



SAINT VINCENT AND THE GRENADINES



THE NATIONAL BIODIVERSITY STRATEGY AND ACTION PLAN



Submitted To



**Sustainable Development Unit
Ministry of Finance, Economic Planning,
Sustainable Development, and Information
Technology**



Revised National Biodiversity Strategy and Action Plan (2015 - 2020)



**Sustainable Development Unit
Ministry of Finance, Economic Planning, Sustainable Development, and
Information Technology**

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Photo Credits Front Page

1. Aerial view of the Tobago Cays Marine Park (Courtesy A. DeGraff)
2. Soil Conservation Techniques at Argyle, St. Vincent (Courtesy Nicholas Stephens)
3. Leatherback monitoring in Bloody Bay, Union Island (Courtesy Union Island Environmental Attackers)

Table of Contents

Abbreviations and Acronyms	ii
Executive Summary	1
ES1. The Status of Biodiversity	1
ES2. The Commercial Value of Biodiversity	3
ES3. Threats to Biodiversity	3
ES4. Implementing the NBSAP and Mainstreaming Biodiversity Conservation	5
ES5. The 2011-2010 Aichi Biodiversity Targets and National Development Goals	6
ES6. Action Plan for Implementing the 2015 – 2020 Biodiversity Targets	7
1.0 INTRODUCTION	9
1.1 Overview of Objectives and Targets of the Convention on Biodiversity	10
1.2 Overview of Biodiversity Status and Trends	12
1.3 Threats to Biodiversity	16
1.4 Insufficient Policy, Legislation and Enforcement	17
2.0 IMPLEMENTING THE NBSAP & PROGRESS IN MAINSTREAMING BIODIVERSITY	19
3.0 REVISED NATIONAL BIODIVERSITY STRATEGY AND ACTION PLAN	19
3.1 Saint Vincent and the Grenadines’ Vision for Biodiversity	20
3.2 Mission	20
3.3 Strategic Goals	20
3.4 National Biodiversity Targets	20
3.5 National Economic and Social Development Plan 2013-2025	22
3.6 Key Projects towards Achieving the National Biodiversity Targets	26
4.0 ACTION PLAN FOR IMPLEMENTING THE 2015 – 2020 BIODIVERSITY TARGETS	28
4.1 Institutional Arrangements for Achieving the National Biodiversity Targets	38
4.2 Communications and Outreach Strategy	39
4.2.1 Specific Objectives of the Communications Strategy	39
4.2.2 Key Messages	41
4.3 Enhancing Financial Resources	41
4.4 Enhancing Capacity: National Biodiversity Clearing House Mechanism	42
4.5 Monitoring and Evaluation	42
5.0 CONCLUSION	45

References 46

TABLES:

Table 1: Strategic Goals of the Convention on Biodiversity and Corresponding Aichi Targets 10

Table 2: Status and Trends in Biodiversity of Saint Vincent and the Grenadines..... 12

Table 3: National Biodiversity Targets and Corresponding Aichi Targets..... 21

Table 4: National Biodiversity Targets: Implementation Strategy and Relevance to National Development Goals 23

Table 5: Implementation Plan for Achieving the National Biodiversity Targets..... 29

Table 6: Institutional Responsibility for Implementing the National Biodiversity Targets..... 38

Table 7: Sources of Financial Support for Achieving the National Biodiversity Targets..... 41

FIGURES:

Figure 1: Figure 1. Location of St. Vincent and the Grenadines 9

Figure 2: Saint Vincent Parrot (*Amazona guildingi*). Credit: Joanne Justo-Gaymes 16

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1. Project Preparation Team

Mr David A. Simmons	Team Leader & Institutional Analyst
Dr Idelia Ferdinand	Communications & Stakeholder Engagement
Ms Lystra Culzac-Wilson	Biodiversity
Mr Philmore Isaacs	Agronomic/Livestock
Dr Winston McCalla	Legal/Policy
Dr Vernese Inniss	Biotechnology, Monitoring & Evaluation
Mr Ottis Joslyn	Natural Resource & Environment
Dr Kimberly Baldwin	Marine & Coastal Resource Management

2. The Project Steering Committee

Mr Marcus Richards	Ministry of Agriculture, etc
Ms Camille Soleyn	Ministry of Tourism, etc.
Ms Amaala Muhammad	Ministry of Education
Mr Andrew Wilson	National Parks, Rivers and Beaches Authority
Mr Ashley Cain	Ministry of Agriculture, etc.
Ms Dornet Hull	Ministry of Housing, etc.
Ms St Joel Warren	Ministry of Finance, etc.
Ms Shamanti Bacchus	Ministry of Health, etc.
Mr Todd Lewis	Ministry of Health, etc.
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Abbreviations and Acronyms

BIP	Biodiversity Indicators Partnership
CARDI	Caribbean Agriculture Research and Development Institute
CATS	Caribbean Aqua-Terrestrial Solutions
CBD	Convention on Biological Diversity
CCCCC	Caribbean Community Climate Change Centre
CCI	Caribbean Challenge Initiative
CHM	Clearing House Mechanism
CPCCA	Coastal Protection for Climate Change Adaptation
EMA	Environmental Management Act
EC	Eastern Caribbean
ECMMA	Eastern Caribbean Marine Management Areas Network
EIA	Environmental Impact Assessment
EU	European Union
GCCA	Global Climate Change Alliance
GIS	Geographical Information System
GoSVG	Government of Saint Vincent and the Grenadines
HA	hectares
ICDF	International Cooperation and Development Fund
IUCN	International Union for the Conservation of Nature
KAP	Knowledge, Attitudes and Perception
KfW	Kreditanstalt für Wiederaufbau
MAFF	Ministry of Agriculture, Forestry and Fisheries
MMA	Marine Management Area
NBSAP	National Biodiversity Strategy and Action Plan
NCCAPP	National Climate Change Adaptation Policy Paper
NESDP	National Economic and Social Development Plan
NGO	Non-governmental Organisation
NPRBA	National Parks, Rivers and Beaches Authority
OECS	Organisation of Eastern Caribbean States
ROC	Republic of China (Taiwan)
SCMCA	South Coast Marine Conservation Area
SusGren	Sustainable Grenadines Inc.
TNC	The Nature Conservancy
UNCBD	United Nations Convention on Biological Diversity
UNFCCC	United Nations Framework Convention on Climate Change
USAID	United States Agency for International Development

Executive Summary

Saint Vincent and the Grenadines is an archipelagic State in the Eastern Caribbean. The main island, Saint Vincent, is located to the north of the island archipelago. The Grenadines, a chain of 32 islands and cays, lie to the south, between Saint Vincent and Grenada.

Saint Vincent and the Grenadines became a signatory to the United Nations Convention on Biological Diversity (UNCBD) in 1992. This Revised National Biodiversity Strategy and Action Plan (NBSAP) is prepared as part of the country's obligation under this Convention, i.e. to submit to the UNCBD Secretariat annual national reports on the status, trends and threats to biodiversity, and national strategies for its management and conservation.

ES1. The Status of Biodiversity

Biodiversity refers to the wide variety of ecosystems and living organisms: animals, plants or vegetative cover, their habitats and their genes. The diverse physical features and climatic conditions of Saint Vincent and the Grenadines have resulted in a variety of ecosystems such as forests, grasslands, wetlands, coastal and marine ecosystems, which harbour and sustain high biodiversity and contribute to human well-being. These ecosystems are however increasingly under threat from a variety of sources – natural and human-made.

To begin with, local crop diversity is expressed through the variation in the genetic and phenotypic characteristics of the agricultural plants. There has been a succession of crops on the islands, beginning with tobacco (*Nicotina spp.*) and followed by cotton (*Gossypium gossypii*), sugarcane (*Saccharum officinarum*), coconuts (*Cocos mucifera*), arrowroot (*Maranta arundineace*) and bananas (*Musa spp*) for cooking; and root crops such as dasheen (*Colocasia esculenta*), eddoes (*Colocasia antiquorum*), tannia (*Xanthosoma saggitaeifolium*), yams (*Dioscorea spp*), sweet potatoes (*Ipomea batatas*) and cassava (*Manihot esculenta*). A wide genetic base supports the production of these crops. The perennial tree crops and major fruits include coconut, breadfruit (*Artocarpus communis*), *Citrus* (limes, oranges, grapefruit, etc.), mango (*Mangifera indica*), and indigenous papaya (*Carica papaya*), pineapple (*Ananas comosus*), passion fruit (*Passiflora edulis*), avocado (*Persea Americana*), and *annonas* (soursop, sugar apple, star apple, saponilla). There is also a group of under-utilised fruits, medicinal plants, herbs and condiments.

Animal and plant genetic diversity is managed primarily through conservation of species, habitats and ecosystems. There is currently no *in situ* conservation of wild crop relatives and wild plants for food and agriculture. However, there are a few *ex-situ* species conservation efforts including a captive breeding programme for the Saint Vincent Parrot (*Amazona guildingii*).

To date, the country has recorded some 14 endemic animals, 19 endemic plants and 29 regionally endemic tree species. Five mammals are Lesser Antillean endemics, two of which are restricted to Grenada and Saint Vincent and the Grenadines.

In addition to the endemics, there are over 1,150 species of plants and 163 species of ferns, including 15 endemic flowering plants and 4 ferns. The faunal diversity consists of all five groups of faunal vertebrates, including 7 species of amphibians, over 20 species of reptiles, over 170 species of birds, 22 species of mammals, and 516 species of marine animals. Added to these are thousands (and perhaps millions) of invertebrates, of which approximately 500 have been identified.

It has been estimated that the islands contain about 31,500 acres (12,748 hectares) of tropical forests representing approximately 29% of the land area. Natural forest constitutes about 70% of this area, with planted forest and agro-forest representing about 25% and 5%, respectively. In the Grenadines, there are few areas of natural forest cover.

Of the over 170 bird species recorded, 76 species of water birds and sea birds. 95 of these birds breed locally and include several regionally and globally important populations. The *Amazona guildingii*, the country's national bird, is an important symbol for conservation.

The country has recorded 22 species of terrestrial mammals, excluding agricultural and domestic species, 18 species of terrestrial reptiles, four species of endangered sea turtles, seven species of amphibians and thousands of species of terrestrial invertebrates and.

The coastal and marine habitats include seagrass and lagoons, areas of mangrove and a variety of patch, fringing and bank barrier reefs. These habitats provide many commercially important marine resources such as conch, lobster and reef fish, as well as several ecosystem goods and services for the coastal communities. Detailed information on the distribution and abundance of coastal and marine habitats on mainland of Saint Vincent is currently being updated as a result of a project being undertaken by the UK Hydrographic Office. The project involves the undertaking of a range of seabed mapping activities in St Vincent and the Grenadines collecting both multibeam sonar and aerial lidar data

covering all of the shallow water bathymetry around the islands, plus topographic data in the coastal fringes.

ES2. The Commercial Value of Biodiversity

The country's diverse endowment of biological resources has played a critical role in the provisioning of services such as the availability of high-quality food, both on land and the marine environment, potable water and touristic resources. The agricultural sector has traditionally played a large role in the economy, contributing around EC\$86.92 million to Gross Domestic Product since 2006.

Approximately 7% of the total labour force is engaged directly or indirectly in the fishing industry, which creates employment for an estimated 2,500 fishers and more than 500 others in supporting services. Approximately 1.8 million pounds of fish are landed annually, of which 0.2 million pounds are exported.

The coral reefs of SVG provide significant benefits. Coral reefs serve as a habitat to a multitude of different species of fish, invertebrates and sea mammals. SVG's reefs provide a location for spawning, nursery, refuge and feeding for multitude of marine organisms. The high fish population within reefs makes them a great catchment area for fishing.

