakers of indigenous languages • *Additional indicators to be developed*	☼ ☼	One of the objectives of the Fisheries Management Plan is to "Take into account traditional knowledge and interests of local communities, small-scale artisanal fishers and indigenous people in development and management programmes." The target has also been incorporated into the Fisheries corporate, operational and work plans, particularly under co-management programmes to maintain, upgrade and safe guard through legislation and appropriate projects various marine related indigenous practices. These practices include those of the Bequia whaling community (under aboriginal subsistence regulations stipulated in the International Convention for the Regulation of Whaling), the Blackfish whalers of Barrouallie and the beach seine fishers throughout the country.
Target 9.2. Protect the rights of indigenous and local communities over their traditional knowledge, innovations and practices, including their rights to benefit-sharing.	*Indicator to be developed*		
Ensure the fair and equitable sharing of benefits arising out of the use of genetic resources			
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.	*Indicator to be developed*	☼	The work by the Ministry of Agriculture on Germplasm has improved farmers' access to unique local varieties of plants. Section 1.3 and 3.2.4

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 on Biological Diversity and its relevant provisions	*Indicator to be developed*		General Government policy supports this target but no specific programmes have been put in place to address it.
Ensure provision of adequate resources			
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.	• Official development assistance provided in support of the Convention		Much more financial assistance is needed to enhance implementation of the Convention.
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.	*Indicator to be developed*		

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.

1.4: The Cartagena Protocol on Biosafety is being implemented in St. Vincent and the Grenadines

1.5: Biodiversity concerns are integrated into St. Georges Declaration of Principles for Environmental Sustainability in the OECS which is intended to set the policy framework for sustainable development in the OECS.

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

2.1: It is clear that St. Vincent has serious capacity constraints with regards to implementation of the priority actions outlined in the NBSAP. Deficiencies are greatest in the areas of biodiversity monitoring and data management; as well as tangible interventions / conservation projects on the ground.

2.2: As a Small Island Developing State, St. Vincent and the Grenadines does not have sufficient resources available to implement the three objectives of the Convention. There has been very limited Overseas Development Assistance received specifically for biodiversity conservation (besides some assistance for Protected Areas through the EU Tourism Development Project and various analyses by The Nature Conservancy).

2.3: Despite being a SIDS, St. Vincent and the Grenadines has not seen an increase in resources and technology transfer available to implement the Cartagena Protocol on Biosafety.

2.5: Technical and Scientific Cooperation is not making a significant contribution to building capacity.

Goal 3. 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.

3.1: Although St. Vincent and the Grenadines has an NBSAP, its effectiveness has thus far been minimal. The main problems with the NBSAP identified in section 2.5 were as follow:

- Capacity Constraints

- Inadequate financing for activities outlined in the NBSAP
- Perverse attitudes towards the environment (and biodiversity) by the public and decision-makers
- Low awareness of NBSAP and implementation responsibilities among key stakeholders
- No formal system for monitoring, evaluation and reporting on NBSAP implementation

3.2: St. Vincent and the Grenadines has a (draft) biosafety framework but this has not yet been given effect under law

3.3: Various sectoral plans/ policies in the Forestry, Tourism, Fisheries and Agricultural Sectors address various aspects of biodiversity concerns (Section 3.1). On the other hand In terms of cross-sectoral plans, programmes and policies, specific mention of biodiversity is less pervasive. Instead, biodiversity concerns are blanketed under more the more general category of "the environment". Nonetheless, the National Economic and Social Development Plan- the primary document that will guide economic and social development in St. Vincent and the Grenadines between 2010-2020; does specifically address biodiversity concerns of relevance to the Convention (See section 3.3.3.). However, it is important to note that many national plans tend to be underutilized and so the mere inclusion of biodiversity into plans and policies does not seem to serve as an accurate indicator of whether or not biodiversity is indeed becoming "mainstream" in decision-making. Much anecdotal evidence suggests that the current situation is still far from this ideal.

3.4: The priorities outlined in the NBSAP are not being actively implemented in a systematic manner as a means to achieve national implementation of the Convention. Instead, ad hoc activities undertaken through various agencies have been contributing somewhat haphazardly to achievement of the NBSAP priorities.

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

4.1: The development of a well defined communication, education and public awareness strategy is still desperately needed in St. Vincent and the Grenadines. Low awareness /

sensitivity towards the importance of biodiversity both by the general public and decision-makers across the various sectors remains a major obstacle to successful implementation of the Convention. Biodiversity issues are still yet to be included in the public school curricula.

