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LIST OF ACRONYMS AND ABBREVIATIONS

ACAPG	Aupicon Charcoal and Agricultural Producers Group
CANARI	Caribbean Natural Resources Institute
CARICOM	Caribbean Community
CBD	Convention on Biological Diversity
CBO	Community Based Organisation
CRFM	Caribbean Regional Fisheries Mechanism
CHM	Clearing House Mechanism
COP	Conference of the Parties
DWPT	Durrell Wildlife Preservation Trust
CITES	Convention on International Trade in Endangered Species of Fauna and Flora
CMS	Convention on the Conservation of Migratory Species
CZM	Coastal Zone Management
CZMU	Coastal Zone Management Unit
CZMAC	Coastal Zone Management Advisory Committee
EC	European Commission.
EE&A	Environmental Education and Awareness
EIA	Environmental Impact Assessment
EU	European Union
FAO	Food and Agriculture Organization
GBO	Global Biodiversity Outlook
GEF/SGP	Global Environment Facility's/ Small Grants Programme
GEO	Global Environment Outlook
GOSL	Government of Saint Lucia
GMO	Genetically Modified Organism
ICZM	Integrated Coastal Zone Management
ICRAN	International Coral Reef Action Network
IFRI	International Forestry Resources and Institutes.
IISD	International Institute for Sustainable Development
IMO	International Maritime Organisation
IPCC	Intergovernmental Panel on Climate Change
IRIN	Integrated Regional Information Networks
ITPGRFA	International Treaty on Plant Genetic Resources for Food and Agriculture
IUCN	International Union for Conservation of Nature
LMO	Living Modified Organism
LEAF	Linking Environment and Farming
LEAP	Leadership Enhancement in Agriculture Program
MALFF	Ministry of Agriculture, Lands, Forestry and Fisheries
MDG	Millennium Development Goal
MEA	Multilateral Environmental Agreement
MoU	Memorandum of Understanding
NAP	National Action Plan - UNCCD

NAPA	National Adaptation Program of Action
NBSAP	National Biodiversity Strategy and Action Plan
NCA	National Conservation Authority
NEC	National Environmental Commission
NEMO	Saint Lucia National Emergency Management Organization.
NEP/NEMS	National Environmental Policy and National Environmental Management Strategy
NGO	Non-Governmental Organisation
NTFPs	Non-timber Forest Products
OECS	Organisation of Eastern Caribbean States
OECD/DAC	Organisation for Economic Co-operation and Development/ Development Assistance Committee
OPAAL	OECS Protected Areas and Associated Livelihoods Project
PA	Protected Area
PMA	Piton Management Area
Ramsar	Convention on Wetlands of International Importance Especially as Waterfowl Habitat
SBSTTA	Subsidiary Body on Scientific, Technical and Technological Advice
SDES	Sustainable Development and Environment Section
SFA	Special Framework of Assistance – European Union
SIDS	Small Island Developing State
SMMA	Soufriere Marine Management Area
SPPA	Systems Plan for Protected Areas
SPAW	Specially Protected Areas and Wildlife (Protocol)
TEEB	The Economics of Ecosystems and Biodiversity
TNC	The Nature Conservancy
UN	United Nations
UNCCD	United Nations Conference to Combat Desertification.
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific, and Cultural Organization
UNFCC	United Nations Framework Convention on Climate Change
USAID	United States Agency for International Development
UWI	University of the West Indies
VCA	Vulnerability and Capacity Assessment
WCPA	World Commission on Protected Areas
WHC	World Heritage Centre (UNESCO)
WIDECAST	Wider Caribbean Sea Turtle Network
WIPO	World Intellectual Property Organization
WTO	World Trade Organization
WWF	World Wildlife Fund

SAINT LUCIA
4TH NATIONAL BIODIVERSITY REPORT

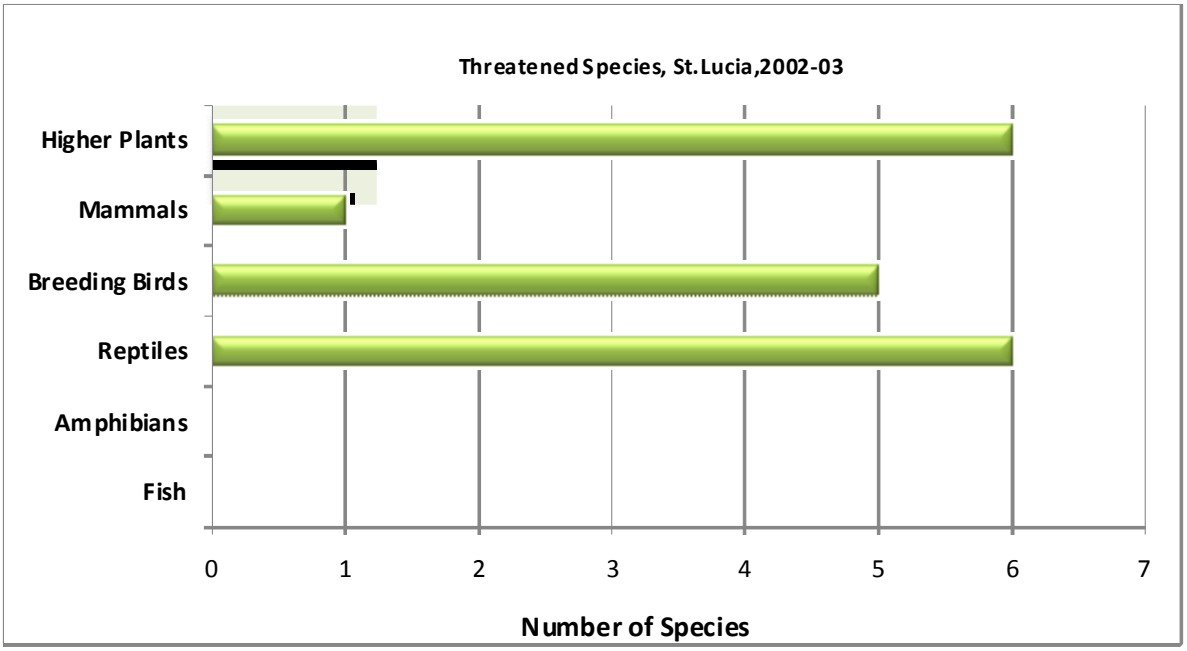
Executive Summary

The island of Saint Lucia, is a small volcanic island located at latitude 13° 59' N, and 61° W within the Eastern Caribbean, and its total land area is approximately 616 km^2. Notwithstanding its small size, the island possesses a high degree of diversity, not only in the ecosystems and habitats found on the island, but also in the variety of biological resources present, some of which are endemic to the country. Biodiversity is important to the country for food, shelter, medicines, ecosystem services, sustainable livelihoods, agriculture and tourism industries and future untapped industries of the country.

The Saint Lucian economy remains largely dependent and open, with a significant portion of its consumption needs (up to 60%of GDP) imported. The key economic sectors are tourism and agriculture, with the economy having undergone a major transition from an agrarian-based economy to a service economy since the 1990's. Both the tourism and agricultural sectors rely heavily on the country's natural/biological resources for their sustainability, yet also impact on it; sometimes adversely. For example, the principal tourism product occurs within coastal and marine habitats, the extensive use of which results in ecological change and sometimes degradation and loss of productivity. Current systems of farming involve the exploitation of land resources and terrestrial biodiversity to maximize economic output, invariably at the expense of the biological resources and environment.

The forest reserves are regarded as exceptionally well preserved in the country, comprising mainly rainforest ecosystems. Preliminary findings from the National Forest Demarcation and Bio-Physical Resource Inventory Project (2009) highlight the incredible diversity of Saint Lucia's forest types (habitats) which support a great variety of species. Few islands can match Saint Lucia for its diversity of forest species, with an exceptionally high number of species occurring only on Saint Lucia: 9 endemic 'higher plants'; 6 endemic birds (11 sub-species.); 7 endemic reptiles (5 sub-species); 1 endemic amphibian; 1 endemic mammal (1 sub-species) and more than 200 endemic beetles.

Except for the fifteen percent of government forest reserve, the situation in Saint Lucia shows strong similarity to the Biodiversity Global Outlook highlights for locations such as Africa and South America, which have the largest net loss of forests, declining population size and range of major species, threatened species occurring in all taxonomic groups and a 900-hundredfold increase in the extinction of species in the past few hundred years caused by human activity. This appears to be largely due to the perverse economics of habitat conversion to facilitate socio-economic development. General trends in biodiversity for Saint Lucia are portrayed in terms of incidence of threatened species resulting from declining populations as shown in figure 1.



Source: earthtrends.wri.org/pdf_library/country_profiles/bio_cou_662.pdf

The main threats to biodiversity and the ecosystems in Saint Lucia at this time are habitat modification and destruction. Habitat change is occurring at a rapid rate and is expected to increase even further in the future with the projected increase in hotel plants, marinas and golf courses earmarked for coastal regions, and an increase in housing and infrastructure which may impact dry forest areas. Habitat change and resultant coastal destruction will cause a reduction in species vital to the country, affecting the fishing and tourism industries.

The direct drivers, in this regard, are high population densities combined with population shifts, urbanization and increased development, particularly residential and touristic development, with the attendant socio-economic pressures resulting from high levels of human activity and changes in land use. With tourism now the lead economic sector, the island's development imperatives are driven purely by economic priorities. This often times leads to extensive land clearing for the establishment of tourism-related physical infrastructure and facilities in sensitive areas, which negatively impact the landscape, altering the ecosystem balance in terms of habitats, consequently threatening the endemic flora and fauna and increasing the incidence of biodiversity loss.