Coral reefs also provide regulatory benefits such as acting as natural breakwaters, thus minimizing wave impacts during storms, protecting the coastline from wave erosion. Coral reefs' beauty makes them a powerful attraction for tourism. Tourism related activities can result in the creation of jobs for the local, surrounding communities and a means of earning foreign currency. An economic evaluation undertaken of the marine biodiversity and its related eco-services provided in SVG has a potential aggregate value of EC\$5,169,985.50 (Christy and Teelucksingh, 2012).

Marine-based tourism is a key sector for employment and revenue generation. The favourable location, good weather conditions and the picturesque scenery of the Grenadines and Tobago Cays, in particular, attract sailors from around the world. By 2015, approximately 62.2% of the 206,662 visitors to the country were reported to have arrived by sea, comprising 82,079 cruise ship visitors and 47,470 yachting visitors (SVG Tourism Authority, 2015).

ES3. Threats to Biodiversity

In recent years serious infrastructural, socio-cultural and ecological problems have contributed to the declining quality of the land-based, coastal and marine biodiversity in Saint Vincent and the Grenadines. The threats to terrestrial biodiversity are both natural and anthropogenic.

Natural threats include weather events such as storms, hurricanes and drought, along with the potential effects of global climate change, disease, impacts of invasive alien species, endemism, and small population sizes of some local species. By way of example, in December 2013 a Low-level trough system affected the islands, destroying approximately 5% (800 ha) of the forest cover and damaging another 15%. The total effect/total cost of devastation associated with of the weather system on the agricultural sector was estimated at EC \$32,398,175 million, of which the forestry sub-sector accounted for 74.1%.

Drought causes soil deterioration and loss, and encourages the spread of thorn-bearing and other non-palatable plants that can withstand the drought, even encroaching into non-traditional habitats such as wetlands.

The endemic species on Saint Vincent and the Grenadines are all vulnerable, in varying degrees, to extinction due to their very narrow geographical range, small population sizes, and low population densities. Small populations have a greater tendency towards extinction due to loss of genetic variability, fluctuations in genetic and environmental factors, and natural catastrophes.

Extensive studies of diseases and their effects on local terrestrials have not been conducted. However, documentation exists on diseases that affect the Saint Vincent Parrot. Of these, Avian tuberculosis (*Mycobacterium avium*) is currently one of the greatest health concerns.

Plants are also susceptible to pests and diseases. The Mahogany shoot borer pest (*Hypsipyla grandella*), for example, causes significant damage to local mahogany (*Swietenia* spp.) plantations.

Anthropogenic threats to biodiversity are the most numerous and include the following:

- Global climate change
- Habitat destruction and modification due to inappropriate land clearance for agriculture, fuelwood, illegal cultivation and settlement, and development in coastal areas
- Exotic and invasive alien species — marine (lionfish and Sargassum seaweed); terrestrial (Cuban tree frog and love vine), floral and faunal — which negatively impact both biodiversity and the nation's food and nutrition security.
- Potential impacts of the introduction of genetically and living modified organisms
- Unsustainable agricultural practices such as shifting cultivation and inappropriate use of agricultural chemicals

- Unregulated land use due to lack of enforcement of land use planning legislation
- Poaching of seabirds, their eggs and chicks and more recently the unregulated harvesting of sea cucumbers in Union Island.
- Insufficient and/or lack/absence of implementation of environmental policies and legislation
- Tourism development without appropriate measures taken to mitigate negative environmental impacts
- Intensive grazing, in particular, species-selective grazing
- Unregulated and illegal harvesting of already-threatened species of both terrestrial and marine flora and fauna
- Bushfires
- Pollution – land-based and marine
- Poverty – which creates and intensifies pressure on biodiversity
- Limited environmental awareness
- Limited biodiversity research

ES4. Implementing the NBSAP and Mainstreaming Biodiversity Conservation

Implementation of the NBSAP for the period 2000 to 2010 was assessed as less than satisfactory; it was not used to inform planning in key sectors, and most of the activities recommended in the various priority areas were not done.

There is still no comprehensive legislation to implement the Convention on Biological Diversity. Progress has been made, however, with the adoption of the National Parks (Amendment) Act 2010, and preparation of draft legislation including Regulations (2011) to the Forestry Resources Conservation Act. In addition, a draft Environmental Health and Management Act (2013) and EIA Regulations (2015) under the Town and Country Planning Act, 1992 have also been prepared and is awaiting enactment.

While several different agencies have their discrete educational programmes, a harmonised biodiversity education programme is still, clearly, a necessity. For this and other priority areas, human resource development is a constant priority and an ongoing challenge due to the constraint of financial resource confronting the country.

Finally, although many policies and plans exist that in some way incorporate biodiversity conservation; this has not resulted in effective mainstreaming. A comprehensive strategy for mainstreaming biodiversity, including a plan for monitoring its implementation, is included as a component of this revised NBSAP.

ES5. The 2011-2010 Aichi Biodiversity Targets and National Development Goals

The 11th Conference of the Parties of the CBD urged Parties to develop national targets, using the Strategic Plan for Biodiversity 2011–2020 and the Aichi Targets as a guiding framework. The Conference advocated that Parties integrate their National Biodiversity Targets into National Biodiversity Strategy and Action Plans in accordance with national priorities and capacities. Saint Vincent and the Grenadines has selected five (5) Aichi Targets on which their National Biodiversity Targets are based. These are: Aichi Targets 1, 5, 9, 11 and 15, and the National Targets are as follows:

National Target 1

By 2020, at least 50% of the population of Saint Vincent and the Grenadines is knowledgeable about the values of biodiversity and the steps they can take to conserve and use it sustainably. The same as Aichi Target 1

National Target 2

By 2020 Saint Vincent would have completed studies to quantitatively establish the status of all the natural habitats and the rate of habitat loss, including forest, and would have developed or be in the process of developing a strategy to reduce the rate of habitat loss. Adaptation of Aichi Target 5

National Target 3

By 2020, invasive alien species and pathways are identified and prioritised, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment. Aichi Target 9

National Target 4

By 2020, at least 17 percent of terrestrial and inland water, and 10 percent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes. Aichi Target 11

National Target 5

By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 percent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification. Aichi Target 15

These selected targets relate to Goal 4 of the National Economic and Social Development Plan 2013 -2025, which is:

Improving physical infrastructure, preserving the environment and mitigating the impact of climate change.

Four specific objectives under this Goal 4 are relevant to the National Biodiversity Targets, namely:

- Objective 4.1:** To optimise the use of limited land space.
- Objective 4.7:** To conserve the natural resources of the country through effective utilisation and management.
- Objective 4.8:** To ensure a clean, safe and healthy environment.
- Objective 4.10:** To reduce the adverse impact of climate change.

Actions are recommended to integrate the National Biodiversity Targets and these National Development Objectives in the areas of:

- Public education and awareness on the importance of biodiversity conservation
- Quantitative research on the status of all-natural habitats
- The control or eradication of invasive alien species
- Effective conservation and equitable management of significant terrestrial, coastal and marine ecosystems
- Restoration and conservation of ecosystem resilience, thereby contributing to climate change adaptation and mitigation

ES6. Action Plan for Implementing the 2015 – 2020 Biodiversity Targets

Through consultation with the key institutions tasked with biodiversity conservation, an action plan was created to advance the progress towards the National Biodiversity Targets and, by extension, the 2011-2020 Aichi Biodiversity Targets. This exercise resulted in the identification of five different project activities which will be executed over the duration of the plan with some of them being realised in the short-to-medium term (2 – 3 years) and others in the long-term (3 – 5 years). Coordination of the implementation of the Action Plan is the responsibility of the Sustainable Development Unit of the Ministry of Finance, Economic Planning, Sustainable Development, and Information Technology. The actual execution of the Plan will be the responsibility of several different agencies including Forestry and Fisheries Department and the National Parks, Rivers and Beaches Authority. However, it is anticipated that several different non-governmental agencies will be actively involved in its execution, given their current involvement as key partner agencies in the management of the country's biodiversity.

The implementation of these targeted activities is estimated to cost US \$3,100,000, with most of the funding coming from a range of multilateral donor agencies who are actively providing support to for the implementation of several related sustainable development programmes and projects.

1.0 INTRODUCTION

Saint Vincent and the Grenadines is an archipelagic State in the Eastern Caribbean. The main island, Saint Vincent, is located to the north of the island archipelago. The Grenadines, a chain of 32 islands and cays, lie to the south, between Saint Vincent and Grenada. The islands' unique geographic position, climatic regimes and physical features contribute to an abundance of biological diversity at the ecosystem, species and genetic levels. The country is blessed with several marine and terrestrial ecosystems, as well as species that are endemic to the islands.

As a responsible global citizen, Saint Vincent and the Grenadines became a signatory to the United Nations Convention on Biological Diversity (UNCBD) in 1992. Since then, it has honoured this commitment through the provision of National Reports on Biodiversity and undertaking activities towards the objectives of the UNCBD as noted in its National Biodiversity Strategy and Action Plan (NBSAP). Despite these efforts, however, biodiversity continues to face significant threats, and there is a global decline across biodiversity indicators.

In recognition of the urgent need for action for biological diversity conservation, the United Nations General Assembly declared 2011-2020 as the United Nations Decade on Biodiversity. The Strategic Plan for Biodiversity 2011-2020 and the twenty Aichi Biodiversity Targets were adopted by the Conference of the Parties to the UNCBD in 2010 at Nagoya, Japan. The Strategic Plan 2011-2020 outlines a set of broad-based actions in support of biodiversity that are to be carried out over the decade of the Plan, by all countries and stakeholders.



Figure 1: Figure 1. Location of St. Vincent and the Grenadines

Saint Vincent and the Grenadines has therefore sought to update its NBSAP to consider the UNCBD and the Aichi Targets; setting new National Biodiversity Targets to be achieved over the period 2015 – 2020. The remainder of this chapter provides an overview of the objectives and targets of the UNCBD, an overview of the biodiversity status and trends, and threats to the biodiversity of Saint Vincent and the Grenadines. Chapter 2 assesses the implementation and progress made on the previous NBSAP and highlights areas in need of improvement. In consideration of these needs and the findings of a highly consultative process, Chapter 3 presents a revised NBSAP, including new National Biodiversity Targets and their relevance to the National Economic and Social Development Plan 2013 – 2025. Finally, Chapter 4 details the plan for implementing the revised NBSAP.

1.1 Overview of Objectives and Targets of the Convention on Biodiversity

Article 1 of the Convention on Biological Diversity states its objectives as the:

1. Conservation of biological diversity;
2. Sustainable Use of components of biological diversity; and
3. Fair and equitable sharing of the benefits arising out of the use of genetic resources.

Towards these objectives, decision X/2 was taken at the 10th meeting of the Conference of Parties to adopt a revised and updated Strategic Plan for Biodiversity, including the Aichi Targets for the period 2011 – 2020. The Targets are sorted by strategic goals, and is summarized in Table 1.0 as follows:

Table 1: Strategic Goals of the Convention on Biodiversity and Corresponding Aichi Targets

STRATEGIC GOAL	AICHI TARGET
A. Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society.	By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.
	By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems.
	By 2020, at the latest, incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio-economic conditions.
	By 2020, at the latest, Governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts associated with the use of natural resources well within safe ecological limits.