4.2: There is an on-going public awareness and education programme on Biosafety. But there are no indicators to measure its effectiveness.

4.4 Conclusions

4.4.1 The effect of the UNCBD on Biodiversity Management in St. Vincent

The UNCBD has been an important international instrument for raising awareness of the significance of biodiversity to human wellbeing. By becoming a signatory to the Convention, the government of St. Vincent demonstrated its commitment to the conservation of biological diversity, sustainable use of its components and the fair and equitable sharing of benefits arising from genetic resources. The development of the National Biodiversity Strategy and Action Plan in 2000 was intended to be a significant step in this direction by providing a clearly defined framework for national implementation of the Convention.

Nonetheless, resource and capacity constraints have meant that implementation of the St. Vincent and the Grenadines NBSAP has been far from ideal. Most of the specific activities outlined under each of the priority area of the NBSAP have gone undone, and the NBSAP does not routinely inform planning in key sectors. Although some progress has been made through one-off initiatives undertaken by the various sectoral agencies, the absence of a systematic monitoring and evaluation system makes it difficult to determine the actual effectiveness of any of these initiatives. By extension, it is even more difficult to accurately access the progress made towards achieving the goals, objectives and strategic plans of the convention.

4.4.2 Lessons Learnt and Future Priorities

- The absence of a defined monitoring and evaluation protocol for assessing implementation of the Convention and the failure to incorporate measurable national or global targets and indicators into the NBSAP and other national policies has made it exceedingly difficult to track

progress towards meeting national and global targets. This is a serious deficiency which must be corrected to improve implementation. 33

- An effective biodiversity clearing house mechanism is needed to improve information management. It would improve access by both governmental and non-governmental stakeholders to information on the status of biodiversity and on actions being undertaken by different agencies. This could foster more collaboration and greater synergies.
- There is an urgent need for establishment of ecological baselines. After ecological baselines have been established, there is need for standardized monitoring of biodiversity. Biodiversity monitoring and inventorying can be improved through the formation of strategic alliances with regional universities and research institutions. St. Vincent has benefited from research work done by the UWI CERMES and stakeholders strongly recommend that stronger linkages be made between the government and this institution to improve understanding of the status of local biodiversity.
- Updating of the NBSAP is an urgent priority. The updated NBSAP should have clear national goals and targets and should incorporate the ecosystem approach.
- Poverty remains a significant challenge to biodiversity protection. Clearer linkages between poverty alleviation and biodiversity need to be communicated. Special emphasis should be placed on demonstrating how biodiversity conservation contributes towards achievement of the MDGs so that biodiversity and environmental management can be better integrated into development planning and decision-making34.
- Much progress has been made towards the establishment of a stronger legal and institutional framework for improved environmental management. However, these efforts could be futile unless the draft legislations are passed by Parliament in a timely fashion.
- Many stakeholders are desperate to find out how they could better "tap-in" to the national planning and decision-making process at the most appropriate stages. A policy manual at the departmental level to serve as an "easy reference guide" to operations within departments, between departments, and between departments and third parties is greatly needed as it would "lead to consistency, clarity and accountability in programme delivery" and would identify greater opportunities for collaboration between agencies.

- 33 It should be noted that some of the global indicators which have been developed are not readily measurable in a SIDS context where there are severe resource constraints.

34 As St. Vincent moves towards from an I-PRSP towards a full Poverty Reduction Strategy paper; it is critical that biodiversity conservation and sustainable usage be more explicitly addressed in this key policy document.

- The lack of dedicated sources of sustainable financing for implementation of the Convention has resulted in ad hoc implementation. Clearer sources of financing must be identified to improve implementation. Assistance in terms of funding for concrete (pilot) conservation actions on the ground is of highest priority in order to support evidence-based policy generation.

4.5 Recommendations

4.5.1 Actions to be taken at the regional and global levels to further enhance implementation of the Convention at the national level

Small island states characteristically face severe human resource shortages, particularly in technical and scientific fields. Consequently, much more regional cooperation in terms of resource-sharing and research are needed to improve local capacity to monitor biodiversity and to implement conservation actions. Cooperation on a regional level is especially necessary for addressing the threats to marine biodiversity and the introductions of alien invasive species. More active participation of international NGOs with offices throughout the Latin American and Caribbean Region would be instrumental in this regard.