This is further compounded by the emerging trends in climate change and climate variability and the introduction of invasive alien species such as feral pigs and species from the pet trade that have found themselves in the wild. Increase in alien pests and diseases of external origin impacting the biodiversity sector can affect food security. Climate change impacts have affected biodiversity, such as coral reefs that have suffered bleaching in a number of areas of the country. Climate change also appears to be impacting coastal and marine ecosystems, resulting in a reduction in fish landings. Another impact of climate change and variability has been demonstrated in changes in flowering and fruiting patterns for several agricultural crops, affecting agricultural production patterns and overall food availability. A decline in the quantity and quality of the country's water supply has also been associated with the impacts of climate

change and variability; quantity has been affected by the increasing incidence of extreme events of no rainfall and drought while quality has been affected by nutrient pollution. Nutrient pollution of fresh water resources results in an increase in human health-related diseases. Nutrient pollution also contributes to habitat change, which in turn affects marine life and aquatic species.

The impact of global pressures associated with the global economic downturn, which commenced in 2008 (i.e. financial reversals, increased unemployment, fuel price rises, high food prices and inflation) has increased the reliance on biodiversity for livelihoods, with the attendant issue of more intense extraction and use of biodiversity. The rapid expansion in the scale of economic activity on the island has further led to the overexploitation and misuse of biological resources such as medicinal herbs, tree species used for lumber, tree species used for charcoal (more so with increasing costs of fuel) for domestic use. As these resources support livelihoods, local food security and health care, especially of poor people, the ensuing negative consequences only serve to counter efforts to improve environmental management as a means of contributing to sustainable growth and poverty reduction. The impacts of loss of biodiversity resulting from unsustainable use of resources, loss of habitats and high rates of extinction of species therefore has serious implications for the overall socio-economic development, particularly with respect to food security, human health and poverty; thus undermining efforts to achieve the Millennium Development Goals (MDGs).

These current and emerging threats to the country's biodiversity point to an urgent need to reverse a fast-growing trend in ecosystem destruction and species decline. Further, it is evident that attempts to manage biodiversity without addressing economic and social issues could only result in the rapid loss of the many ecosystem services that are underpinned by biodiversity. In light of this, what is required in Saint Lucia at this time is a more integrated approach to natural resource management and biodiversity conservation, and which takes into account the realities of the indirect drivers of biodiversity loss such as demographics of people, poverty and unemployment, particularly in rural Saint Lucia. Thus, the island would do well to develop and implement timely conservation measures in concert with the recommendation of the Global Outlook report with respect to the implementation of requisite management interventions to address the indirect causes or effects of biodiversity loss.

Chapter 2

The 1st NBSAP was completed and approved by the Cabinet of Ministers in September, 2000 and implementation undertaken through five programme areas:

1. *Planning and Policy Formulation (relating to Articles 6, 15, 19)*
2. *Research and Monitoring (relating to Articles 7, 12)*
3. *Conservation (relating to Articles 8, 9)*
4. *Sustainable Use (relating to Articles 10,14)*
5. *Education and Awareness (relating to Articles 13)*

A total of twenty-two projects incorporating priority activities for implementation were elaborated. To date, many of the programmes and projects outlined in the first NBSAP are either

completed or are in the implementation stage. A few have not yet been implemented due to revised national priorities and/or financial constraints. The First National Report to the CBD states as follows: "***the 22 projects outlined do not indicate a time frame for completion, as this is largely dependent on funding becoming available at the national, regional or international level. In addition, the projects were not laid out in order of priority as the latter will be determined by prevailing circumstances and also because at present, all the projects are construed to be of national priority for the country***."

Progress in implementation of the projects under the NBSAP has been largely assisted through local, regional and international funding. The various interventions undertaken within the ambit of the NBSAP have indeed contributed to the implementation of the requirements under all articles under the Convention. While the range of projects and activities did not cover the full range of the cross-cutting areas outlined by the Convention they, for all intents and purposes, established a framework at the national level for meeting the primary objectives of the CBD and further the implementation of articles under the Convention. The programme areas having the greatest impact in this regard were *Planning and Policy Formulation* and *Education and Awareness*. The coordinating and other mechanisms for implementation of the NBSAP still need to be strengthened.

The review process for the preparation of this report, moreover, revealed that the NBSAP and actions taken to implement the Convention have not been sufficient to allow for the 2010 Biodiversity Target to be achieved. Despite the implementation of almost all projects under the 1st NBSAP, the island continues to witness declines in certain gene, species and ecosystem diversity, particularly with respect to the "dry" forest, as the intensity of the pressures on biodiversity in these ecosystems increase because of human actions. On the other hand, though, the country is able to boast of positive and favourable reversals in trends, in this same regard, for species such as the Saint Lucia Parrot, the latanyé palm, the Saint Lucia whiptail lizard and the black long spined sea urchin -*Diadema antillarum.*

Overall, the NBSAP has stimulated actions on many fronts, with the outcomes of actions and activities implemented, under the NBSAP, having generally positively impacted biodiversity; particularly with respect to restoration and to a lesser extent, protection/preservation. These actions and activities have sought to address many of the threats that existed a decade ago, in both a direct or indirect manner, and in some instances have brought about reversals in declining trends. However, these actions now need to be re-oriented and scaled up to tackle the root causes or drivers of biodiversity loss, in order to more effectively address current and emerging threats to biodiversity.

The main obstacles in this regard will continue to be limited capacity and, at times, political will. Better resource allocation and development of the human resource remains a prerequisite. In addition, public education and sensitization at all levels will be required to assist in attaining an improvement in attitudes at the policy making level.

Chapter 3

Saint Lucia's biological resources continue to play a significant role in the country's socio-economic development, especially in the key sectors of tourism, agriculture and fisheries, and are intimately tied to the health of its environment.

With respect to article 6b of the CBD, since the adoption of the NBSAP in 2000, biodiversity concerns have progressively been integrated into the agenda of the various departments in the key sector, agriculture, and principally in the departments of agriculture, forestry and fisheries. Several other government departments and other national and local level agencies of government have also embraced biodiversity within their agendas. The extent to which these issues have been integrated into the national agenda is exemplified in the existing policy, legislative and institutional framework (Figure 2), as well as the type of programmes and projects implemented in the various sectors.

The process towards the formulation of this 4th National Report identified several key processes by which biodiversity concerns were integrated into sectoral and cross-sectoral strategies and plans, inter alia:

- Legislative Mandate
- Functional collaboration
- Integrated development planning
- Inter-sectoral committees
- Networking

Existing National Framework demonstrating the Extent of Integration of Biodiversity Issues into National Agenda

Policies and Strategies	Programmes and Plans	Biodiversity and Business
• Millennium Development Goals • NEP/NEMS • Climate Change Adaptation Policy • National Water Policy • National Land Policy • Saint Lucia Forest Sector Policy (draft) • Agricultural Sector Policy and Strategy • Saint Lucia Heritage Tourism Programme (SLHTP) Charter	• National Vision Plan • Systems Plan of Protected Areas (SPPA) - OPAAL project • Coastal Zone Management (CZM) Strategy and Action Plan • UNCCD National Action Plan (NAP) • Integrated Water and Coastal Zone Management (IWCAM) • Sustainable Energy Policy & Action Plan • Renewable energy in MALFF • Disaster Management Plans • Sustainable Land Management Project • Fisheries Management Plan	• Environmental Management Systems - Green globe certification - Fair Trade GAPs, LEAP - ISO 14000 • Sustainable Tourism Protocol under the ACS

Legislative Mandate

Biodiversity conservation is enshrined within the various legislation governing the work of the Ministry of Agriculture, Lands, Forestry and Fisheries. Given this definitive mandate, the work programmes of these departments inherently addressed biodiversity issues, and were the *de facto* measures and arrangements for ensuring implementation of the NBSAP and the CBD.

Functional Collaboration

While no measurable targets were set in the 2001 NBSAP, its implementation, however, benefited from strong sectoral management agencies that work closely together. Though a formal mechanism for coordination among various departments concerned with biodiversity issues is yet to be established, departments such as Fisheries and Forestry: as a matter of practice and also as a means of ensuring that those objectives with overlapping components of their work programme are achieved, collaborate with various other departments, agencies, and community groups.

Integrated Development Planning

Even before the advent of the NBSAP, the country had been pursuing an approach of integrated development planning (IDP), which seeks to promote an inter-sectoral approach to planning and development in order to minimise potential conflicts, particularly as they relate to the use of resources. IDP has been proposed for a number of years but there have been a number of administrative delays in its implementation. However, even in its limited application, the utilization of the IDP approach gives consideration to the mainstreaming of biodiversity conservation and sustainable use within sector specific and thematic / cross cutting areas.

Range of Inter-Sectoral Committees

- OPAAL Technical Advisory Committee
- SMMA
- UNFCC/Climate Change
- Adhoc Committee UNCCD
- CZMAC
- Sustainable Land Management
- National Biodiversity Committee
- National Biosafety Coordinating Committee
- Biosafety Clearing House Task Force
- Wildfire Management Committee
- PMAAC

Inter-Sectoral Committees

Currently, there are several inter-sectoral committees established for oversight of the various conventions and agreements, especially multilateral environmental agreements (MEAs), with many of the same persons being members of these committees. The distinct advantage is that of promoting synergy in implementation of the MEAs, as well as other biodiversity related conventions (CITES, WHC, Ramsar, CMS, ITPGRFA), building upon the work of the CBD related Committees. Joint expert groups and meetings of intergovernmental bodies on selected issues of mutual concern further complement this type of inter-secretariat cooperation.