B. Reduce the direct pressures on biodiversity and promote sustainable use	By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation are significantly reduced.
	By 2020 all fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits.
	By 2020 areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.
	By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.
	By 2020, invasive alien species and pathways are identified and prioritised, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.
	By 2015, the multiple anthropogenic pressures on coral reefs, and other vulnerable ecosystems impacted by climate change or ocean acidification are minimised, to maintain their integrity and functions.
C. Improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity	By 2020, at least 17 percent of terrestrial and inland water, and 10 percent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.
	By 2020 the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.
	By 2020, the genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimising genetic erosion and safeguarding their genetic diversity.
D. Enhance the benefits to all from biodiversity and ecosystem services	By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable.
	By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 percent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.
	By 2015, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational, consistent with national legislation.
E. Enhance implementation through participatory planning, knowledge management and capacity building.	By 2015 each Party has developed, adopted as a policy instrument, and has commenced implementing an effective, participatory and updated national biodiversity strategy and action plan.
	By 2020, the traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, subject to national legislation and relevant international obligations, and fully integrated and reflected in the implementation of the Convention with the full and effective participation of indigenous and local communities, at all relevant levels.

	By 2020, knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied.
	By 2020, at the latest, the mobilisation of financial resources for effectively implementing the Strategic Plan for Biodiversity 2011-2020 from all sources, and in accordance with the consolidated and agreed process in the Strategy for Resource Mobilization, should increase substantially from the current levels. This target will be subject to changes contingent to resource needs assessments to be developed and reported by Parties.

1.2 Overview of Biodiversity Status and Trends

Article 2 of the Convention on Biological Diversity defines biological diversity as “the variability among living organisms from all sources including, among other things, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.” In essence, biodiversity is the sum of, and variation between, ecosystems, species and genes.

The biological diversity of Saint Vincent and the Grenadines is the product of billions of years of evolution shaped by natural processes, and human activities that have occurred over more recent centuries. The diverse physical features and climatic conditions have resulted in various terrestrial, coastal and marine ecosystems, which include forests, grasslands, wetlands, coral reefs and seagrass beds. These systems harbour and sustain high levels of biodiversity, contribute to human well-being through the provision of ecosystem services, and face threats from natural and anthropogenic sources. Biological diversity is also observed in human-mediated systems such as agriculture and bioengineering. A summary of the status and historical trends of Saint Vincent and the Grenadines’ Biodiversity is provided in Table 2.0.

Table 2: Status and Trends in Biodiversity of Saint Vincent and the Grenadines

BIODIVERSITY CATEGORY	STATUS	TREND
Livestock and Domesticated Animals	Historically, “mixed farming” has been the dominant production strategy used in Saint Vincent and the Grenadines. Livestock includes cows, sheep, goats and pigs are reared for meat consumption. Others, which are reared for meat consumption but are also used as pets include guinea pigs (<i>Cavia porcellus</i>), rabbits (<i>Lepus curpaeums</i>), ducks (<i>Anas sp.</i>) and guinea fowl (<i>Numididae</i>). Domesticated animals include dogs (<i>Canis sp.</i>) and cats (<i>Felis catus</i>).	-- Unknown?
Agricultural Crops	Pre-colonial crop production was characterised by subsistence farming of cassava (<i>Manihot esculenta</i>), sweet potatoes (<i>Ipomea batatas</i>) and pineapples (<i>Ananas comosus</i>), in addition to the gathering of forest fruits. Post-	Increasing

BIODIVERSITY CATEGORY	STATUS	TREND
	<p>colonization resulted in the introduction of plantation agriculture where Saint Vincent and the Grenadines experienced a succession of crops in the order of tobacco (<i>Nicotina spp.</i>) and followed by cotton (<i>Gossypium gossypi</i>), sugarcane (<i>Saccharum officinarum</i>), coconuts (<i>Cocos mucifera</i>), arrowroot (<i>Maranta arundineace</i>), and bananas (<i>Musa spp</i>) for cooking. In recent years, there has been a shift away from bananas in favor of root crops belonging to the aroids (<i>Araceae</i>) family – dasheen (<i>Colocasia esculenta</i>), eddoes (<i>Colocasia antiquorum</i>), tannia (<i>Xanthosoma saggitaeifolium</i>), yams (<i>Dioscorea spp</i>), sweet potatoes (<i>Ipomea batatas</i>) and cassava (<i>Manihot esculenta</i>). There is a wide genetic base for these crops, with about 9 cultivars of yams and over 50 accessions of sweet potatoes being grown.</p> <p>The diversity among perennial tree crops varies by origin with those native to the tropical Americas (indigenous papaya, pineapple, passion fruit, avocado and sugar apple) having a wider genetic base than those introduced to the island such as coconut, breadfruit, citrus, and mango. There are several cultivars of oranges, tangerines, grapefruits, limes and lemons. Cocoa and nutmeg are grown in small-medium size plots and continues to receive interest for diversification.</p> <p>There are various under-utilised fruits, medicinal plants, herbs and condiments that can be found as single trees or isolated stands scattered throughout the country. Some include: bitter aloe (<i>Aloe vera L.</i>), bois bandé (<i>Richeria grandis</i>), christophine (<i>Sechium edule</i>), wild yam (<i>Dioscorea spp</i>), seagrape (<i>Coccoloba uvifera</i>), fat pork (<i>Chrysobalanus icaco</i>), dunks (<i>Ziziphus mauritiana</i>), pomerac (<i>Syzygium malaccense</i>), guava (<i>Psidium guajava</i>) and tamarind (<i>Macadamia spp.</i>).</p>	
Medicinal Plants	<p>There are over 150 agricultural and non-agricultural species that comprise the medicinal plants of Saint Vincent and the Grenadines. Growing demand for alternative medicines presents an opportunity for future growth in the locally-produced health and herbal products.</p>	--
Plant Genetic Resources	<p>There is currently no <i>in situ</i> conservation of wild crop relatives and wild plants for food and agriculture. Plant diversity is protected <i>in situ</i> through the establishment of reserves and protected areas.</p> <p><i>Ex situ</i> conservation is led by the Botanical Gardens, the Taiwan Mission, the Caribbean Agricultural Research and Development Institute (CARDI) and the Ministry of Agriculture, Forestry and Fisheries (MAFF). They hold collections of genes for plants that are important for food and agriculture including, but not limited to sweet potato, cassava, pitaya, pineapples, herbs and spices, banana,</p>	--

BIODIVERSITY CATEGORY	STATUS	TREND
	plantain, citrus, avocado (<i>Persea Americana</i>), guava, papaya, plumrose, mango (<i>Mangifera indica</i> , Indian jujube, golden apple, coconut, carambola and wax apple.	
Animal Genetic Resources	Animal diversity is protected <i>in situ</i> through the establishment of reserves and protected areas. <i>Ex situ</i> efforts have been limited to of the Saint Vincent Parrot at the Nicholl's Wildlife Complex located in the Botanical Gardens.	--
Biotechnology	Biotechnology activity in Saint Vincent and the Grenadines is focused primarily on tissue culture to produce high-quality and disease-free materials for the banana and horticultural industries. Over the period 2006 – 2010, 858,178 plantlets were produced for crop plants such as banana, cassava, dasheen, orchids, pineapple, plantain, sweet potato, and tannia. Fruits such as the mango, citrus and avocado are propagated by budding and grafting. New species are occasionally imported with the aim of having greater pest-resistant crops. Additionally, as a net importer of food, there is a possibility of products being genetically modified.	Increasing
Endemics	Saint Vincent and the Grenadines contains part of the Caribbean's Key Biodiversity Hotspot. It has 14 endemic animals and 19 endemic plants. Additionally, there are 29 endemic tree species. The islands are also home to 5 Lesser Antillean endemic mammals and 3 regionally restricted reptiles. Intensive <i>in situ</i> and <i>ex situ</i> conservation efforts, focused on the endemic Saint Vincent Parrot have led to an increase in its population since 1992, totalling approximately 700 (to date, it is estimated at around 850) birds in the wild.	Increasing
Forests	<p>The forest inventory completed in 1993 indicated that the total forestland area was approximately 12, 683 ha and consisted of primary rainforest (4, 306 ha), secondary rainforest (3, 450 ha), and dry scrub woodlands (2,178 ha). In 2004, it was estimated that the islands contained about 31, 500 acres (12, 748 hectares) of tropical forests representing approximately 29% of the land area. Natural forest constituted about 70% of this area with planted forest and agro-forest representing about 25% and 5%, respectively. In lieu of a comprehensive assessment, recent estimates indicate that forest cover stands between 25% and 30%. These estimates suggest relatively consistent forest coverage between 1993 and 2004, compared to an apparent decline since 2004.</p> <p>In the Grenadines, there are few areas of natural forest cover, as unrestricted grazing and physical development, particularly due to housing and tourism-related construction (hotels, guest houses, etc.), have resulted in widespread loss of vegetative cover.</p>	Decreasing

BIODIVERSITY CATEGORY	STATUS	TREND
	Forest loss is estimated to be at a rate of 3 - 5% annually due primarily to the encroachment of banana cultivation and illegal farming.	
Forest Plantations	142 hectares of plantations have been established by the Forestry Department under its reforestation programme, and are primarily located in Cumberland, Perseverance and Vermont Valleys. Mahogany (<i>Swietenia</i> spp.) and Blue Mahoe (<i>Hibiscus elatus</i>) are the prime species planted in reforestation activities. Chief indigenous species used include Penny Piece (<i>Pouteria multiflora</i>), Sweetwood (<i>Lauracia</i> spp.), Fiddlewood (<i>Citharexylum spinosum</i>), and Greenheart (<i>Chlorocardium rodiei</i>).	Increasing
Terrestrial Fauna	All five groups of vertebrates are represented including 7 species of amphibians, over 20 species of reptiles, 170 species of birds, 22 species of mammals. Approximately 50 species of invertebrates have identified out of perhaps thousands/millions.	--
Aquatic Biodiversity	The Caribbean Islands have more than 160 species of freshwater fish, about 65 of which are endemic to one or a few islands. Studies have been limited, but surveys conducted in 1997 in the Buccament Valley revealed that rivers were teeming with crayfish, crabs, and 25 species of fish.	--
Wetlands and Mangroves	Saint Vincent and the Grenadines contains a total of 69.34 ha of mangrove forest, comprising primarily buttonwood (<i>Conocarpus erectus</i>), red mangrove (<i>Rhizophora mangle</i>), white (<i>Laguncularia racemose</i>), and black mangrove (<i>Avicennia germinans</i>) species. These are distributed across the islands of Saint Vincent, Bequia, Isle de Quatre, Mustique, Canouan, Mayreau, Tobago Cays and Union Island. There are a number of salt ponds in both Saint Vincent and the Grenadines, with an estimated area of 97.64 ha.	-- Unknown
Fisheries	Exploited fisheries resources consist of demersal, including shallow-shelf reef fishes, deep-water slope and bank reef fishes, lobsters and conchs, and inshore and offshore pelagic species including robins, jacks, dolphin fish, barracuda, and tunas and. There is also a fishery for blackfish (short-finned pilot whales and other cetacean species) occurring in Barrouallie. The harvesting of humpback whales occurs in Bequia (SVG has an annual quota of four humpback whales). Many fisheries continue to be heavily exploited beyond sustainable yield. Shallow shelf demersals, Caribbean spiny lobster and queen conch are overexploited. Inshore pelagics are considered moderately exploited, while offshore pelagics and deep shore demersals are under-exploited.	Decreasing

BIODIVERSITY CATEGORY	STATUS	TREND
Seaweed Mariculture	Two species, (<i>Gracilaria terete</i>) and (<i>Eucheuma</i>), are grown in two locations in the Grenadines: Topion Bay, outside of Ashton, Union Island and Saline Bay, Mayreau.	Unknown

1.3 Threats to Biodiversity

The threats to biodiversity are both natural and human-caused. However, both forms of threats work synergistically to multiply their effect several folds. The net result has been a decline in the quality of land-based, coastal and marine biodiversity in Saint Vincent and the Grenadines.