Perhaps the biggest global threat to biodiversity in SIDs is climate change. Hence, much more funding should be made available for SIDS to implement action research to determine the impacts and benefits of biodiversity conservation to improving resilience to global climate change. Greater synergies should be exploited between the UNFCCC and the UNCBD in order to increase the availability of resources at the national level to undertake biodiversity-related adaptation.

Furthermore, sustainable and dedicated sources of financing should also be made available for implementation of more concrete conservation actions on the ground, rather than the multiplicity of studies of the institutional framework and legal structures, which in the past have taken precedence.

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Appendix 1

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SUBMISSION	
Signature of officer responsible for submitting national report	
Date of submission	

B. Process of Preparation of National Report

This 4th National Biodiversity Report is based largely on the work undertaken by the various government agencies in addressing the implementing National Biodiversity Strategy & Action Plan. Literature review of documents made available by the National Parks Authority, Departments of Agriculture, Forestry & Fisheries, Department of Planning, Ministry of Health & the Environment Central Water & Sewerage Authority, Windward Island Farmers Association (WINFA), private sector, and the NGO community was a major source of information. Consultations were also held with senior personnel and other key resource persons in these institutions. The interviews were geared towards assessing their perceptions regarding the constraints and successes in implementation of particular strategies or actions contained in the NBSAP.

A national workshop on the fourth national report was also convened to assess cross-sectoral integration of biodiversity and to ascertain which activities currently undertaken by various agencies have, in one way or another, contributed towards addressing the priorities outlined in the NBSAP. It was also an opportunity for stakeholders to assess progress and to make recommendations about the way forward towards more effective implementation of the Convention.

Limitations and Constraints

Many deficiencies were encountered in the quality and quantity of data. There is an absence of internal structure within the government agencies for continuous data collection, storage and analysis. In a number of cases the storage of data such as in narrative reports is neither systematic nor orderly. This resulted in much time being lost in gathering information for preparing the report.

Appendix 2: Progress towards the Programme of Work on Protected Areas

Goal, Target		**Deadline**	**Assessment criteria and key evaluation questions**	**Description of progress and main obstacles**	**Information Sources**
Number	Description				
1.1	Establishment and maintenance by 2010 …	2010 2012	• National (regional) definition of each of the terms comprehensive, ecologically representative and effectively managed developed. • National (regional) gap analysis undertaken by 2006 (activity 1.1.5) • National (regional) plan (map) for a comprehensive and effectively managed protected area network established (identification) by 2006. • National (regional) progress report on designation (inc. map) by 2008 • Mechanisms for assessing management effectiveness established by 2010	• Ecological Gap analysis Report prepared in 2007 • SVG National Parks and Protected Areas System Plan prepared in 2009 and forwarded to Cabinet for review and adoption.	National reports, UNEP-WCMC, IUCN WCPA, regional organizations, Sustainable Finance Plan for St. Vincent and the Grenadines' Protected Areas System, 2007 Ecological Gap analysis Report , 2007 Final Draft of SVG National Parks and Protected Areas System Plan prepared, 2009

Goal, Target		Deadline	Assessment criteria and key evaluation questions	Description of progress and main obstacles	Information Sources
Number	Description				
1.2	Integration into the wider landscape and other sectors, connectivity	2015	Measures taken on, and progress made towards integration into the wider landscape, connectivity and integration with other sectors	GIS data sets developed as a result of the Ecological gap analysis were used to develop the National Protected Areas data base The SVG National Parks and Protected Areas System Plan was used to inform the National Parks Authority 2010 work programme	National reports
1.3	Establish and strengthen regional networks and transboundary protected areas	2010/12	Measures taken for the establishment of regional networks and transboundary protected areas. Number or percentage of protected areas that are integrated into a regional network. Number and location of transboundary protected areas.		National reports, regional organizations

Goal, Target		Deadline	Assessment criteria and key evaluation questions	Description of progress and main obstacles	Information Sources
Number	Description				
1.4	Effective management of all protected areas.	2008	See goal 1.1	Management Plan prepared for 2 Protected Areas: Tobago Cays Marine Parks and the Kings Hill Forest Reserve Limited human and financial resources to adequately prepare other management plan for other protected areas Limited data collection and analysis of protected areas and absence of monitoring tool for proper evaluation.	National reports Kings Hill Reserve Management Plan Tobago Cays Marine Parks Management Plan Sustainable Finance Plan for St. Vincent and the Grenadines' Protected Areas System, 2007 Ecological Gap analysis Report , 2007
1.5	Prevent and mitigate key threats	2008	Effective mechanisms to identify and prevent key threats in place (prerequisite to achieve effective management – see goal 1.1)	OECS PERB funded projects: Draft EIA regulation Draft National Parks Regulation Draft Forestry Regulations	National reports