Networking

Strong networking among agencies allowed for synergies to be realized in implementation of the NBSAP. A case in point is the Department of Forestry, which has used a collaborative approach and has established networks with regional and international government and non-governmental agencies and institutions (e.g. RARE, Durrell Wildlife Preservation Trust, CANARI, WIDECAST, DWPT at Grambling State University, University of Puerto Rico) to overcome the many constraints and challenges in implementing biodiversity conservation measures, including more technical assistance in the areas of research and monitoring and training in conservation strategies. The Department of Fisheries likewise has formed some important collaborative networks with regional and international agencies such as WIDECAST, CRFM, ICRAN, and JICA.

Use of Incentives

The process of mainstreaming biodiversity issues in key economic sectors has also been supported by the development and introduction of various ***economic and social incentives*** in these sectors. For example in the agriculture sector, the Agricultural Incentives Regime

developed by the MALFF promotes mainstreaming at all levels (national, sector and community); community level mainstreaming is also promoted through other voluntary agricultural related incentives programmes such as Fair Trade, Global Good Agricultural Practice (GAP) and Leadership Enhancement in Agriculture Program (LEAP). Incentives to promote mainstreaming of biodiversity issues in the tourism sector and industry include the use of global environment awards such as Green Globe and ISO 14001 – Environmental Management Systems (EMS).

Though there has been increasing use of the ***Environmental Impact Assessment (EIA)*** process, enforcement of the outcomes has been limited. Generally, the process involves broad-based participation, led by the relevant Government Department acting as a referral agency and public participation is solicited. Biodiversity issues are thus given some consideration under the EIAs process, largely through the recommendations made by the referral agencies which are usually natural resource agencies or the environment section.

Most of the initiatives outlined, in terms of mainstreaming and integrating biodiversity, require some form of institutional arrangements (e.g. Unit, Agency or Committee) for implementation. Challenges in this regard however, include resource limitations, weak agency commitment, desultory political support, and the general lack of a formal coordinating mechanism and overarching institutional arrangement.

The St Lucia Heritage Tourism Programme (SLHTP) is one success story (Box 21), which illustrates the application of the various processes used in mainstreaming and integrating biodiversity into national, sectoral and cross-sectoral programmes and plans.

Chapter 4

No specific national targets were established and indicators to measure progress were also not specified or standardized in the 1st NBSAP. However, the objectives outlined within the NBSAP were in keeping with those of the Strategic Plan of the Convention. Progress towards the 2010 Target and Implementation of the Strategic Plan was therefore, assessed based on the global targets, using parameters for which there were some form of data and information available.

When the global targets are considered, it is clear that not every target was effectively addressed; *Target 5.1: Rate of loss and degradation of natural habitats decreased*, being a case in point. However, in terms of the various activities undertaken for NBSAP implementation, the significant progress recorded throughout this report, , as well as implementation of thematic programmes and cross-cutting areas, is in keeping with the 2010 target and is therefore, used to demonstrate the extent that these contributed to achieving these targets. Further, to the extent that the outcomes of activities implemented under the NBSAP represented progress towards meeting the objectives of the same, it was deduced that goals and objectives of the Strategic Plan were implicitly addressed.

The Ministry of Agriculture, Lands, Forestry, and Fisheries, despite its very limited financial and human resources, has performed commendably with regard to implementation, since the

country's accession to the CBD. This was due largely to a high level of dedication and commitment on the part of the staff involved. Further, the entire process has been highly participatory and has been able to stimulate action at many levels, from almost every Ministry of Government, institutions of learning (at every level), the scientific community, private sector, NGOs and, most importantly community based / grass roots organizations.

Overall, implementation of the NBSAP and measures for the implementation of the Convention have had a significant positive impact on conservation and sustainable use of biodiversity, as well as the fair and equitable sharing of benefits arising out of the utilization of genetic resources. However, the actions taken to implement the Convention have not been on a sufficient scale to address the current pressures on biodiversity. Decision-makers and other implementers of policy still seem not to be fully aware of the long-ranging impacts of certain policies or lack thereof on biodiversity and, consequently, sustainable development. While environmental impact assessments are more widely applied, and input encouraged through the use of natural resource management agencies as referral agencies, conservation recommendations emanating from the process are often underplayed or even ignored in the pursuit of economic development. Consequently, the effects of actions undertaken towards the implementation of the NBSAP and the Convention have been diluted or neutralized in some instances.

Despite the noteworthy progress in implementing the NBSAP and the Convention, there is still more to be done to ensure that biodiversity issues enter the mainstream of national planning. The ability to do so is hindered by a number of gaps which still exist at the national, institutional and individual levels, the small human resource base as well as technological and financial constraints. Box 1 outlines some of the priority areas that must be successfully addressed in order to realize more effective implementation of the Convention.

Future Priorities for Framework for Convention Implementation

- Implement goal and programmes emanating from 2nd NBSAP
- Implement NEP/NEMS
- Implement recommended Environmental Management Framework (EMF):
  - Environmental Management Policy, Environmental Management Act (Draft) and the Biodiversity Conservation and Sustainable Use Act (Draft), as well as other revised polices and plans; establish Department of Environment
- Establish the proposed Framework for Biosafety Implementation
- Establish linkages with key entities such as the Development Control Authority and the National Development Corporation to mainstream biodiversity conservation issues into land use planning and physical development initiatives and foreign investment planning and to explore investment opportunities using local biological resources for sustainable socio-economic development. For example, biomimicry (learning from nature) is expanding in areas such as architecture, engineering and product development. With appropriate investment, it offers major potential for new markets.
- Establish Biodiversity/Biosafety Unit to serve as secretariat of coordination mechanisms for biodiversity
- Undertake recommended interventions to support research and enable systematic observation
- Promotion of co-management approach to biodiversity conservation and sustainable use

In addition, given the anticipated cross-sectoral impact of biodiversity loss, there is a need for a coordinated, broad-based, multi-sectoral response aimed at mainstreaming of biodiversity issues into the planning and development process at all levels. This must be supported by timely and accurate data and information to guide decision-making. All of these again point to the need for adequate human, technical, financial and other resources, supported by effective policy and institutional frameworks. It also implies the need for sufficient awareness of biodiversity issues, at all levels. To this end, it has been proposed that the MALFF seek to strengthen and refine its collaborative arrangements, linkages and partnerships with foreign-based institutions, to ensure as far as possible more effective mobilisation of scarce resources for research and training and that technical staff derive adequate benefit through scientific knowledge and technology transfer, and research and monitoring.

Further, the country should continue to be fully engaged in regional initiatives to address emerging issues such as climate change and variability, modern biotechnology and introduction of genetically engineered organisms. Other suggestions for action at the regional level include the need for countries to work closer together in implementation, as well as in sharing methods, experiences, technologies, lessons learned and expertise. The proposed regional centre for biodiversity (discussed at a regional CBD meeting in October 2008) should be pursued and established. Also as a region, there is need to pursue cooperation in technology transfer and assessment and monitoring. Expertise from the different countries should assist in implementation of the relevant components.

Future scenarios

While Saint Lucia has made noteworthy progress in implementing the 1st NBSAP and the Convention, there is still more that can be done to ensure that biodiversity issues are effectively mainstreamed into national development planning. It is clear that if the current threat of habitat change and destruction is not addressed with urgency and the country continues with business as usual in its development agenda, then the destruction to marine life ecosystems and species in dry/mesic forest, the mangroves and wetlands will worsen and may even become irreversible. The situation of declining water resources is also likely to deteriorate and will be further exacerbated by the impacts of climate change and climate variability.

However, if adequate investments in biodiversity and ecosystems are undertaken to address the gaps, which still exist at the national, institutional and individual levels, more effective implementation of the Convention will be realised. Successful implementation of the Convention will ultimately require close collaboration of the many and varied stakeholders, the availability of a wide range of skills, supported by adequate technology and financial resources. Establishing a fully conducive environment will not only result in a more effective national response to biodiversity management but will, in many ways, set the stage for the pursuit of the national goal of sustainable development with biological resources used more integrally for socioeconomic development.

Chapter I - Overview of Biodiversity Status, Trends and Threats

1. 0 Introduction

Saint Lucia is a small volcanic island located at latitude 13^{o} 59' N, and 61^{o} W within the Lesser Antillean Arc of the Caribbean Archipelago (Figure 1). Situated on a volcanic ridge connecting to Martinique in the north and St. Vincent and the Grenadines in the south, the island is 42 km long and 22 km wide at its widest point, has a total land area is approximately 616 km. The island's population is approximately 167,000 residents, with an average density of 1,036/km2; however, much of the island's interior is uninhabited.

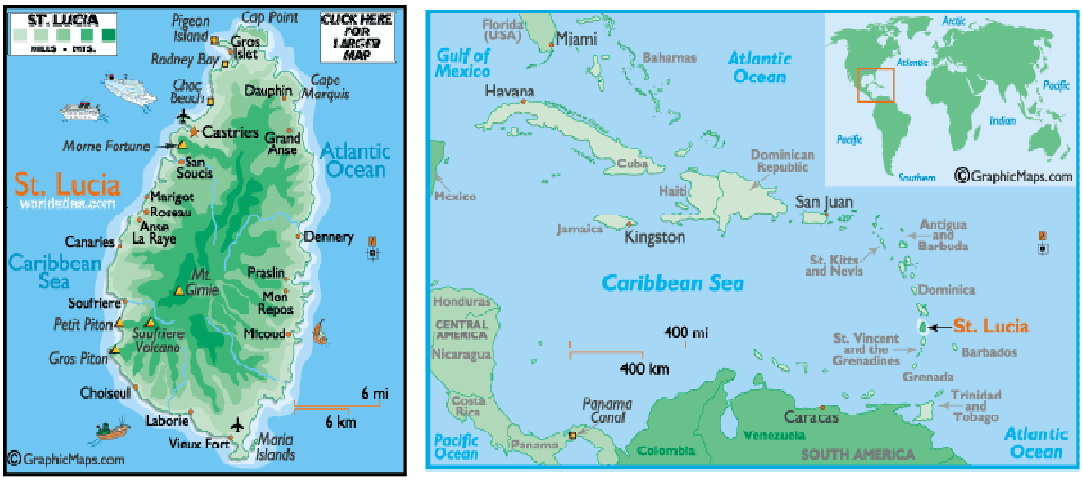


Figure 1. Saint Lucia map and location in the Caribbean Archipelago
Credit: Google Earth

The island has a mountainous topography, characterized by a central ridge running from north to south, with numerous steep offshoot ridges extending towards the coasts. The coastlines, particularly the east coast, are deeply indented by near-vertical cliffs with a number of narrow sandy beaches. An estimated 15% of the island's landmass is under forest cover. Between 1990 and 2000 it is estimated that the island lost 36% of its forest cover as a result of clearing of natural vegetation for agriculture, construction and other development purposes. Current efforts are focused at increasing this cover within the Government Forest Reserve (protected forests), in attempt to redress this loss. Approximately 30% of Saint Lucia's land area is pastoral and arable land.