Natural threats include weather events such as storms, hurricanes and drought, along with the potential effects of global climate change, disease, impacts of invasive alien species, endemism and small population size of local species.

The endemic species on Saint Vincent and the Grenadines are all vulnerable, in varying degrees, to extinction due to their very narrow geographical range, small population sizes, and low population densities. Small populations have a greater tendency towards extinction due to loss of genetic variability, fluctuations in genetic and environmental factors, and natural catastrophes. Extensive studies of diseases and their effects on local terrestrials have not been conducted. However, documentation exists on diseases that affect the Saint Vincent Parrot (*Amazona guildingi*). Of these, avian tuberculosis is currently one of the greatest health concerns.



Figure 2: Saint Vincent Parrot (*Amazona guildingi*). Credit: Joanne Justo-Gaymes

Plants are also susceptible to pests and diseases. The Mahogany shoot borer (*Hypsipyla grandella*) pest, for example, causes significant damage to local mahogany plantations.

Anthropogenic threats are the most numerous and include the following:

- Global climate change

- Habitat destruction and modification due to inappropriate land clearance for agriculture, fuelwood, illegal cultivation and settlement, and development in coastal areas
- Exotic and invasive alien species, including marine (e.g. lionfish and seaweed), and terrestrial floral and faunal (e.g. Cuban tree frog and love vine), which negatively impact both biodiversity and the nation's food and nutrition security.
- Potential impacts of the introduction of genetically and living modified organisms
- Unsustainable agricultural practices such as shifting cultivation and inappropriate use of agricultural chemicals
- Unregulated land use due to lack of enforcement of land use planning legislation
- Insufficient and lack of implementation of environmental policy and legislation
- Tourism development without appropriate measures taken to mitigate negative environmental impacts
- Intensive grazing, in particular species selective grazing
- Unregulated and illegal harvesting of already threatened species of both terrestrial and marine flora and fauna
- Bushfires
- Pollution – land-based and marine
- Poverty – which creates and intensifies pressure on biodiversity
- Limited environmental awareness
- Limited biodiversity research

1.4 Insufficient Policy, Legislation and Enforcement

Biodiversity conservation is a process by which individuals and organisations protect and preserve species through conservation policy, which entails preservation of habitat and management of wildlife species (Douglas, 1978). St. Vincent and the Grenadines has no National Forest Policy or National Environmental Policy or legislative framework under which biodiversity can be conserved and protected; however, a series of measures to prevent biodiversity loss have been identified. This includes the preparation a National Park and Protected Areas System which has now received parliamentary approval and the draft Protected Areas Regulations, and a marine Parks Regulations. It is hoped that these regulations will build on work done previously and may result in a combined set of National Parks Regulations following review by the Attorney General's Chambers.

Currently, there are four main pieces of legislation that afford protection to the country's terrestrial biodiversity. These are the Wildlife Protection Act of 1987, the Forest Resource Conservation Act of 1992, the Mustique Conservation Act of 1989

and the National Parks Act of 2010 and accompanying draft Protected Areas Regulations. The Wildlife Protection Act and Forest Resource Conservation Act make provisions for the conservation and management of fauna and flora found on the islands. Enforcement of these Acts, however, is limited by the absence of supporting Regulations. Thus, though there are laws in place to protect species and their habitats, the Forestry Department has no legal teeth with which to enforce them.

There are no agreements or Memoranda of Understanding that relate to Multilateral Environmental Agreements on Biodiversity. Since the production of the Fourth National Report to the UNCBD in 2010, there have been no legislative changes in the environmental field apart from the enactment of the National Parks (Amendment) Act. Furthermore, no effective action has been taken to finalise and enact existing draft pieces of legislation such as the draft Environmental Management Act, however, the Environmental Impact Assessment Legislation is slated for adoption under the Town and Country Planning Act, 1992. One obstacle in this process is the shortage of legal draftsmen. However, a more serious problem is that, while various draft legislation has been prepared at the request of the respective ministries, the Cabinet has not been requested to approve the draft legislation and a formal requests have not been made to the Attorney General to finalize the drafts.

2.0 IMPLEMENTING THE NBSAP & PROGRESS IN MAINSTREAMING BIODIVERSITY

Implementation of the NBSAP for the period 2000 to 2010 was assessed as less than satisfactory, i.e. it was not used to inform planning in key sectors, and most of the activities recommended in the various priority areas were not undertaken. Among the most common barriers to the implementation of the NBSAP was the lack/unavailability of financial resources.

Marginal progress, however, has been made in mainstreaming biodiversity, though in a piecemeal fashion. Improvements are needed and should include the following:

1. Enactment of comprehensive legislation to implement the CBD
2. An institutional review and strengthening of biodiversity
3. Establishment of monitoring programmes to maintain a continuous record of the current and changing status of biological resources, other than that of the Saint Vincent Parrot
4. Establishment of geographical information system (GIS) based inventories of the quantities, locations and habitats of marine and terrestrial biodiversity
5. Undertaking of carrying capacity studies
6. Development and execution of a harmonised biodiversity education and awareness strategy; and
7. Development and execution of a comprehensive strategy for mainstreaming biodiversity, including a plan for monitoring its implementation.

3.0 REVISED NATIONAL BIODIVERSITY STRATEGY AND ACTION PLAN

The 11th Conference of the Parties urged Parties to develop national targets, using the Strategic Plan for Biodiversity 2011–2020 and the Aichi Targets as a guiding framework. Parties were also required to review and, as appropriate, update and revise their National Biodiversity Strategy and Action Plans or equivalent mechanisms in line with the Strategic Plan (and in accordance with national priorities and capacities), by integrating their National Biodiversity Targets into National Biodiversity Strategy and Action Plans.

The process of revising the NBSAP and preparing the 5th National Report to the UNCBD for Saint Vincent and the Grenadines entailed participative national dialogue with stakeholders involved or concerned with biodiversity. Through this process, feedback was gathered, and a revised framework for the NBSAP was created. This revised framework mirrors that of the Global Biodiversity Strategy but is customised to account for the country's unique circumstances and National Economic and Social Development Plan 2013 – 2025.

This chapter presents the Vision for Biodiversity in Saint Vincent and the Grenadines, its Mission, Strategic Goals, and national biodiversity targets. It also elaborates on the relationship between these selected targets and the broader national development goals, and, too, expands on a strategy for achieving the selected targets by 2020.

3.1 Saint Vincent and the Grenadines' Vision for Biodiversity

Saint Vincent and the Grenadines adopts the following Vision for its biodiversity:

"By 2050, the biodiversity of Saint Vincent and the Grenadines and the ecosystem services it provides will be valued, conserved, restored and sustainably used so that its intrinsic value is respected, and the benefits to human health, society and economy are realised."

3.2 Mission

The Mission of this Strategic Plan is *"To ensure coherent implementation of the United Nations Convention on Biodiversity and achievement of its three objectives by taking effective action to halt the loss of biodiversity and the degradation of ecosystems in Saint Vincent and the Grenadines by 2020, restore them as far as feasible, and sustainably use them in a manner that safeguards the planet's variety of life while contributing to the well-being, health and prosperity of all Vincentians."*

3.3 Strategic Goals

The strategic goals crafted to achieve the Vision and Mission of Saint Vincent and the Grenadines are analogous to the strategic goals of the Global Strategic Plan. They are as follows:

1. Mainstream the appreciation for biodiversity among the people of Saint Vincent and the Grenadines;
2. Improve the monitoring of biodiversity and establish mechanisms to address threats to biodiversity, especially habitat loss and invasive alien species;
3. Improve the status of biodiversity through ecosystem-scale conservation efforts; and
4. Conserve and restore biodiversity with an aim to improve the country's resilience to climate change and its mitigation potential.

3.4 National Biodiversity Targets

Towards the achievement of these strategic goals, stakeholders opted to use the Aichi targets as the base for their national targets. The Aichi Targets 1, 5, 9, 11 and 15 were selected to inform the targets for the 4 nationally-determined strategic goals (see Table 3.0). To date, Saint Vincent and the Grenadines has not been able to conduct a comprehensive, quantitative inventory of all its natural

habitats, nor the extent and rate of degradation and fragmentation. Therefore, there is no baseline against which the Aichi Target 5 can be measured and implemented. Consequently, the corresponding National Target 2 (Aichi Target 5) has been adjusted to respond to existing national circumstances.

Table 3: National Biodiversity Targets and Corresponding Aichi Targets

NATIONAL STRATEGIC GOAL	NATIONAL TARGET	AICHI TARGET
Mainstream the appreciation for biodiversity among the people of Saint Vincent and the Grenadines	<p>National Target 1</p> <p>By 2020, at least 50% of the population of Saint Vincent and the Grenadines is knowledgeable about the values of biodiversity and the steps they can take to conserve and use it sustainably.</p>	<p>Aichi Target 1</p> <p>By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably</p>
Improve the monitoring of biodiversity and establish mechanisms to address threats to biodiversity, especially habitat loss and invasive alien species	<p>National Target 2</p> <p>By 2020 Saint Vincent would have completed studies to quantitatively establish the status of all-natural habitats and the rate of habitat loss, including forest, and would have developed and in the process a strategy to reduce the rate of habitat loss.</p>	<p>Aichi Target 5</p> <p>By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation are significantly reduced.</p>
	<p>National Target 3</p> <p>By 2020, invasive alien species and pathways are identified and prioritised, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.</p>	<p>Aichi Target 9</p> <p>By 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.</p>
Improve the status of biodiversity through ecosystem-scale conservation efforts	<p>National Target 4</p> <p>By 2020, at least 17 percent of terrestrial and inland water, and 20 percent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.</p>	<p>Aichi Target 11</p> <p>By 2020, at least 17 per cent of terrestrial and inland water, and 20 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscape and seascapes.</p>

<p>Conserve and restore biodiversity with an aim to improve the country's resilience to climate change and mitigation potential</p>	<p>National Target 5 By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 percent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.</p>	<p>Aichi Target 15: By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.</p>
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3.5 National Economic and Social Development Plan 2013-2025

In 2013, Saint Vincent and the Grenadines completed a four-year national consultative process that led to the development of the National Economic and Social Development Plan (NESDP) 2013-2025. The NESDP is perhaps the most comprehensive strategy that can act as an instrument for cross-sectoral integration of biodiversity. It is intended to be the primary document that will guide economic and social development in Saint Vincent and the Grenadines between 2013 and 2025. The Plan outlines the country's long-term strategies for national development and offers a vision for improving the quality of life for all Vincentians. It is anchored on the achievement of the following 5 strategic goals:

1. Re-engineering Economic Growth
2. Enabling Increased Human and Social Development
3. Promoting Good Governance, Citizen Security and Increasing the effectiveness of Public Administration
4. Improving Physical Infrastructure and Preserving the Environment
5. Building National Pride, Identity and Culture

Of particular relevance to the CBD is goal four (4): **Improving physical infrastructure, preserving the environment and mitigating the impact of climate change**. Objectives 4.1, 4.7, 4.8, and 4.10 of Goal 4 are as follows:

Objective 4.1: To optimise the use of limited land space.

Objective 4.7: To conserve the natural resources of the country through effective utilisation and management.

Objective 4.8: To ensure a clean, safe and healthy environment.

Objective 4.10: To reduce the adverse impact of climate change.

Table 4.0 shows the linkage between the national targets and the listed objectives of National Development Goal #4 and sets out specific actions that need to be taken to achieve the targets.