Goal, Target		Deadline	Assessment criteria and key evaluation questions	Description of progress and main obstacles	Information Sources
Number	Description				
2.1	Promote equity and benefit sharing	2008	Mechanisms for equitable sharing of both costs and benefits arising from the establishment of protected areas	Proposed Regional Protected Areas Trust Fund GEF funded Willingness to Pay Study 2010 OAS ReeFIX Exercise/economic evaluation of TCMP 2010 GEF funded Economic Evaluation of Ecosystems Study 2009-2010. OECS OPAAL project/TCMP demonstration Project with alternative livelihood component.	National reports, reports from non-governmental and indigenous people's organizations: OECS-ESDU OAS ReeFIX/ country report.
2.2	Enhance and secure involvement of indigenous people, local communities and relevant stakeholders	2008	Enabling environment (legislation, policies, capacities, resources, governance types, tools) developed ensuring participation and PIC of indigenous people. Plans and initiatives developed for participation in decision making in the identification, designation and management phases of the protected-area network—level of participation achieved.	Community co-management arrangement for Parks and Recreation sites under the Tourism Development Project 2007-2009	National reports, reports from non-governmental and indigenous people's organizations and other relevant stakeholders

Goal, Target		Deadline	Assessment criteria and key evaluation questions	Description of progress and main obstacles	Information Sources
Number	Description				
3.1	Review and revise policies to provide an enabling environment for protected areas	2008	Main impediments (see activities under this goal) to effective establishment and management of protected areas (by 2006) identified. Measures taken to overcome these impediments.	Protected Areas Policy included in SVG National Parks and Protected Areas System Plan.	National reports SVG National Parks and Protected Areas System Plan, 2009.
3.2	Capacity for the planning, establishment and management of protected areas	2010	Comprehensive capacity building programmes implemented	St. Vincent and the Grenadines National Protected Areas System Capacity Development OECS OPAAL Protected Areas Training Needs Assessment.	National reports St. Vincent and the Grenadines National Protected Areas System Capacity Development Final Draft Plan, 2007. OECS OPAAL Protected Areas Training Needs Assessment: St. Vincent and the Grenadines Country Report, 2007.

Goal, Target		Deadline	Assessment criteria and key evaluation questions	Description of progress and main obstacles	Information Sources
Number	Description				
3.3	Technology transfer	2010	Appropriate technologies and innovative approaches for the effective management of protected areas developed, validated and transferred.	GIS Protected Areas Thematic maps. Limited/trained human capacity and software and hardware for GIS not being readily available to protected area agencies. Available monitoring and evaluation tools need to be adapted to suit local conditions.	National reports
3.4	Financial sustainability	2008	Amount of financial needs identified (2005). Sustainable financing plans established. Amount of funding provided by public and private donors to protected areas. Level of integration of protected-area financing strategies into poverty reduction strategy papers (PRSPs) and national sustainable development strategies (NSDSs). Compilation of studies on value of ecosystem services provided by specific protected areas published.	The 2007 Financial gap assessment identified the existing gaps and potential options for sustainable PA financing 2010 System Plan identified further mechanisms for PA financing.	National reports, ES, international organizations, GEF, World Bank,…

Goal, Target		Deadline	Assessment criteria and key evaluation questions	Description of progress and main obstacles	Information Sources
Number	Description				
3.5	CEPA	2008	Measures taken to increase public awareness, understanding and appreciation of the importance of protected areas. Strategies and programmes elaborated.	OECS KAP study undertaken and public awareness programme prepared. Some elements of the public awareness programme are being implemented in 2010.	National reports
4.1	Minimum Standards and best practices	2008	National (regional) standards, criteria, and best practices for the selecting, establishing, managing and governance of protected areas developed and communicated to the Secretariat.	IUCN Categorization.	National reports, IUCN, …
4.2	Effectiveness of PA management	2010	Methods, standards, criteria and indicators for evaluating management effectiveness of protected areas adopted (2006). Frameworks for monitoring, evaluation and reporting protected-area management effectiveness at site, national and regional system level implemented. Percentage of each country protected areas evaluated.	Not currently in place.	National reports, NGOs