Notwithstanding its small size, Saint Lucia possesses a high degree of diversity not only in the ecosystems and habitats found on the island, but also in the variety of biological resources present, some of which are endemic to the country. The preliminary findings of the National Forest Demarcation and Bio-Physical Resource Inventory Project 2009, highlights the incredible diversity of Saint Lucia's forest types (habitats) which supports a great variety of species. Few islands can match Saint Lucia for its diversity of forest species, with an exceptionally high number of species occurring only on Saint Lucia: 9 endemic 'higher plants'; 6 endemic birds (11

sub-species); 7 endemic reptiles (5 sub-species); 1 endemic amphibian; 1 endemic mammal (1 sub-species) and more than 200 endemic beetles.

Reporting on the preliminary outcomes of the Biophysical Resource Inventory Assessment which concluded in July 2009, beetle specialist Dr Michael Ivie noted that there were a lot of specimens collected which had never been seen before. Dr Ivie states: "The way things are going Saint Lucia may have an endemic beetle for every square mile."

The tiny St. Lucian corylophid ranks among the smallest dozen beetle species in the world; also the smallest known Cucujiform beetle, and the smallest known West Indian Beetle.

The beetle was collected by Katie Hopp and Matthew Gimmel in leaf litter on Piton Troumasse

The island's economy remains largely dependent and open, with a significant portion of consumption needs (up to 60%of GDP) imported. The Gross Domestic Product (GDP) contribution of economic activities in 2007 (at 1990 constant prices) is estimated at EC$1,405.17 million and total growth rate in GDP is estimated at 0.49%1. The key economic sectors are tourism and agriculture. Since 1990, as a result of a changing global environment, and the dramatic impacts of these changes, the economy has undergone a major transition from an agrarian based economy to a service economy, with tourism now the largest and leading sector. Between 1990 and 2006, the contribution of agriculture declined from 13.85% to 3.24% of GDP, while the tourism sector's contribution moved from 9.18% to 12.55% in the same period. In spite of this decline, agriculture remains an important sector in the island's economy having a key role in food security, rural development, agro-tourism linkages and natural resources management.

Population centres and economic activities are concentrated along the coast and this is due in large measure to the country's biological diversity. Both the tourism and agricultural sectors rely heavily on the country's natural/biological resources for their sustainability, yet also impact on it, sometimes adversely. The principal tourism product is inextricably linked to coastal and marine habitats such as beaches and coral reefs, the extensive use of which results in ecological change and sometimes degradation and loss of capacity for productive use. Current systems of farming involve the exploitation of land resources and terrestrial biodiversity to maximize economic output, inevitably at the expense of the biological resources and environment.

Also, a number of the island's rich cultural traditions are related to the use of the island's biological resources. For example, folk medicines make extensive use of local plants and small farming systems are based on a wide variety of indigenous species and cultivars. The production of charcoal, brooms, lumber, some types of utensils, furniture, pottery and traditional medicines are all based on the use of traditional biodiversity related knowledge.

During the last decade, economic diversification has been focused on the development of tourism and, to some extent, manufacturing. Banana commercialization and agricultural diversification

1 Government of Saint Lucia, 2008. Economic and Social Review 2007, at page 2 of Statistical Appendix

are also being promoted as the way forward for the agriculture sector. The country has however, been impacted by the global economic downturn which commenced in 2008, and though the effects have not been as extreme as in some of the developed countries, has not been spared the outcome of this global recession and financial reversals of increased unemployment, fuel price rises, high food prices and inflation. The impact from the global pressures has, however, increased the reliance on biodiversity for livelihoods with the attendant issue of more intense extraction and use of biodiversity. The rapid expansion in the scale of economic activity on the island has further led to the overexploitation and misuse of biological resources such as medicinal herbs, tree species used for lumber, tree species used for charcoal (more so with increasing costs of fuel) for domestic use. Coupled with this increased reliance on biodiversity is the prediction that factors affecting biodiversity loss would not remain constant but would increase in intensity (Secretariat of the Convention on Biological Diversity, 2006). As these resources support sustainable livelihoods, local food security and health care, especially of poor people, the ensuing negative consequences only counter efforts to improve environmental management as a means of contributing to sustainable growth and poverty reduction.

Good Agricultural Practices and Fair Trade promote environmental sustainability through:

- *Minimized and safe use of agrochemicals*
- *Proper waste management*
- *Maintenance of soil/land productivity and water resources*
- *Controlled or no use of genetically modified organisms*

Opportunely, biodiversity conservation, within the broader framework of environmental protection has become key, both in agriculture and tourism, with the aim of minimising the risks to biodiversity, the environment and human health through the adoption of codes of practices such as Green Globe certification, Good Agricultural Practices (GAPs) and Fair Trade. The Linking Environment and Farming Protocol (LEAF) is also a recent initiative of EU supermarket chains with local farmers to reduce further destruction to the environment from farming.

1. 1 Ecosystem Diversity

Saint Lucia's rugged terrain has resulted in a variety of vegetative types. The range of natural life zones occurring in St. Lucia displays heterogeneity and a rich diversity of ecosystems, which are typical of the tropics.

Several authors have advanced versions of natural vegetation maps for the island (Beard, 1948; ECNAM, 1980; OAS, 1986a). While their nomenclatures are different, they all recognized a pattern of near-concentric zones of natural vegetation, corresponding to changing altitude and rainfall. This effect is shown quite vividly when the Holdridge system for classification of natural life zones is applied (Figure 2). This international system uses altitude, latitude, temperature and precipitation as the standards to determine natural vegetative composition and structure.

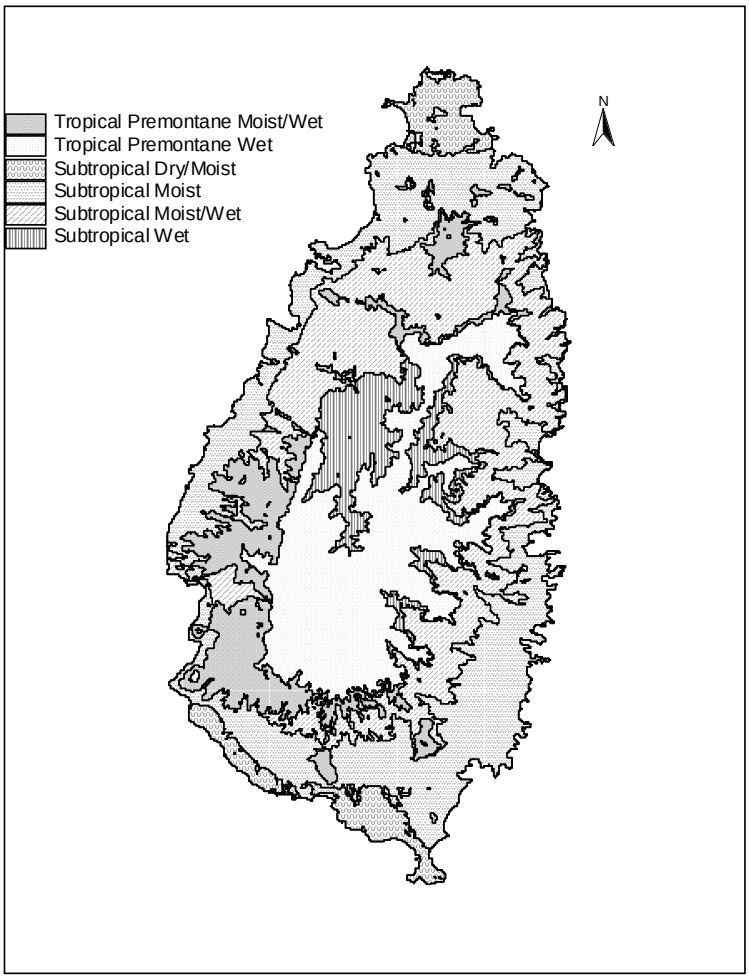


Figure 2. Distribution of life zones on Saint Lucia
(Isaac and Bourque, 2001)

Interestingly though, natural systems and rural landscapes bear little resemblance to the natural formations which existed prior to European colonisation. The plantation system developed at that time was based on monoculture crops and the use of many imported species. Historical factors also explain the cultural relationship that currently exists between people and land resources in Saint Lucia. History and culture are responsible, in many respects, for the peculiar patterns of land tenure, ownership and property rights that currently prevail in Saint Lucia. With the exception of the rainforest and montane forest formations, terrestrial environments have been radically transformed by human activity. Social, cultural and economic factors have also been identified as shaping the conservation, use and management of the island's biological resources.