Table 4: National Biodiversity Targets: Implementation Strategy and Relevance to National Development Goals

Aichi Target	SVG National Target	Relevance to National Development Goals	National Actions that Support the Target	Actions needed to Achieve Target by 2020
1	By 2020, at least 50% of the population of Saint Vincent and the Grenadines is knowledgeable about the values of biodiversity and the steps they can take to conserve and use it sustainably.	Education is a cross-cutting theme relevant to the NESDP and NBSAP. It builds awareness among policymakers and across all sectors. A notable outcome of Objective 4.7 of Goal 4 of the NESDP is: increased community awareness and involvement in protection and management of resources.	<ul style="list-style-type: none"> • Education and Communication Units of the Ministries of Agriculture and Health & the Environment: daily and weekly public awareness programmes on relevant topics • The Forestry Department: schools' outreach programme. • The Fisheries Division: awareness of the importance of turtles, and the negative impacts of lionfish on marine biodiversity. 	<ul style="list-style-type: none"> • Harmonise the educational and public awareness programmes of various agencies to focus on this national target • Conduct a national Knowledge Attitudes and Perception (KAP) survey before the launch of the educational programme and near the end of the plan period to evaluate the extent to which the target has been met.
5	By 2020 Saint Vincent and the Grenadines would have completed studies to quantitatively establish the status of all-natural habitats and the rate of habitat loss, including forest, and would have developed and been in the process of implementing a strategy to reduce the rate of habitat loss.	<p><i>Goal 4 Objective 4.7:</i> To conserve the natural resources if the country through effective utilisation and management.</p> <p><i>Some outcomes:</i></p> <ul style="list-style-type: none"> • Reduced deforestation; improved management; increased community awareness; • improved database for the preservation of biodiversity 	<ul style="list-style-type: none"> • A number of Wildlife and Forest Reserves have already been established, including the Saint Vincent Parrot Reserve. • Other land-based, coastal and marine protected areas (PAs) are proposed. This will increase the acreage under PAs, and management is expected to reduce biodiversity loss. 	<ul style="list-style-type: none"> • Design and implement the baseline study on habitats • Develop and implement the strategy and specific activities for reducing habitat loss. • Operationalise and maintain a biodiversity Clearing House Mechanism.
9	By 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.	<p>Two of the Strategic Interventions for Obj. 4.7 are:</p> <ul style="list-style-type: none"> • Develop appropriate measures to restore and protect the natural resources of the country, and • Advance research on biological resources <p>Both of these interventions are a necessary part of this National Biodiversity Target.</p>	<ul style="list-style-type: none"> • Personnel of the Sustainable Grenadines Inc., the Tobago Cays Marine Park and Mustique Company Ltd. received training in handling lionfish and have conducted limited public education and outreach. • The dive operators of Saint Vincent and the Grenadines are actively hunting lionfish. • The Fisheries Division drafted A Lionfish Action Plan in 2012, but it has not yet to be implemented. 	<ul style="list-style-type: none"> • Identify all invasive species of marine and terrestrial fauna and flora and establish baselines on the extent of the invasion(s) • Prioritise species for eradication based, for example, on their impact on native species and livelihoods • Develop and implement eradication strategies, ensuring systematic monitoring and documentation of the

Aichi Target	SVG National Target	Relevance to National Development Goals	National Actions that Support the Target	Actions needed to Achieve Target by 2020
			<ul style="list-style-type: none"> • Although lionfish populations are thought to be relatively controlled at the main dive sites, the invasion of species is still considered to be a significant threat in the waters of SVG. 	<p>rate(s) and extent of decline up to 2020.</p>
11	<p>By 2020, at least 17 percent of terrestrial and inland water, and 10 percent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.</p>	<p>Goal 4 Objective 4.1: To optimise the use of limited land space. Protected areas must be included in any national land use policy. A notable</p> <p>The outcome of this Obj. Is: A better coordinated land-use policy. Also, the following key strategic interventions relate to protected areas: Develop a comprehensive system for sustainable manage of land resources; enhance capacity for land management; preserve critical forest areas</p>	<ul style="list-style-type: none"> • Saint Vincent and the Grenadines has signed on to the Caribbean Challenge Initiative (CCI) and pledged to protect 20% of its near-shore marine and coastal resources by 2020. • The Tobago Cays Marine Park has been established. • Increase effectively managed marine areas, particularly areas on the South Coast of the mainland. This activity is being led by the Fisheries Division and National Parks, Rivers and Beaches Authority, the Forestry Department and the Coast Guard. • A (Draft) National Oceans Policy has been prepared and will soon be submitted to Cabinet. This legislation is expected to enable the legal and institutional arrangements that will enhance management of the State’s ocean and marine resources. 	<ul style="list-style-type: none"> • Conduct assessments of the terrestrial and coastal and marine ecosystems to establish the percentage of territory that is most beneficial and feasible for protection, as well as the most appropriate level/category of protection needed. • Develop and implement, on a phased basis, the process to Protected Area designation, ensuring enforcement of the relevant legislation.
15	<p>By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 percent of degraded ecosystems, thereby contributing to climate</p>	<p>Goal 4 Obj. 4.10 states: To reduce the adverse impacts of climate change. It calls for interventions to, among others, increase public awareness; minimise damage to beach and shoreline integrity and marine ecosystems; and develop a legislative and regulatory framework for proper environmental</p>	<p>SVG’s Initial National Communications to the United Nations Framework Convention on Climate Change (UNFCCC) was submitted in 2000 and in 2002 a draft National Climate Change Adaptation Policy Paper (NCCAPP) was produced as one of the outputs of the regional project: Caribbean Planning for Adaptation to Climate Change (Government of SVG,</p>	<p>Conclude and legally adopt a national policy on climate change, including strategies for adaptation and mitigation. Conduct baseline studies on carbon sequestration by various ecosystems (forests, coastal and marine). Monitor ecosystem change and corresponding carbon sequestration</p>

Aichi Target	SVG National Target	Relevance to National Development Goals	National Actions that Support the Target	Actions needed to Achieve Target by 2020
	change mitigation and adaptation and to combating desertification.	management and institutional systems for responding and mitigating effects of climate change.	<p>2011). The NCCAPP highlighted the potential impacts of Climate Change on various sectors including coastal and marine, agriculture and forestry, socioeconomic development and others, and attempted to integrate climate change concerns into the development plans of the relevant sectors/ministries.</p> <p>Also, Saint Vincent and the Grenadines' Nationally Determined Contributions (NDC) under the Paris Agreement commits the country to achieve "...an unconditional, economy-wide reduction in greenhouse gas emissions of 22% compared to its business as usual scenario by 2025. One of the stated strategies for achieving this is through the forest sector, by developing the country's GHG sinks through reforestation, afforestation, reduced deforestation and reduced forest degradation.</p>	<p>changes to compile data to facilitate reporting on contributions to mitigation.</p> <p>Preparation and execution of an implementation plan for the NDC, including plans for the forestry sector.</p>

3.6 Key Projects towards Achieving the National Biodiversity Targets

Some of the ways the critical institutions have previously functioned to advance biodiversity conservation are as follows:

1. Over the period 2007 – 2009, the National Parks, Rivers and Beaches Authority (NPRBA) undertook a project to develop and spread the benefits of the tourism sector through the implementation of the Tourism Master Plan for development, management and operation of all designated sites. The EU provided US\$3,616,615 in funding for this project.
2. Over the period 2013 – 2014, the NPRBA collaborated with the Forestry Department and Global Parks¹ to design, plan and implement an initiative dubbed "Discover Saint Vincent Biodiversity Project". The goal of the project was to develop an integrated watershed management plan for the Cumberland Forest Reserve with the aim of protecting IUCN Red Listed species within the Central Mountain Range Conservation Corridor on mainland Saint Vincent. The Critical Ecosystem Partnership Fund provided US\$77,623 in funding for this project.
3. Over the period 2013 – 2015, the NPRBA partnered with other organisations to enhance park planning management inclusive of the development of an operable management plan for the South Coast Marine Area based on stakeholder participation and involvement. The German International Cooperation Agency (GIZ) provided US\$530,000 in funding for this project.
4. Over the period 2013 – 2017, Saint Vincent and the Grenadines participated in the Eastern Caribbean Marine Managed Areas Network (ECMMAN) project, executed by The Nature Conservancy. The aim of this project was to declare new MMAs and strengthen existing ones; build strong constituencies for sustainable livelihoods and ocean use; improve and update an Eastern Caribbean Decision Support System that provides accessible decision-making tools and incorporates current ecological, socio-economic, and climate change data; and institute sustainability mechanisms to support the MMA network, including regional political commitments and actions, collaboration mechanisms on marine and coastal resources, and sustainable financing. As of 2015, Saint Vincent and the Grenadines has received XCD 750,000 from the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB) for this project.

¹ Global Parks is a grouping of retired natural resource managers, planners and administrators from the USA and Canada with extensive experience in parks and protected areas management and, environmental management. They provide *pro bono* professional service to national parks and protected areas and similar agencies in developing countries

5. As of 2015, the Forestry Department partnered with a contractor to implement a project to rehabilitate the Cumberland and Perseverance Watersheds. Together, these two watersheds comprise most of the central forest reserve/biodiversity corridor on mainland Saint Vincent. Several forest types and endemic fauna and flora exist along their topographical gradient. These ecological areas provide potable water to downstream communities and for hydro-electricity generation. Hurricane Tomas, a Category 1 Hurricane made landfall on 30th October 2010 and two major trough systems in April 2011 and December 2013 caused major disruption to these ecosystems; toppling trees, snapping crowns and defoliating plants, as well as causing landslides, and sedimentation of three (3) catchments units, two (2) hydro-electricity plants and two (2) sub-stations. The Cumberland and Perseverance Watersheds Rehabilitation Project is funded by the European Union and implemented through the Organization of Eastern Caribbean States (OECS) under the aegis of the Global Climate Change Alliance (GCCA) Project. Funding for this project amounts to ≥EC\$1M.
6. For the period 2015 – 2019, Saint Vincent and the Grenadines, through the Forestry Department, will participate in the “Caribbean Marine Biodiversity Program”. This regional project is funded by the United States Agency for International Development (USAID), executed by The Nature Conservancy and implemented locally by the Sustainable Grenadines (SusGren) Inc. The overall objective is to reduce threats to biodiversity in priority areas in the Caribbean in order to achieve sustained biodiversity conservation, maintain critical ecosystem services, and realise tangible improvements in human well-being for communities adjacent to marine managed areas.
7. Over the period 2016 – 2018, Saint Vincent and the Grenadines will participate in a regional project being executed by the Caribbean Community Climate Change Centre (CCCCC) titled “Coastal Protection for Climate Change Adaptation (CPCCA) in the Small Island States of the Caribbean Project”. The project is funded by the Federal Republic of Germany through its development bank, Kreditanstalt für Wiederaufbau (KfW), and implemented locally by three (3) entities; namely, the Ministry of Transport, Works, Urban Development and Local Government, the NPRBA and the SusGren Inc. Under this initiative three national sub-projects are being undertaken:
 - a. **The “South Coast Marine and Coastal Rehabilitation Project to Improve Ecosystem Health and Build Resilience to Climate Change” implemented by the NPRBA.** The primary objective of this sub-project is to restore the environmental integrity of the South Coast Marine Conservation Area (SCMCA) by the reduction of land- and marine-based stressors, improvement in ambient marine water quality within

normal, acceptable levels below 200 cpu/100ml, and rehabilitation of the beaches in the SCMCA. The KfW has provided grant funding of US\$600,000 for this 18-month project, representing 47% of the project cost.