Goal, Target		Deadline	Assessment criteria and key evaluation questions	Description of progress and main obstacles	Information Sources
Number	Description				
4.3	Assessment and monitoring PA status and trends	2010	Systems for enabling effective monitoring of protected area coverage, status and trends at national, regional and global scales established. Data on protected-area coverage, status and trends communicated to UNEP-WCMC In List. Harmonized reporting system (WHC, Ramsar, CBD, UNEP-WCMC,…) on protected areas established.	Not currently in place.	National reports, UNEP-WCMC, NGOs…
4.4	Scientific knowledge	?	Scientific results (in particular on Interdisciplinary research on ecological, social and economic aspects of protected areas) disseminated and shared (e.g. to the clearing-house mechanism).	GIS PA database work in progress. Marine Space Use Information System	Academia, scientific organisations, national reports, … MARSIS (PhD study conducted by CERMES, UWI.)

Table 2.1 Proposed protected areas for SVG (Source: SVG NPPA System Plan 2009-2014)

Protected Area Designation	Protected Area Name	IUCN Classification
National Park	1. Soufriere National Park	**II**
Forest Reserves	1. Campden Park Forest Reserve 2. Colonarie Forest Reserve 3. Cumberland Forest Reserve 4. Dalaway Forest Reserve 5. Kings Hill Forest Reserve 6. Kingstown Forest Reserve 7. Mt. Pleasant Forest Reserve 8. Richmond Forest Reserve	**IV**
Wildlife Reserves	1. All Awash Island Wildlife Reserve 2. Battowia Island Wildlife Reserve 3. Big Cay Wildlife Reserve 4. Catholic Island Wildlife Reserve 5. Catholic Rock Wildlife Reserve 6. Frigate Island Wildlife Reserve 7. Isle de Quatre Wildlife Reserve 8. Lapaz Rock Wildlife Reserve 9. Milligan Cay Wildlife Reserve 10. Northern Bequia Wildlife Reserve 11. Palm Island Wildlife Reserve 12. Petit Canouan Wildlife Reserve 13. Petit St. Vincent Wildlife Reserve 14. Pigeon Island Wildlife Reserve 15. Sail Rock Wildlife Reserve 16. Savan Island Wildlife Reserve 17. West Cay Wildlife Reserve	**IV**

Protected Area Designation	Protected Area Name	IUCN Classification
Cultural Landmarks	1. Layou Petroglyph 2. Black Point Tunnel 3. Fort Charlotte 4. Fort Murray, Union Island 5. Balliceaux 6. Fitzhughes Heritage Center 7. Youroumei Heritage Village 8. Peter's Hope Estate 9. The Casson House 10. Cobblestone Inn 11. Montague House 12. Bishop's Court 13. Gonsalves Building 14. Police Headquarters 15. Fort Charlotte 16. HM Prison, Kingstown 17. Court House, Kingstown 18. Carnegie Building 19. Blue Caribbean Building 20. Government House 21. Jacob's Galleried House 22. Frangipani Hotel, Bequia 23. Lime Kiln, Bequia 24. Spring Estate, Bequia 25. Cotton House, Mustique	**III**
Natural Landmarks	1. Trinity Falls 2. Dark View Falls 3. The Botanic Gardens 4. Falls of Baleine 5. Vermont Nature Trail 6. Cumberland Nature Trail	**III**
Recreational Areas	1. Wallilabou Falls 2. Cumberland Beach Recreation Center 3. Owia Salt Pond 4. Rabacca River Recreation Park 5. Rawacou Beach	

Protected Area Designation	Protected Area Name	IUCN Classification
		V
Marine Park	1. Tobago Cays Marine Park 2. South Coast Marine Park 3. Chateaubelair Islet Marine Park 4. Petit Byahaut Marine Park 5. Anchor Reef Marine Park	**II**
Marine Reserve	1. Canouan Marine Reserve 2. Isle de Quatre Marine Reserve 3. Mustique Marine Reserve	**IV**
Marine Conservation Areas	1. Bequia Marine Conservation Area 2. Petit St. Vincent Marine Conservation Area 3. Union Island/Palm Island Marine Conservation Area	**VI**
Protected Landscape/Seascape	1. Mustique Island 2. Belmont Lookout	**V**