With respect to the priority thematic areas for fulfilling the country's obligations under the CBD, the following are the ecosystems of importance to Saint Lucia:

- Forest and Terrestrial Wildlife Ecosystems
- Coastal and Marine Ecosystems
- (Inland Waters) Fresh Water Ecosystems
- Agricultural (Agro-) Ecosystems

Forests and Terrestrial Wildlife Ecosystems

In the Saint Lucia Biodiversity Country Report (2000) where details are provided on all biodiversity for the island, five vegetation types, covering approximately 35% of the land area, were described, namely, Rainforest: dominant vegetation of the mountain slopes; Lower montane rain forest: in higher elevations, plant composition and structure of the forest change, with lower canopy; Elfin woodland; or cloud forest occurs on highest peaks; xerophytic forest - natural dry forest, typically in the coastal region; primarily secondary woodland consisting of regenerating forest interspersed with cultivation; Dry scrub woodland; driest portions of the island. The forest reserves are regarded as exceptionally preserved in the country with mainly rainforest ecosystems.

In the most recent study, Graveson (2009), reporting on preliminary findings of the EU sponsored National Forest Demarcation and Bio-Physical Resource Inventory Project identified and described seventeen (17) major vegetation types with respect to forest cover, ranging from a very xeric littoral shrub land and mangroves on the coast to a lush rainforest and elfin shrub land in the high peaks (Table 1).

Table 1. Major vegetation types described by Graveson, 2009

Natural Forest	
Littoral Evergreen Forest and Shrubland	Semi-evergreen Seasonal Forest
Mangrove	Lower Montane Rainforest
Freshwater Swamp Forest	Montane Rainforest
Deciduous Seasonal Forest	Cloud Montane Rainforest
Semi-natural Forest	
Tree Plantations	
Non-Forest	
Elfin Shrublands	Littoral Unconsolidated Sand Vegetation
Herbaceous Swamp (seasonal or permanent)	Littoral Scrub, including Cacti
Aquatic Herbaceous Vegetation	Fumarole Vegetation
Littoral Rock and Cliff Vegetation	Grassland, with or without a few trees or shrubs

At least 14 key mangrove areas had been identified in Saint Lucia, located predominantly on the East coast (Mankoté, Savannes Bay, Esperance, Anse Louvet, Praslin and Marigot). Dominant species occurring are *Rhizophora mangle, Avicennia germinans, Laguncularia racemosa* and *Conocarpus erecta*. Several areas have been destroyed over the years (Beard 1949, Portecorp J. and Benito Espinal 1985).

About one third of the forest area, including one protected area – the Parrot Sanctuary is in government forest reserves. The various habitats are home to a diverse range of floral and faunal species.

Marine and Coastal Ecosystems[2]

The coastal and marine areas also contain a diversity of ecosystems including mangroves, coral reefs, sea grass beds and beaches. St Lucia's coastal zone is characterised by mangroves, seagrass beds, coral reefs and beaches, which not only play an increasingly important role in tourism but also are an integral component in natural coastal defense and ecology of the island. Among the mangrove species found on the coast are the red mangrove (*Rhizophora mangle*), white mangrove (*Laguncularia racemosa*), black mangrove (*Avicennia germinans*), and buttonwood (*Conocarpus erecta*). The Department of Fisheries (DOF) has declared most of the mangroves marine reserves. The seagrass beds offshore include turtle grass (*Thalassia testudinum*) and manatee grass (*Syringodium filiforme*). In general, larger and denser seagrass beds are found off the East Coast compared to the infrequent and sparsely covered seagrass patches along the West Coast.

Three species of sea turtles are known to nest in Saint Lucia: the Hawksbill turtle (*Eretmochelys imbricata*), the Green turtle (*Chelonia mydas*) and the Leatherback (*Dermochelys coriacea*). Grand Anse beach on the north-east coast is the largest nesting site for leatherback turtles. There have also been sightings of marine mammals such as the Humpback Whale (*Megaptera*

2 Extracted from National Circumstances – Second National Communication, UNFCC

novaeangliae), the Sperm Whale (*Physeter catodon*) and the Killer Whale (*Orcinus orca*). Saint Lucia has coral reef systems along both coasts, with the reefs along the West Coast being more diverse than those of the East Coast.

Over 50 species of coral species have been recorded on the island. Presently, the healthiest and most diverse reefs are found along the Central West Coast off Soufriere. Over 100 different species of commercially important reef fish including groupers, parrotfish, wrasses, snappers, grunts, squirrelfish, goatfish, boxfish and surgeonfish, have been recorded in Saint Lucia's coastal waters. Despite these listings, it is generally agreed by professionals that the biodiversity of Saint Lucia remains understudied.

Freshwater Ecosystems

Saint Lucia is small and mountainous with its resultant topographic disposition making it possible to delineate 37 main watersheds[3]; ten of these are small multiple small drainage basin complexes[4], refer to Figure 3. They all radiate from the central mountain ranges of the interior towards the coast, with the upper reaches of many of these drainage basins located within high rainfall zones. Within these watersheds, twenty-five (25) water catchments are harnessed for domestic water supply[5]. Most of the water consumed or used on the island comes from runoff from catchment areas in the upper reaches of seven (7) major river basins/catchments, with headwaters mainly in the mountainous south-central area of the island.

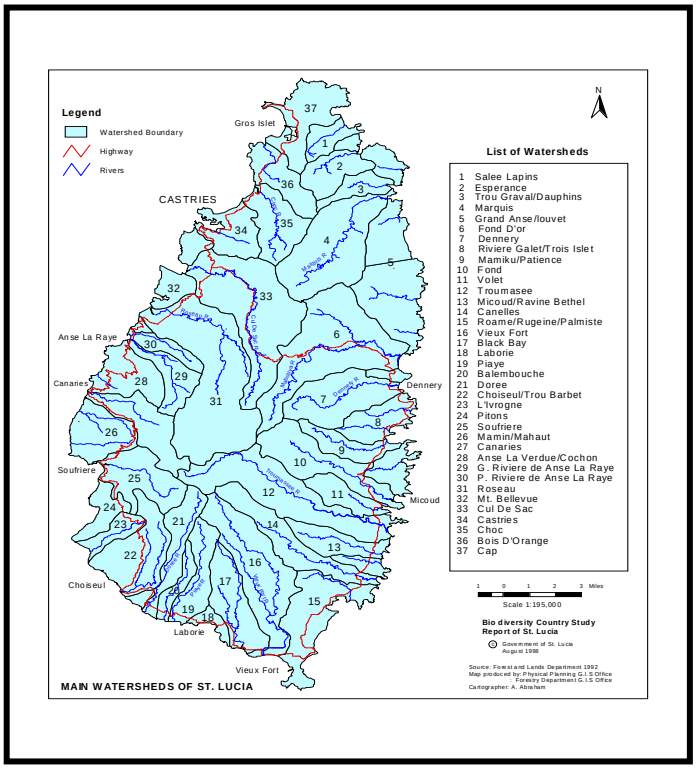


Figure 3. Watersheds and Rivers in Saint Lucia
Source: Biodiversity Country Study Report

As a result of the rugged topography and the absence of intermediate collection points for surface water, such as lakes and ponds, the majority of rainfall flows to the sea with very little opportunity for ground water storage. The natural forested areas[6] make a significant contribution to the interception of this rainfall allowing

3 Migeot, J and Hawden, P. 1986. Saint Lucia Water resources: preliminary Assessment. Vols. 1&2. Ministry of Agriculture, Castries, Saint Lucia.

4 Christopher Anthony Cox 2003 Integrated Watershed Management Planning for Saint Lucia. A thesis submitted to the Faculty of Graduate Studies and Research in partial fulfillment of the requirements of the degree of Doctorate of Philosophy. McGill University, Quebec Canada

5 AGRICO Ltd. 2001 Saint Lucia National Water Situation and Assessment Of National Water Profile. OAS/CSC/CCST Project Entitled "Cooperative Strengthening of National Institutions to Enhance Integrated Water Resources Management"

6 The rainforest areas are dominantly the central regions of the island with cultivated areas surrounding these areas and extending outwards to the coastal regions.

infiltration into the sub surface thereby contributing to the sustaining of base flows in the river systems beyond the rainy periods.

Fresh water ecosystems provide habitats for many species including fishes, molluscs, amphibians, reptiles, insects, plants and mammals. Species richness in relation to area of habitat is extremely high in many freshwater groups. Freshwater fishes comprise almost 45% of all fishes and freshwater molluscs: about 25% of all molluscs (cms.iucn.org, 2009). Data from Fishbase.org indicate the occurrence of 14 fresh water fish species, nine (9) of which are native to Saint Lucia. The freshwater and mangrove wetlands of Saint Lucia are relatively small but are representative of most wetland ecosystems.

Comprehensive scientific assessments of fresh water systems have not been undertaken in Saint Lucia. Nonetheless, the importance of freshwater species, ecosystems and services to human livelihoods and wellbeing is increasingly being recognized. Characteristic to Saint Lucia though, is that a large percentage of lands in the drainage basins are under private ownership with little regulatory control over the activities that occur there. Consequently, the country's land and water resources are highly vulnerable to adverse impacts arising from poor agricultural practices and other land developments such as roads, housing, etc, in these areas of private lands. This is further exacerbated by the impacts of climate change and variability as it relates to the increasing frequency of drought. Loss in biodiversity as a result of a loss of habitats consequently occurs due to a reduction in water availability and quality.