- b. **Ashton Lagoon Restoration Project (ALRP), Union Island, Saint Vincent and the Grenadines.** The project aims to: Restore the Ashton Lagoon ecosystem to create a conducive environment for fisheries, coral and mangrove restoration and bird habitat, while increasing coastal resilience to climate change; Strengthen community resilience to CC for long-term adaptive management of Ashton Lagoon while promoting opportunities for sustainable livelihoods and ecosystem resilience to climate change impact; and Increase awareness of natural resources management and climate change adaptation among the general publics, stakeholders and government. Grant funding by the KfW for this 18-month project is set at US\$600,000. SusGren Inc. and TNC have secured co-financing of EC\$75,000 and EC\$200,000, respectively.
- c. **Building resilience of the Sandy Bay community to the impacts of climate change through shoreline protection.** The overall objectives of the project are: to reduce the vulnerability of the people and infrastructure of Sandy Bay to wave damage; and, to reduce the rate of coastal erosion and protect land and property. KfW will provide US\$599,390.00 with co-financing from GoSVG in the amount of US\$209,000.00.

4.0 ACTION PLAN FOR IMPLEMENTING THE 2015 – 2020 BIODIVERSITY TARGETS

Through consultation with the key institutions tasked with biodiversity conservation, an action plan was created to advance the progress towards the National Biodiversity Targets, and by extension, the 2011-2020 Aichi Biodiversity Targets. In developing this plan, some challenges were identified as limiting factors to the plan. This section highlights the proposed implementation plan for the attainment of the national biodiversity targets and the institutional arrangements needed to support this plan.

Table 5: Implementation Plan for Achieving the National Biodiversity Targets

SVG Target	Activities	Timeline		Budget (USD) Cost Elements	Responsible Entity
		Short–Medium Term (Years 1–2)	Long-term (Years 3-5)		
1. By 2020, at least 50% of the population of Saint Vincent and the Grenadines is knowledgeable about the values of biodiversity and the steps they can take to conserve and use it sustainably.	Conduct a national KAP survey before the launch of the educational programme, and near the end of the plan, period to evaluate the extent to which the target has been met.	Yr. 1: Design and implement KAP survey		Consultant: \$60,000.00	Sustainable Development Unit; Forestry Department; Fisheries Division; National Parks, Rivers and Beaches Authority
	Implement a harmonised public education and awareness programme to focus on the national targets.	Yr. 2: <ul style="list-style-type: none">Design public education and awareness strategyDevelop implementation strategy	Yr. 3: Implement public education and awareness programme Year 4: Conduct national KAP survey	Consultant: \$75,000.00	Sustainable Development Unit; Forestry Department; Fisheries Division; National Parks, Rivers and Beaches Authority
2. Quantify the status of all-natural habitats and the rate of habitat loss, including forest, and would have developed and been in the process of implementing a strategy to reduce the rate of habitat loss.	Design and implement the baseline study on habitats	Yr. 1: Design study with specific activities Yr. 1: Acquire necessary equipment for implementation Yr. 2: Begin implementation of study	Yr. 3- 4: Continue habitat survey and mapping. Yr. 4 -5: Produce habitat maps and other reporting aides on work is done throughout the study.	SCUBA tanks and Dive equipment Camera Dive Boat Depth Sounder Amphibious drone VHF Radios Dive training for 5 persons	Fisheries Division

SVG Target	Activities	Timeline		Budget (USD) Cost Elements	Responsible Entity
		Short–Medium Term (Years 1–2)	Long-term (Years 3-5)		
		Establish MOU with supporting researchers and Universities; Design study	Implementation	\$500,000.00 for field implementation. Transportation and housing will support researchers	Forestry Department
	Develop and implement the strategy and specific activities for reducing habitat loss	Develop improved forest patrol system	Laws and regulation enforced. Permits for entry to reserves implemented	\$10,000.00 per annum; increase patrols and permits monitoring	Forestry Department
	Identify all invasive species of marine and terrestrial fauna and flora and establish baselines on the extent of the invasion(s)	Improved surveillance at ports	Implement monitoring system and foot baths at forest gate	\$ 10,000.00 per annum	Forestry Department; Fisheries Division; Agriculture Department
3. By 2020, invasive alien species and pathways are identified and prioritised, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.	<ul style="list-style-type: none"> Prioritise species for eradication based, for example, on their impact on native species and livelihoods 	Yr. 1: Acquire necessary equipment for implementation of baseline survey	Yr. 3-5: Continue monitoring of invasive species (both lionfish and <i>Halophila sp.</i> seagrass) populations around SVG.	Laptop: \$650	Fisheries Division; Agriculture Department
		Yr. 1-2: Conduct baseline assessment for lionfish populations around SVG		Lionfish pole spears (5): \$150	
		Yr. 1-2: Conduct baseline assessment for <i>Halophila sp.</i> Seagrass beds around SVG	Lionfish containment units (4): \$600		
		Yr. 1-2: Conduct lionfish culling exercises	Yr. 3-5: Conduct lionfish culling exercises	\$ 30, 000.00	Fisheries Division
		Identify invasive species that are a threat to native flora and fauna	Develop and implement species control measures for Armadillo. Monitor range of <i>Anolis sagrei</i>	\$ 15,000.00	Forestry Department

SVG Target	Activities	Timeline		Budget (USD) Cost Elements	Responsible Entity
		Short–Medium Term (Years 1–2)	Long-term (Years 3-5)		
	Develop and implement eradication strategies, ensuring systematic monitoring and documentation of the rate(s) and extent of decline up to 2020.	Yr. 1: Develop monitoring and/or eradication strategy for invasive species	Yr. 3 – 5: Monitor the rate of invasive species decline	\$ 25,000.00	Fisheries Division
		Yr. 1- 2: Monitor and the rate of invasive species decline	Yr. 5: Prepare report detailing changes over the Plan period		
		Establish data on numbers and distribution	Eradication of all negatively impacting invasive species	\$200,000.00	Forestry Department; National Parks, Rivers and Beaches Authority
	Prioritise the ten most important invasive alien species for agriculture and conduct pest risk analysis to identify possible pathways. Implement strategies to prevent introduction and establishment	Conduct an exercise to identify the ten most important IAS to agriculture. Establish a functional Pest Risk Analysis Unit	Measures are in place to reduce the risk of introduction of IAS. Emergency action plans are developed to reduce the potential impact of the introduction of the ten identified IAS.	One Computer - US\$1000 Staff - US\$17,000/Yr.	Ministry of Agriculture/Plant Protection, Quarantine
	Continue to manage Invasive Alien Species of economic importance to agriculture	Conduct surveillance and implement management strategies for six IAS that have become established	IAS is maintained below the economic threshold level that will sustain production and trade.	Material and supply - \$1,000,000 Staff - \$65,000	Ministry of Agriculture/PPQ
4. At least 17 percent of terrestrial and inland water, and 10 percent of coastal and marine areas, especially areas of particular importance for biodiversity and	Conduct assessments of the terrestrial and coastal and marine ecosystems to establish the extent, nature, type and the percentage of territory that is most beneficial and feasible for protection and conservation, as well as the most appropriate	Yr. 1: Review and update existing laws including the drafting of regulations that protect inland waterways, wetlands, forest reserves and wildlife reserves		Legislative review and upgrade: \$25,000 Cost for design of ecological assessments: \$20,000	National Parks, Rivers and Beaches Authority

SVG Target	Activities	Timeline		Budget (USD) Cost Elements	Responsible Entity
		Short–Medium Term (Years 1–2)	Long-term (Years 3-5)		
ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.	<p>level/category of protection and conservation needed.</p> <p>Design and implement baseline ecological assessments of the Central Biodiversity Corridor (CBC) on Saint Vincent which comprises forest reserves, wildlife reserves and upper watersheds</p> <p>Based on the above, and with the Cumberland Integrated Watershed Management Plan 2013 as reference, design and implement a project to protect, conserve and rehabilitate critical habitats in this particular watershed to include among other things the following:</p> <ol style="list-style-type: none"> I. Development of management plan II. Stakeholder engagement III. Soil and water conservation on private lands IV. Community outreach programs V. Communication, education and public awareness 	<p>Yr. 1: Design baseline ecological assessments with specific activities</p> <p>Yr. 1: Acquire necessary materials, tools and equipment for assessments: satellite imagery, GIS software, drones, etc.</p> <p>Yr. 2: Begin implementation of baseline ecological assessments</p>	<p>Yr. 3: Complete ecological assessments</p> <p>Yr. 3: Develop management plans for the CBC</p> <p>Yr. 3-4: Design project with specific activities</p> <p>Yr. 4: Acquire necessary materials, tools and equipment for project implementation</p> <p>Yr. 4-5: Implement project</p>	<p>Cost of materials, tools & equipment: \$35,000</p> <p>Cost of Implementing baseline ecological assessments including production of maps and reports: \$80,000</p> <p>Cost to develop management plans: \$30,000</p> <p>Cost for design of project: \$35,000</p> <p>Cost of materials, tools and equipment to support project implementation: \$80,000</p> <p>Cost to implement project: \$550 000</p>	

SVG Target	Activities	Timeline		Budget (USD) Cost Elements	Responsible Entity
		Short–Medium Term (Years 1–2)	Long-term (Years 3-5)		
	Develop and implement, on a phased basis, the process to Protected Area designation, ensuring enforcement of the relevant legislation.	<p>Yr. 1: In collaboration with protected area agencies and stakeholders, review and update the Draft <i>Guidelines for Protected Area Designation within the National System of Parks and Protected Areas (PA) in Saint Vincent and the Grenadines (SVG)</i></p> <p>Yr. 1-2: In collaboration with the Forestry Department, other PA agencies and stakeholders, and utilising the updated SVG PA Designation Guidelines, begin the process to designate at least one new forest reserve or conservation forest.</p> <p>Yr. 1-2: Procure materials, tools and equipment to support ecological assessment</p> <p>Yr. 1-2: Initiate communication, education and public awareness (CEPA) activities to highlight the importance and value of the declared forest reserve or conservation forest and to garner public support for its designation, protection and conservation.</p>	<p>Yr. 2-3: Designate new forest reserve or conservation forest</p> <p>Yr. 3: Develop management plan</p> <p>Yr. 3-5: CEPA activities continue</p>	<p>Cost to review SVG PA Designation Guidelines to include a series of focus group discussions, consultations and workshops: \$2,500</p> <p>Costs to include design and implementation of baseline ecological and socio-economic assessments, and the production of maps and reports: \$40,000</p> <p>Cost of materials, tools and equipment: \$20,000</p> <p>Cost reflected at (*) above</p> <p>Cost to develop management plan: \$20,000</p> <p>Cost to support CEPA activities: \$45,000</p>	National Parks, Rivers and Beaches Authority

SVG Target	Activities	Timeline		Budget (USD) Cost Elements	Responsible Entity
		Short–Medium Term (Years 1–2)	Long-term (Years 3-5)		
		In collaboration with the Forestry Department, other PA agencies, the Royal SVG Police Force and stakeholders, review and adapt for use within terrestrial PAs, the Draft <i>Standard Operating Procedures (SOP) Manual for Marine Protected Areas (MPAs) Enforcement 2016</i> .		Cost to review SOP Manual for Law Enforcement in MPAs for adaptive use in terrestrial PAs: To include a series of focus group discussions, consultations and workshops: \$10,000	
	Using as reference, the SVG marine spatial planning (MSP) data, maps and <i>Coral Reef Scorecards</i> produced under the aegis of the Nature Conservancy (TNC) - Eastern Caribbean Marine Managed Areas (ECMMAN) Project in 2016, design and implement detailed assessment and mapping of the habitats and their constituents in at least 4 existing and proposed marine parks, marine reserves and or marine conservation areas. Using the updated <i>SVG PA Designation Guidelines</i> and incorporating the Moorings and Zoning Plans prepared under the aegis of the Caribbean Aqua-Terrestrial Solutions (CATS) Project 2014-2015, designate and	Yr. 1: Design marine habitat assessment protocol Yr. 1: Procure materials, tools and equipment Year 1-2: Implement habitat assessment and mapping Yr. 1: Review and update to incorporate climate change mitigation and adaptation strategies and an adaptive monitoring plan, the Draft Management Plan for the proposed park prepared under the aegis of the CATS 2014-2015 Project Yr. 1-2: Review and update the <i>SVG National Parks and Protected Areas System Plan 2010-2014</i> to among other things reflect the incorporation of climate change mitigation	Yr.3-5: Detailed habitat mapping and assessment of all other existing and proposed marine parks, marine reserves and marine conservation areas	Cost to design marine habitat assessment and mapping: \$10,000 Cost of materials, tools and equipment: \$20, 000 Cost to implement marine habit assessment and mapping at least 4 existing and proposed marine parks, marine reserves and or marine conservation areas: \$45,000 Cost to implement detailed marine habitat assessment and mapping at all other MPAs System-wide: To include design, materials, tools and equipment and the	National Parks, Rivers and Beaches Authority