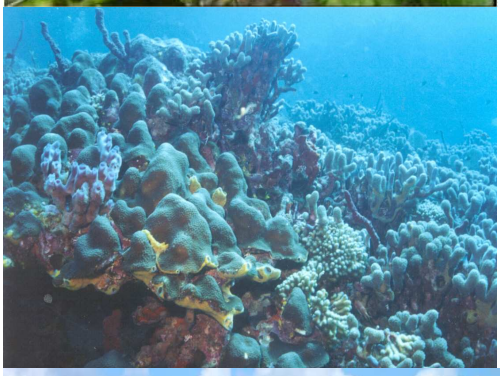
Agricultural Ecosystems

A wide variety of vegetables, fruit trees and other crops are grown on the island. Banana cultivation is still considered the largest agricultural production activity. There are approximately 24 varieties of *Musa* species, most now held in germplasm. Other germplasm conservation at the 4 agricultural stations on the island is largely focused on horticultural and fruit crops such as guava, wax apple, mango, citrus varieties, sugar apple, orchids, cocoa, cashew, coconut, musseanda, ixora, palms, cherry, ginger lilies, pawpaw (resistant to *Erwinia*)). Agro-ecosystems also comprise a number of useful species, including herbs and medicinal plants. Livestock production has been focused largely in poultry and pigs, and to a lesser extent cattle and small ruminants. There have been some introductions of new genetic material, particularly with respect to horticultural crops and breeds of livestock.

1. 2 Saint Lucia's Biodiversity Overview

Saint Lucia's Biodiversity Profile

- Relatively high species diversity - 1288 species of flowering plants listed, 3 species of gymnosperms and 144 species of ferns –including 945 indigenous species, ten of which are Saint Lucian endemics, 276 species are naturalized or escaped.; over 150 species of birds – including five endemics; seventeen (17) native reptiles, ten (10) native mammals and two (2) native amphibians, about 1,400 beetles and more than 1,000 other invertebrates found in the terrestrial environment; (unpublished compilations from the National Forest Demarcation and Bio-Physical Resource Inventory Project, 2009); also, approximately 250 reef fish species and 50 coral species have been identified for the island)
- A genetic diversity which is largely the product of the country's history, with the introduction and use of a wide range of species, breeds and cultivars, and with the production of a number of cross-breeds;
- A high diversity of ecosystems, ranging from dry cactus scrubs to rainforest, and including mangroves and coral reefs;
- High natural fragility and vulnerability of these ecosystems, due mainly to their small size and to their scattered spatial distribution;
- High levels of natural productivity within most ecosystems;
- A significant contribution of this biological diversity to the local economy, with the possibility of increasing benefits in several areas, such as the use of plants for medicinal purposes and the development of heritage tourism;
- A diversity of property and management regimes, with all marine and many terrestrial ecosystems under public ownership, but with some terrestrial ecosystems placed almost entirely under private ownership (especially the dry forest formations);
- High levels of impacts from human activities, which have transformed many natural habitats and have resulted in the loss of some of the country's biological diversity;
- Uneven distribution of impacts and threats among species and ecosystems;
- An insufficient knowledge of biological resources and their potential;
- The achievement of significant successes in several biodiversity conservation and management programmes (e.g. recovery of the St. Lucia parrot, protection of the Maria Islands Nature Reserve and its two endemic species, management of the Forest Reserve, and management of Marine Reserves).



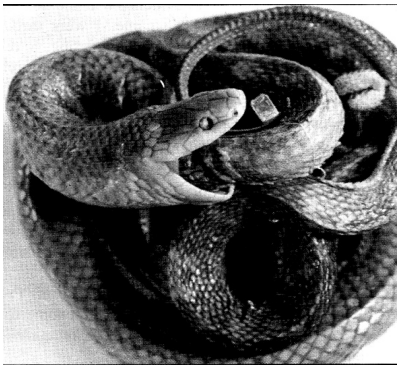
The biological diversity of Saint Lucia consists of approximately 1,300 known species of flowering plants, cycads and gymnosperms belonging to 143 families. Of the 144 species of ferns and club mosses, the majority are found within the forest ecosystem. There are twenty-seven endangered plants recorded in Saint Lucia, most of which are found in the coastal and lowland habitats. Of these, two species (*Tetrazygia angustifolia* and *Myrcia leptocelda*) are at immediate risk of extinction because their limited habitat is threatened by urban development. There are ten endemic plants in Saint Lucia. Some species of plants such as "Lowye canelle" (*C. elongatum*), "balata" (*M. bidentata*) and "latanyé" (*Coccothrinax barbadensis)* are threatened as a result of over-exploitation and extensive destruction of habitat. In addition preliminary findings from the National Forest Demarcation and Bio-Physical Resource Inventory Project 2009 indicate that 70 plant species have not been seen since the 1930s.

Included in the island's biodiversity are also a number of bird and reptile species that have evolved in isolation in this small island ecosystem and are thus unique to this environment. There are several endemic species, many of which are habitat specialists.

Semper's Warbler

The Saint Lucia Parrot occupies the inland subtropical wet forests to subtropical rain forest habitat. Much of its habitat is secured as Government Forest Reserve. There are six endemic birds and eleven endemic subspecies which are also endangered. The Semper's Warbler, *Leucopeza semperi*, is already thought to be extinct. The Saint Lucia white-breasted thrasher (*Ramphocinclus brachyurus*), Saint Lucia rufous nightjar (*Caprimulgus rufus*), and the house wren (*Troglodytes aedon mesoleucus)* are also rare and endangered (Gilardi and John, 1998). These three subspecies all occupy the tropical dry forest scrub habitat along the river valleys, found mainly on private lands. Preliminary reports from the 2009, National Forest Demarcation and Bio-Physical Resource Inventory Project indicate that the number of species including rare and endemic species was found to be higher outside the forest reserves, with mature deciduous (dry) forests found to be especially rich in wildlife.

The reptiles generally show greater flexibility in habitat association. The Saint Lucia iguana (*Iguana cf. iguana*), primarily occupies the tropical dry forest habitat of the northeast coast, while the St. Lucia whiptail is restricted to the Maria Islands, which are composed of the same vegetative type. The mammals are fairly well distributed throughout the habitat types. The particularly common species now considered introduced such as the mongoose and the opossum range from the dry forest types to the rain forest. The agouti also introduced tends to be associated with the moist vegetative regimes (e.g. subtropical moist forests-subtropical rain forests). Some species such as the black snake or cribo (*Clelia errabunda)*, and the Saint Lucia muskrat are already thought to be extinct, others are seriously threatened.



Saint Lucia Cribo (Clelia errabunda)

1.3 Biodiversity Trends

The second report of the Biodiversity Global Outlook highlights locations such as Africa and South America as having the largest net loss of forests, declining population size and range of major species, threatened species occurring in all taxonomic groups and a 900-hundredfold increase in the extinction of species in the past few hundred years caused by human activity (Secretariat to the Convention on Biological Diversity 2006). Except for the fifteen percent of government forest reserve, the situation in Saint Lucia appears to be no different due to the perverse economics of habitat conversion to facilitate socio-economic development. General trends in biodiversity for Saint Lucia are portrayed in terms of incidence of threatened species resulting from declining populations in figure 4.

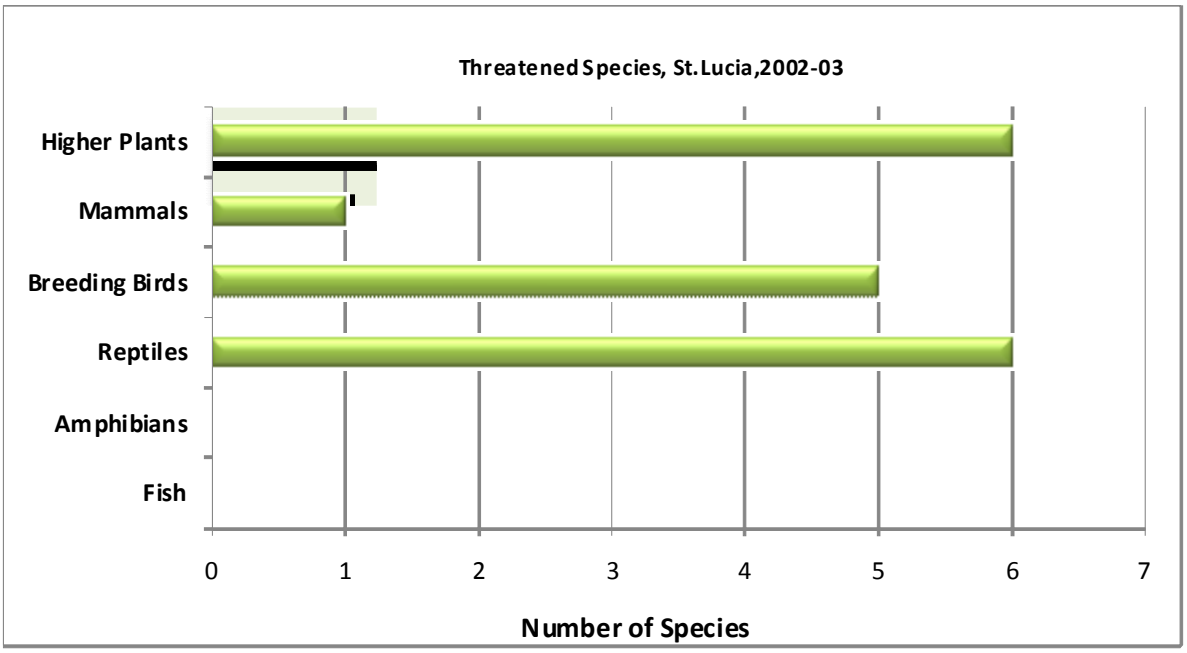


Figure 4. Incidence of Threatened Species in Saint Lucia, 2002-03
Source: earthtrends.wri.org/pdf_library/country_profiles/bio_cou_662.pdf

1.3.1 Forest and Terrestrial Wildlife

Unpublished compilations from the *National Forest Demarcation and Bio-Physical Resource Inventory Project* undertaken by the Department of Forestry in 2009, report the identification and description of seventeen major vegetation types and several new species also recorded in Saint Lucia for the first time. Data from the preliminary findings of this 2009 study indicate the wide diversity of forest species, unmatched by few islands. An exceptionally high number of species were found to occur only on Saint Lucia.

The data from the study also corroborate the scenario of threatened species in the 2002-03 data, demonstrating that the island's endemic reptile populations are approaching critically low levels; among the 28 species of lizards, snakes and frogs there is a high number of species endemic to St

Lucia. Seven endemic species and five subspecies of reptiles have been recorded; however, the findings show that the forest habitats with the highest diversity and abundance of these (rare and endemic) species are found largely outside of the protected forests areas, with mature deciduous (dry) forests especially rich in wildlife.

Strong signs of recovery have been reported for the Forest Reserves, which can be considered the only forest areas that are truly protected. For example, efforts to redress the loss of forest cover observed in the 1990's have resulted in the acquisition of 300 acres of land, to date, for increasing this cover within the Government Forest Reserve (protected forests). These lands were principally acquired to protect watersheds and to conserve and protect forest biodiversity. It is noteworthy that some species are recovering as a result of the concerted efforts of the Department of Forestry and its partners. Species within the forest reserve, such as the Saint Lucia Parrot are, thus, well protected and show a trend of restoration; moving from a status of critically endangered to vulnerable (Table 2).

Table 2. Trends in Restoration of Saint Lucia Parrot

Period	1977	1987	2008	2009
Status	Critically Endangered		Vulnerable	
Distribution	Saint Lucia (50 – 65 km^2 of forest)			Range within the rain forest expanded - parrots reported outside of the southern core of the Government Reserve
Population	100 - 150	200 - 250	≈1000	1,900 -3,759

Of concern, however, is the majority of forest species which are found in the forest areas outside the forest reserve, in particular the semi-evergreen (mesic) forest and the deciduous (dry) forest. Many of these areas currently do not fall within national protected areas. Hence the growing trend of favouring these areas for development purposes (in particular tourism and residential) is posing a severe threat to the wide range of biodiversity found within them.

The semi-evergreen (mesic) forest and much of the deciduous (dry) forest were converted to farmlands, during the era of agricultural expansion in the 1980's. However, with the decline in the agricultural sector and in particular contraction of the banana industry, many banana farms have been abandoned and are apparently reverting to secondary forests by natural succession. Even so, development in the growing tourism sector is now focused on these coastal lands, placing the diverse range of species within these lands under serious threat. Many of these species face extinction if measures are not taken to conserve the island's unique forest biodiversity.

The study found that most of Saint Lucia's native forest species have declined significantly in population size with some at critically low levels" (Box 1). In all forest types, areas with severe human disturbance have fewer native (indigenous) species and more non-native (alien) species.

Box 1. Examples of Species Registering Declines

Flora:

Pencil Cedar (*Juniperus barbadensis*)
Balata (*Manilkara bidentata*)
Arkokwa (*Zanthoxylum flavum*)
Lowye Kannel (*Aniba ramageana*)
Akoumat *(Sideroxylon foetidissimum)*

Fauna:

Saint Lucia Pygmy Gecko	Saint Lucia Iguana
Saint Lucia Racer	Saint Lucia Whiptail
Saint Lucia Fer de lance	White-breasted Thrasher
Forest Thrush	Saint Lucia Oriole
Saint Lucia Wren	Saint Lucia Yellow Warbler
Saint Lucia Nightjar	Saint Lucia Black Finch

The 2009 study has shed light on the status and distribution of many of Saint Lucia's lesser-known species, such as Saint Lucia Pygmy Gecko.

Based on the International Union for Conservation of Nature (IUCN) categories of threat, at least six reptiles native to St Lucia are now qualified as globally threatened with extinction. Critically endangered species include the St Lucia Racer and the St Lucia Iguana, with the St Lucia Whiptail Lizard falling into the endangered category. Other vulnerable species on the list are the St Lucia Pygmy Gecko, the Saint Lucia Thread Snake and Saint Lucia Viper, commonly known as the "Fer-de-lance".

With an adult population estimated to number less than 1,000 iguanas, it is predicted that even the loss of a few individuals to hunting each year will have severe impacts on the small and restricted population that remains, and the limited extent of the habitat which is confined to Saint Lucia's North East Corridor (Morton, 2007). This area, which is the last remaining major habitat for the iguana, is currently being proposed for touristic development. Moreover, there is the threat of cross breeding of an alien iguana with the native iguana.

The Saint Lucia Fer-de-lance is also one of the endemic species of particular concern, as it is an important snake, found only in St Lucia. It is now classified as a species vulnerable to extinction. The study shows that in 1900, the geographical location of the snake extended from the Choc River in the north to the Cannelles River in the south of the island. The report now reveals the Fer-de-lance is limited to two fragmented areas between Fond d'Or and Grand Anse on the northeast coast, and between Dennery and Praslin on the east coast extending across the interior of the island to Canaries and Anse La Raye on the west coast (see Figure 5).

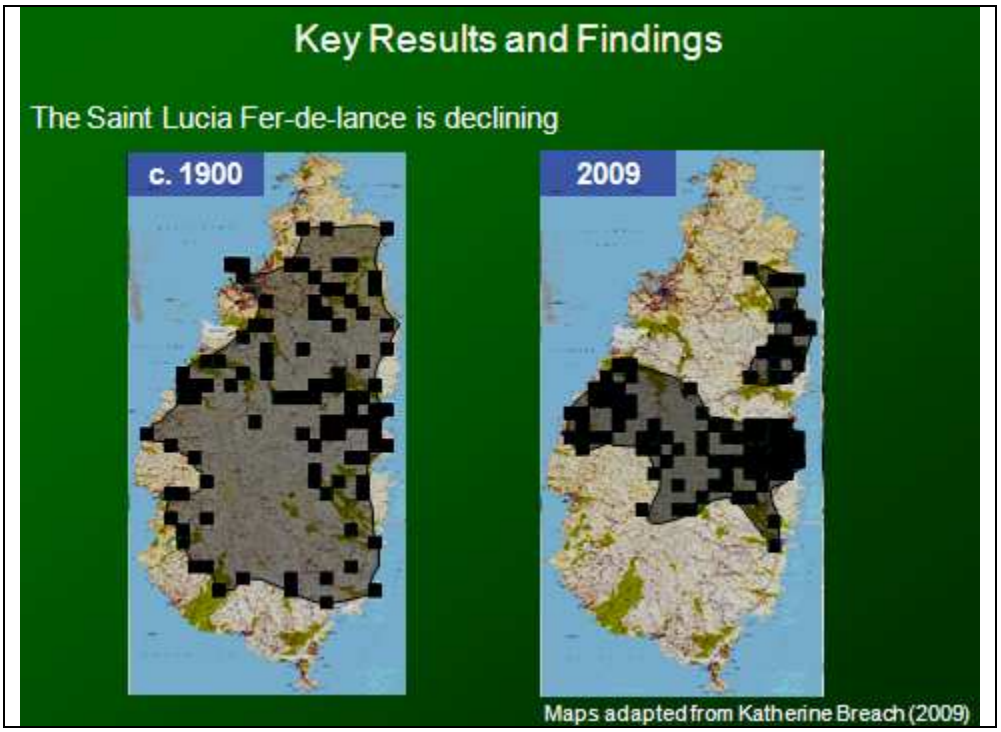


Figure 5. Preliminary Findings on Saint Lucia Fer-de-Lance – 2009 Study

Morton (2009) on the other hand reports trends in increasing population of alien species within the forests. Both manicou and agouti are alien species on Saint Lucia (Clarke 2009), though are treated as 'naturalized' by SLFD and protected under Schedule One of the 1980 Wildlife Protection Act, prohibiting all except licensed (Section 10) hunting of these species. Morton (2009) notes that of those members of the public reporting a trend, most reported the manicou population was increasing, as did most expert respondents. The latter also believed the agouti population was on the increase, although only a minority of the general public who reported a trend reported an increase. Clarke (2009) also reported this species as rare, although it is a shy and elusive species (A. Dornelly, pers. comm.) which may exaggerate impressions of its rarity.

Trends in forest timber use point to an underutilized potential for wood based industrial development, according to Parnell Kerr Foster Consultants (cited in the Strategic Business Plan for the Forestry Sector, 2008). This was evidenced by the "average of 24% of saleable standing timber in natural forest and 4% of the potential harvest in plantation timber". One explanation given for the current situation on sales was the "policy by practice of holding back sales to the public". The recent timber inventory (2009), estimated the volume of timber to be 2.8 million cubic metres of wood.

1.3.2 Marine and Coastal

The island is circumscribed by a narrow coastal strip which in recent times, has been characterized by haphazard, unplanned development, posing a growing threat to the sustainability of the fragile coastal and marine ecosystems. Coral reef systems along the west coast are more diverse that those on the east coast. Figure 6, highlights the location of fringing reefs along the southeast (Anse de Sables), central west (off the districts of Anse la Raye, Soufriere and Laborie) and the northwest coast (Choc Bay). The healthiest and most diverse reefs are found along the central west coast, off Soufriere.