SVG Target	Activities	Timeline		Budget (USD) Cost Elements	Responsible Entity
		Short–Medium Term (Years 1–2)	Long-term (Years 3-5)		
	operationalise the proposed South Coast Marine Park Incorporate climate change mitigation and adaptation strategies into parks and protected areas management at the site and system level	and adaptation strategies into parks and protected areas management Yr. 2: Scale up water quality monitoring at the site and System level		production of maps and reports: \$100,000 Cost to review and update draft management plan: to include a series of consultations, focus group discussions and workshops, and printing of management plan and reports: \$7,500 Cost to review and update the <i>SVG National Parks and Protected Areas System Plan 2010-2014</i> : to include a series of consultations, focus group discussions and workshops, and printing of management plan and reports: \$7,500 Cost to scale up water quality monitoring: to include material, tool & equipment: \$6,500	
	Conduct assessments of the terrestrial and coastal and marine ecosystems to establish the percentage of territory that is most beneficial and feasible for protection, as well as the most appropriate level/category of protection needed.	Review existing laws that protect waterways	Watershed management plans. Regular water monitoring of upper watershed streams Fisheries management Plans for Lobster and Conch	Legislative review and upgrade: \$20,000.00 Develop and implement management plans for all watersheds;	National Parks Forestry Fisheries

SVG Target	Activities	Timeline		Budget (USD) Cost Elements	Responsible Entity
		Short–Medium Term (Years 1–2)	Long-term (Years 3-5)		
				Develop Fisheries Management Plans: \$40,000	
	Develop and implement, on a phased basis, the process to Protected Area designation, ensuring enforcement of the relevant legislation.	Establish forest reserve and wildlife reserve boundaries	Develop and implement management plans for reserves	Upgrade national parks system plan USD 20,000.00 for consultancy and participatory planning	Forestry, National Parks
5. By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 percent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.	Develop National Climate Change Policy, Strategy and Implementation Plan, including strategies for adaptation and mitigation.	Yr. 1 – Develop National Climate Change Policy Yr. 2 – Develop Strategy and Implementation Plan	Yr. 3-5 – monitor success of implementation plan		Sus Dev Unit, Min. Econ Plan, etc. Forestry
	Conduct baseline studies on carbon sequestration by various ecosystems (forests, coastal and marine).	Yr. 1 – 2: Undertake baseline assessments	Yr. 3 – 5: Continue data collection at regular intervals Produce mid-term and end-of-term status reports		Sus Dev Unit, Min. Econ Plan, etc. Forestry
	Monitor ecosystem change and corresponding carbon sequestration changes to compile data to facilitate reporting on contributions to mitigation.			Produce mid-term and end-of-term status reports	
	Conclude and legally adopt a national policy on climate	Implement effective management activities to build	Have effective management plans developed implemented and monitored	Reforestation of degraded lands	Sus Dev Unit, Min. Econ Plan, etc.

SVG Target	Activities	Timeline		Budget (USD) Cost Elements	Responsible Entity
		Short–Medium Term (Years 1–2)	Long-term (Years 3-5)		
	change, including strategies for adaptation and mitigation.	resilience in forest and upper watersheds		USD 800,000.00 Includes annual reforestation and maintenance budget	Forestry
	Conduct baseline studies on carbon sequestration by various ecosystems (forests, coastal and marine).	Develop means of measurement	Have a carbon stock value for the forests	Study USD 30,000.00	Sus Dev Unit, Min. Econ Plan, etc. Forestry
	Monitor ecosystem change and corresponding carbon sequestration changes in order to compile data to facilitate reporting on contributions to mitigation.	Monitor and map deforestation and bushfires	Reduce deforestation and vegetation loss	Enhance system to monitor forest Mapping Upgrades	MOHWE (Climate Change) Forestry

4.1 Institutional Arrangements for Achieving the National Biodiversity Targets

To ensure that the Action Plan for the National Biodiversity Strategy is thoroughly implemented, the government is committed to strengthening the arrangements between key intuitions and improving the capacity of each to better enable their work.

There are several governmental and non-governmental entities which play a role in biodiversity management in Saint Vincent and the Grenadines. The institutional arrangement for the implementation of the NBSAP is such that the Sustainable Development Unit in the Ministry of Finance, Economic Planning, Sustainable Development, and Information Technology will be tasked with providing overall coordination of the other stakeholders. Three major governmental entities will take a leading role in the execution of the plan, namely: (i) the Fisheries Division and (ii) Forestry Department in the Ministry of Agriculture, Forestry, Fisheries, Industry and Labour; and, (iii) the National Parks, Rivers and Beaches Authority. Agencies that will play a significant supporting role include, but are not limited to the Plant Protection and Quarantine Unit of the Ministry of Agriculture, Forestry, Fisheries Rural Transformation, Industry and Labour, the Saint Vincent and the Grenadines National Trust, the Tobago Cays Marine Park and SusGren Inc.

Table 6.0 outlines the envisioned role of these stakeholders in contributing to the continued development and implementation of the NBSAP. The roles are tentative and may be changed subject to review and ratification by GoSVG.

Table 6: Institutional Responsibility for Implementing the National Biodiversity Targets

STAKEHOLDER	ANTICIPATED ROLE/RESPONSIBILITIES
<i>Sustainable Development Unit Ministry of Finance, Economic Planning, Sustainable Development and Information Technology</i>	<ul style="list-style-type: none"> • Coordinating all activities related to the implementation of the UNCBD and, by extension, the revised NBSAP - once approved by Cabinet. • Monitoring and Evaluation of the Implementation of the NBSAP
<i>Fisheries Division of the Ministry of Agriculture, Forestry, Fisheries, Rural Transformation, Industry and Labour</i>	<ul style="list-style-type: none"> • Lead on fisheries management in Saint Vincent and the Grenadines. • Facilitate or provide technical guidance and support in the areas of ecological and habitat assessments, i.e., Atlantic Gulf Rapid Reef Assessment (AGRRA) surveys, water quality monitoring, beach profile monitoring and assessment, and sea turtle monitoring among others. • Support law enforcement • Support public education and awareness building • Contribute to the development of natural resource inventories.
<i>Forestry Department of the Ministry of Agriculture, Forestry, Fisheries and Rural Transformation</i>	<ul style="list-style-type: none"> • Lead on forest estate and wildlife reserve conservation and management, including but not limited to management of: <ul style="list-style-type: none"> ○ Silviculture ○ Watersheds ○ Riparian Zones ○ Agroforestry

	<ul style="list-style-type: none"> ○ Cooperative forestry ○ Private forestry ○ Timber and non-timber forest products ● Support law enforcement ● Support public education and awareness building ● Contribute to the development of natural resource inventories
<i>Plant Protection and Quarantine Unit of the Ministry of Agriculture, Forestry, Fisheries and Rural Transformation</i>	<ul style="list-style-type: none"> ● Lead on protecting the country’s plant and animal resources against the introduction of invasive pests and diseases. ● Control the movement of agricultural and horticultural produce, plants and animals at the ports of entry to/of Saint Vincent and the Grenadines. ● Undertake pathology testing and analysis to support quarantine ● Monitoring the country daily for fruit fly and other exotic pests
<i>National Parks, Rivers and Beaches Authority (NPRBA)</i>	<ul style="list-style-type: none"> ● Lead on the coordination of efforts at biodiversity conservation and management among Parks and Protected Areas (PAs), inclusive of marine and terrestrial parks and PAs as well as private parks and PAs. ● Support enforcement ● Support research and development ● Support surveillance of Invasive Alien Species.
<i>Saint Vincent and the Grenadines National Trust</i>	<ul style="list-style-type: none"> ● Lead on the writing of projects and acquiring funding for biodiversity conservation
<i>Tobago Cays Marine Park Board of Directors</i>	<ul style="list-style-type: none"> ● Lead on the management of the Tobago Cays Marine Park and various operations that include, but are not limited to: <ul style="list-style-type: none"> ○ Ecological/habitat assessment and monitoring ○ IAS surveillance and monitoring ○ Supporting law enforcement ○ Supporting public education and outreach ○ User-fee collection
<i>Sustainable Grenadines Incorporated</i>	<ul style="list-style-type: none"> ● Lead on leveraging Non-Governmental Organisation (NGO) resources in support of other key stakeholders and their functions.

4.2 Communications and Outreach Strategy

The deepening of appreciation among Vincentians for biodiversity and its connection to sustainable development is a National Biodiversity Target. Therefore, the goal of the communication and outreach strategy is to influence the knowledge, attitude and practice of all resource users, policy makers, critical state- and non-state actors into adopting and adhering to sustainable approaches to livelihood creation, based on considerations for the maintenance of biodiversity.

4.2.1 Specific Objectives of the Communications Strategy

To increase public awareness and understanding of the links between development and the environment;

To increase the awareness of resource users on the need to protect biodiversity and the sustainable use of limited resources;

To strengthen the awareness of community residents and community knowledge base, broadly speaking on issues relating to biodiversity and the use and management of community resources;

To strengthen the awareness and the knowledge base of the leadership of civil society organisations on issues relating to biodiversity and the need to promote sustainable development efforts;

To increase the awareness of change agents working to promote sustainable development,

To increase references to bio-diversity issues in the contents public discussions and discourse, particularly in the electronic media, e.g., radio, face book; and

To influence the awareness and action of policy makers, policy-making and policies in favour of promoting biodiversity in the process of development.

Therefore, the Development and Implementation of the Communication and Outreach Strategy for NBSAP itself rests on the consideration of the purpose of the strategy, the target audience, and the resources available for its preparation and sustainability, and the management mechanism beyond the consultancy. It is accepted that the general public should be exposed to knowledge and awareness of biodiversity however it is more effective to target strategies to key biodiversity stakeholders. Different groups are likely to perceive ideas differently based on certain factors including educational background, socioeconomic status, age and occupation. In light of this, the communication and outreach strategy is designed to focus on sensitising specific target groups effectively. The target groups can then assist in disseminating information to the wider community which can be more effective in bringing about greater awareness.

The proposed target audience includes:

- Students
- Resource users: Farmers, Fisherfolk, Divers
- Policy Makers: Agriculture, Fisheries, Forestry, Health
- Civil Society Organisations: Community Groups, Interest groups,
- Critical State – Coast Guard
- Business and private sector: Tourism Sector.

4.2.2 Key Messages

Key messages will be developed in collaboration with key stakeholders. Some of the broad messages which are likely to be considered are:

- Biodiversity is vital
 - Valuable
 - Important to sustain life
 - Threatened – Plants, animals, ecosystems
 - Actions can be taken to conserve and reduce loss
 - Livelihoods – New and sustainable

Communication and Outreach will be done under a unique brand, and key messages will be developed, coded and delivered to best suit the target audience. This audience will include the mass media (radio, television, newspapers) as well as on small scale with direct interaction with the various stakeholders. The internet will also be used as a repository for public education and to ensure sustainability via the Clearing House Mechanism (CHM).

4.3 Enhancing Financial Resources

To enable coordinating, leading and supporting agencies to implement the NBSAP successfully and achieve the National Biodiversity Targets, the GoSVG will utilise a range of internal, external and innovative sources of funding. It will leverage its global partnerships to ensure that the financial resources required are efficiently estimated, obtained and utilised. Table 7.0 highlights financial mechanisms to be considered by GoSVG to 2020.

Table 7: Sources of Financial Support for Achieving the National Biodiversity Targets

INTERNAL	EXTERNAL	INNOVATIVE
General budget (E.g. Subventions)	Aggregated Financial Flows (E.g. Overseas Development Assistance, Multilateral Funds)	Environmental Fiscal Reform (E.g. removal of perverse incentives and provision of incentives for activities that contribute positively to biodiversity conservation)
Treasury Options (E.g. Trust Funds, Guarantees, National Funds)	Regional Development Banks (E.g. Caribbean Development Bank, The World Bank)	Payments for Ecosystem Services
Local Credit Unions, Banks and Private Investment	Private Sources (E.g. Foreign Direct Investment)	Biodiversity Offsets (Compensatory Conservation)
Private Sector Local Markets (E.g. Public-Private Partnerships, tradable quota systems)	International NGOs	Markets for Green Products (E.g. Organic, Eco-labelling)
Endowments and Revolving Funds	International/Multinational Partnership Cooperation (E.g. Global Environment Facility)	Biodiversity in Climate Change Funding

		(E.g. UN-REDD Programme, Forest Investment Programme, GCF)
Nonprofit Organizations	Expatriate Funds	Biodiversity within Financial International Development (E.g. Public Private Partnerships, Long-term concessional contracts)
	International Philanthropic Organizations	Environmental Performance Bonds.
	Sector-Wide Approaches	
	Debt Relief Instruments	
	Common, Pooled, or Basket Funding Arrangements	
	South to South and North to South Cooperation	

4.4 Enhancing Capacity: National Biodiversity Clearing House Mechanism

Another critical component for strengthening the country’s capacity to mainstream biodiversity into its economic and social development is the establishment of a national biodiversity clearing house mechanism (CHM). This was identified as a critical need in the creation of the 4th National Report to the CBD and is again recommended as part of the umbrella of project activities coming out of the 5th National Report. The CHM will be a single repository of all biodiversity data in Saint Vincent and the Grenadines. Biodiversity data will be made accessible online, allowing for, *among other things*, the wide-spread dissemination to governmental entities, non-governmental organisations and the public; tracking the implementation of the NBSAP, and specifically tracking the progress towards national targets. The Government plans to place the CHM within the remit of the Ministry of Economic Planning, Sustainable Development and Information Technology, which is the focal point for the CBD.

4.5 Monitoring and Evaluation

For the NBSAP implementation to be effective, it is important that the progress towards the National Biodiversity Targets be tracked through a robust and regular monitoring and evaluation process.

The Sustainable Development Unit of the Ministry of Finance, Economic Planning, Sustainable Development, and Information Technology will have chief responsibility for monitoring the annual progress of the NBSAP Implementation Plan. For each activity to be executed towards a National Biodiversity Goal, indicators of progress will be developed prior to execution by the lead entities, and periodic reports on these indicators will be submitted to the Sustainable Development Unit as requested. The Sustainable Development Unit will, in partnership with the other entities involved in the NBSAP Implementation Plan,

develop the overall framework for monitoring which would consist of: indicators, baselines, targets, means of verification, frequency of measurement, risks, resources needed, and results framework.

The evaluation of the impact of activities on biodiversity, on the other hand, will be undertaken by independent consultants hired by the Sustainable Development Unit. Evaluation will be done every 5 years before the revision and update of the NBSAP.

Coming out of the preparation of the NBSAP it was agreed that the country would focus on five targets (See Table 4.) which were consistent with the national development goals. The challenge for the SDU in developing an M&E framework is to develop a set of indicators to measure progress in achieving those targets. Monitoring progress towards these desired outcomes requires the use of specific indicators. For each activity being undertaken towards achieving the National Biodiversity Goal, indicators of progress will be developed before execution by the lead entities. These entities will also provide periodic reports on progress being made in achieving the indicators identified and will submit periodic reports to the Sustainable Development Unit. The evaluation of the impact of activities on biodiversity will be done every five years before the revision and update of the NBSAP.

According to the Biodiversity Indicators Partnership (BIP), indicators are an essential aspect of monitoring and reporting progress towards the achievement of national targets, such as those set in NBSAPs or sustainable development strategies. They are also important in facilitating adaptive management.²

Using as a guide the indicator sets promoted by BIP, these indicators will be developed iteratively, for each of the five targets identified in the NBSAP Implementation Plan. As a guide towards the selection of indicators, it will be required that these indicators should be Specific-Measurable-Assignable-Realistic-Time-related (SMART) in order to ensure the usefulness and feasibility of the measurement exercise.

Among the various grouping of indicators which will be targeted are **environmental**, **socioeconomic** and **institutional** indicators. Environmental indicators predominately focus on, for example, water quality, changes in forest cover and monitoring changes in habitat and key species. Socioeconomic indicators focus on the involvement of people in new livelihood activities related to natural resources and species protection. Institutional indicators, on the other

² <https://www.bipindicators.net/>

hand, are focused on institutional capacities, policy implementation, awareness-raising measures and collaborations between diverse stakeholder's groups.

A common complaint of many countries of the region is the paucity of information on which to establish baselines and monitor ongoing progress in meeting intended targets. For Saint Vincent and the Grenadines, much of the data sources identified are government departments inclusive of forestry, fisheries, agriculture, health and the environment, as well as the national water company, conservation NGOs and the statistical department. Since much of that data is scattered throughout these agencies and departments, it will be the responsibility of the Sustainable Development Unit to develop a data collection program to assist in aggregating this data in a centralised location. The establishment of the CHM as indicated above will go a long way in facilitating the collection, storing and dissemination of that data.

5.0 CONCLUSION

The preparation of this Revised National Biodiversity Strategy and Action Plan is the finalisation of the exercise involving the preparation of the 5th National Report to the CBD and the Revision to the NBSAP which was first prepared in 2000. The 11th Conference of the Parties of the CBD urged Parties to develop national targets, using the Strategic Plan for Biodiversity 2011–2020 and the Aichi Targets as a guiding framework. The Conference advocated that Parties integrate their National Biodiversity Targets into National Biodiversity Strategy and Action Plans in accordance with national priorities and capacities.

Saint Vincent and the Grenadines has now selected those Aichi Targets on which they would base their National Biodiversity Targets. The Aichi Targets are 1, 5, 9, 11 and 15, and the National Targets are in alignment with the global Aichi Biodiversity Targets. The relevance of the targets to national development is borne out in Strategic Goal 4 of the recently completed National Economic and Social Development Plan 2013-2025 as shown in the preceding section of this report. This linkage is a valuable entry point for ensuring that the National Biodiversity Targets and the revised NBSAP are easily mainstreamed into national plans and activities of the various stakeholder agencies. Further, it provides the context upon which global partnerships and resource mobilisation can be sought. The impending establishment of the CHM together with the development of the monitoring and evaluation framework will further support the timely mainstreaming of biodiversity and ensure greater success in achievement of the National Biodiversity Targets.

References

- Caribbean Agricultural Research and Development Institute 2009. Annual Report.
- Culzac-Wilson, L. 2005. Species Conservation Plan for the St. Vincent Parrot *Amaona guildingii*. Puerta de la Cruz, Tenerife: Lora Parque Fundación.
- Daszak, P and Cunningham, A. A. 1999. Extinction by Infection. *Trends in Ecology and Evolution* 14: 279.
- Deem, S. L., Karesh, W. B., and Weisman, W. 2001. Putting Theory into Practice: Wildlife health in conservation. *Conservation Biology* 15:1224-1233.
- Food and Agriculture Organisation (FAO). 2002. *Fishery Country Profile: St. Vincent and the Grenadines*. Rome: FAO Fisheries and Aquaculture Department.
- Food and Agriculture Organization. 2008. Second Country Report on the State of Genetic Resources in SVG.
- Food and Agriculture Organization. 2009. SVG Livestock Investment Project.
- Fisheries and Aquaculture Policy for St. Vincent and the Grenadines (FAP). 2012. ACP Fish II. Kingstown, St. Vincent.
- Forestry Department. 2001. Update of the St. Vincent Parrot Conservation Programme 1994 – 2001. Forestry Department, Ministry of Agriculture, Industry and Labour.
- Isaacs, K. 2012. Lionfish Action Plan for St. Vincent and the Grenadines. St. Vincent and the Grenadines: Fisheries Division. Unpublished report.
- Mattai, I. and Mahon, R. 2007. Review and interpretation of environmental and sustainable development legislation for the Grenadine Islands. *CERMES Technical Report No. 15*. Barbados: University of the West Indies.
- Ministry of Finance, Planning and Economic Development, 2013: National Economic and Social Development Plan, 2013 -2025.
- Simmons and Associates, Inc. 2000. Draft National Biosafety Strategy and Action Plan for St. Vincent and the Grenadines. Report prepared for the Government of St. Vincent and the Grenadines.
- Sustainable Grenadines Project (SusGren). 2005. Sustainable integrated development and biodiversity conservation in the Grenadine Islands - overview. St. Vincent and the Grenadines: Sustainable Grenadines Project.
- US Agency International Development: Caribbean Open Trade Support (USAID-COTS) 2010. Sand mining in St. Vincent and the Grenadines: Impacts and options.
- Williams E. 2008. Land-based sources of marine pollution in the Grenadine Islands. MSc. Thesis, University of the West Indies.

WEBSITES

AirClim Factsheet (2014), Poverty and Biodiversity. Based on the publication "Air Pollution and Biodiversity" by Nigel Dudley and Sue Stolton, WWF International 1996

http://www.airclim.org/sites/default/files/documents/Factsheet_7_0.pdf. Accessed January 2014.

Biodiversity Indicators Partnership <https://www.bipindicators.net/>

The World Bank. 2008. Biodiversity, Climate Change, and Adaptation: Nature-based solutions from the World Bank portfolio.

http://siteresources.worldbank.org/INTBIODIVERSITY/Resources/Biodiversity_10-1-08_final.pdf. Accessed December 2013.

Christie, M., and Teelucksingh, S. (2012). A National Level Economic Valuation Study of the Environmental Services provided by Marine Habitats in St Vincent and the Grenadines. Available at:

<http://users.aber.ac.uk/mec/Publications/Reports/value%20of%20marine%20ess%20in%20svg%20final%20report.pdf>

Critical Ecosystem Partnership Fund. 2013. Caribbean Islands Biodiversity Hotspot: Ecosystem profile summary.

http://www.cepf.net/SiteCollectionDocuments/caribbean/Caribbean_EP_Summary.pdf. Accessed December 2013.

Grid Arendal. 2014. Impacts on Biodiversity and Ecosystems from Conventional Expansion of Food Production. <http://www.grida.no/publications/rr/food-crisis/page/3569.aspx>. Accessed January 2014.

Kerala Tourism Watch 2010. Tourism and Biodiversity: Natural allies? Crucial questions for the tourism industry. <http://www.keralatourismwatch.org/node/142>. Accessed January 2014.

St Vincent and The Grenadines Tourism Authority Monthly Statistics Dec 2015 <http://www.discoversvg.com/index.php/en/about-svg/tourism-statistics>