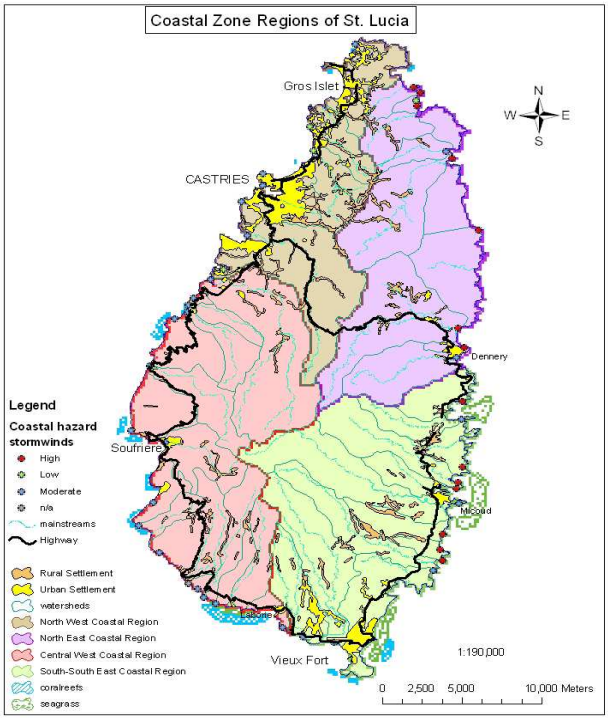


Figure 6. Coastal Zone Regions of Saint Lucia
Source: Ministry of Physical Development, Environment and Housing, Government of Saint Lucia

Nonetheless, reefs in Saint Lucia are under threat from high levels of sedimentation and other land based pollutants. For example, between 1995 and 2001, reefs along the central west coast, particularly those bordering the town of Soufriere, lost an average of 47% of coral reef cover in shallow waters and 48% in deeper waters; a trend which is continuing (Figure 7). Near shore fisheries are also threatened.

Natural disasters such as hurricanes and storms have also taken a toll on Saint Lucia's reefs.

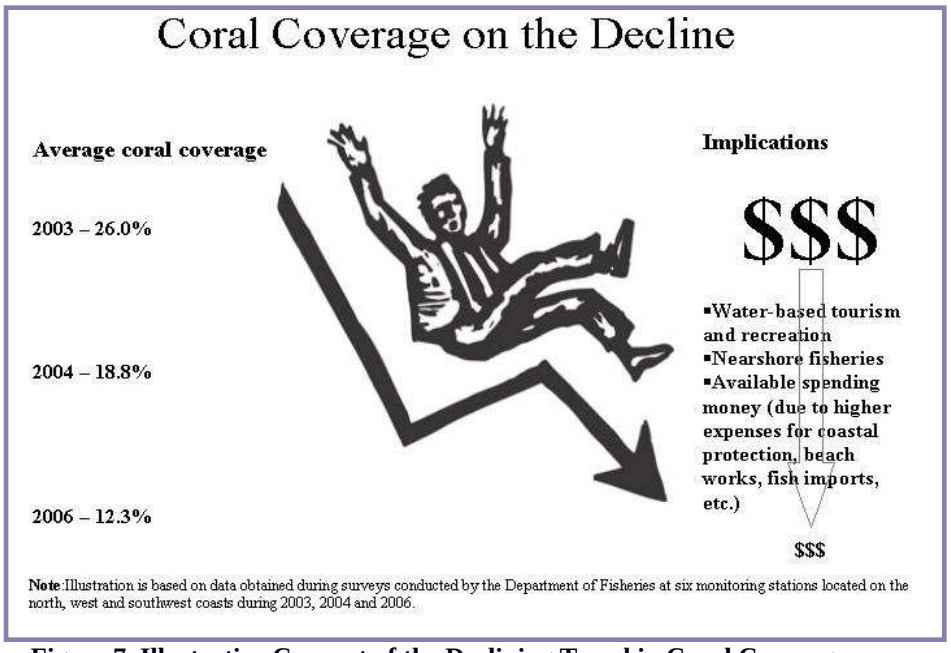


Figure 7. Illustrative Concept of the Declining Trend in Coral Coverage
Source: Department of Fisheries, Reports on Reef Check Monitoring Programme

Seagrass beds are common along Saint Lucia's coasts and are composed mainly of turtle grass (*Thalassia testudinum*), manatee grass (*Syringodium filiforme*) and to a lesser extent, shoal grass (*Halodule wrightti*) species. In general, larger and denser sea grass beds are found off the east coast, compared to the dispersed and sparsely covered patches along the west coast.

Figure 8. Spawning aggregation of *Diadema antillarum*. Malgretoute, July 2009

One of the most dramatic findings of the recent Coastal Habitat Mapping surveys (2009) appears to be the return of high population densities of the long-spined black sea urchin (*Diadema antillarum)*, figure 8. During the surveys between Roseau Bay and Savannes Bay, *Diadema* urchins were found in 24% of the 89 reefs and hardground sites investigated and were abundant in many shallow sites. Substrates in areas of high population densities were found to be virtually devoid of fleshy algae and there were encouraging signs of new coral recruitment, although in some areas bio-erosion effects were observed. Important to note was that no macroalgal-dominated reefs were found, suggesting that the recovery of the *Diadema* populations had already attained a reversal in the regional 30 year trend for a shift from coral to macroalgal-dominated reefs.

1.3.3 Fresh Water

Of the thirty-seven (37) major watershed areas in Saint Lucia, seven are important for water supply. With the exception of areas in the north of the island, all other areas are supplied by surface water intakes located in the upper reaches of the watershed within which these are located.

Currently, there is very little data available on the island's fresh water resources and no regular data collection in this regard. The Water Resources Management Agency (WRMA) established by the promulgation of the Water and Sewerage Act No. 14 of 2005, and which became functional towards the end of 2008 has as one of its primary activities, hydrologic data collection, compilation, and analysis.

Suffice it to say, the island's water supply has in recent years been characterized by low river base-flows during the dry season and high turbidity during the rainy months. This has been largely due to increasing socio-economic development pressures resulting in destruction of upper watersheds and exploitation of rivers and wetlands.

The relatively small area of freshwater and mangrove wetlands of Saint Lucia are also on the decline. The total area of wetlands has been reduced from 320 hectares to 193 hectares, with some areas under considerable stress.

One of the main findings of the Coastal Habitat Mapping project is that there is an integral link between watershed management practices in St Lucia and coastal habitat health. Work currently being undertaken through IWCAM is aimed at including inland issues into coastal decision making (2008 Study - "Protecting and Valuing Watershed Services and Developing Management Incentives in the Fond d'Or Watershed Area of St. Lucia").

1.3.4 Agricultural Ecosystems

In Saint Lucia, the cultivation of crops fall into three broad categories, namely, permanent crops (tree crops), semi-permanent (bananas and plantain) and temporary or short term crop (vegetables and root crops). The data in Table 3 show that land use in agriculture has undergone a significant change over the last two decades, in respect of most of the crop cultures. When the three categories are compared, the largest decrease in acreage occurs with the permanent crops, followed by the semi-permanent crops. Summary data indicated that the overall decline was about 46% for the area under permanent tree crop (coconuts, oranges, citrus, avocado, breadfruit and cocoa) cultivation.

Table 3. Categorization of Agricultural Land (in hectares) in St. Lucia

Component	1974	1986	1996	2006
Cultivated Land	16,868.36	19,152.05	15,782.52	13,496.98
Permanent Crops	11,548.36	15,851.48	13,932.94	6,881.57
Banana	4,484.58	6,388.45	6,136.37	2,557.74
Other tree crops	7,063.78	9,463.03	7,796.57	4,323.83
Arable Land (temporary crops and fallow)	5,320.00	3,300.57	1,849.58	6,615.41
Grassland (land under permanent meadows and pastures)	2,972.89	616.92	1,568.11	909.77
Total	**19,841.25**	**19,768.97**	**17,350.63**	**14,406.75**

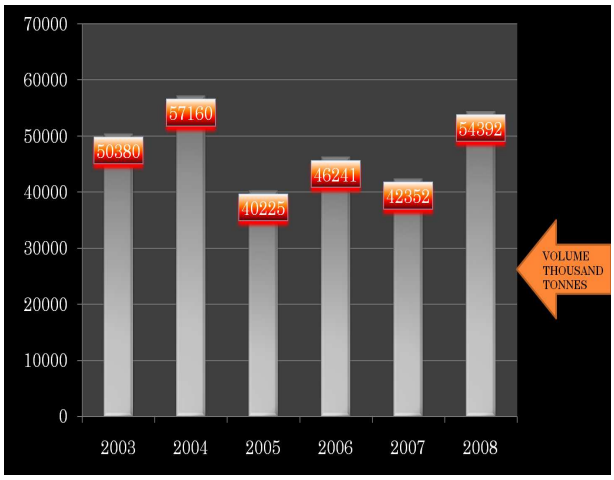
Source: Saint Lucia 2006 Census of Agriculture - Final Reports

While there was an increase in the cultivated acreage of temporary crops from 1996 to 2006, the increase did not compensate for the losses that occurred in the permanent and semi-permanent categories. This suggests that a significant amount of land has gone into fallow and or has been converted to non-agricultural use.

Overall, the 2006 census of agriculture reported a general declining trend in total area dedicated to agriculture. The data showed a total area of land under agriculture of 14,406.75 hectares. This figure reflects a decrease of 2943.9 hectares or 17% compared to the census of 1996 (GOSL, 2006). The declining trend in total area dedicated to agriculture is indicative of the various

threats posed to agricultural ecosystems resulting in a reduction of the availability of land suitable to agricultural production and, if not stemmed at this time, is likely to lead to an even further reduction of available land.

The general decline in total crop production (Figures 9 and 10) over the last five years is attributed to the decline in traditional crop enterprises, in particular permanent tree crops and bananas. This decline is consistent with the distinct shift in the importance of agriculture to the economy, to a greater reliance on the tourism and services sectors due to the negative impacts of the changing trade regime. Meanwhile the perceptible increase in production over the last year may be reflecting increases in the acreages under vegetables and fruits due to growing linkages of that production to the growing tourism sector. Fruit tree crops as well as other food crops, however, continue to be promoted through the agricultural diversification program, and there appears to be a general inclination by the populace for planting tree crops, encouraged by the agricultural diversification promotion slogan "grow what you eat and eat what you grow" and impelled by the current increase in food prices.



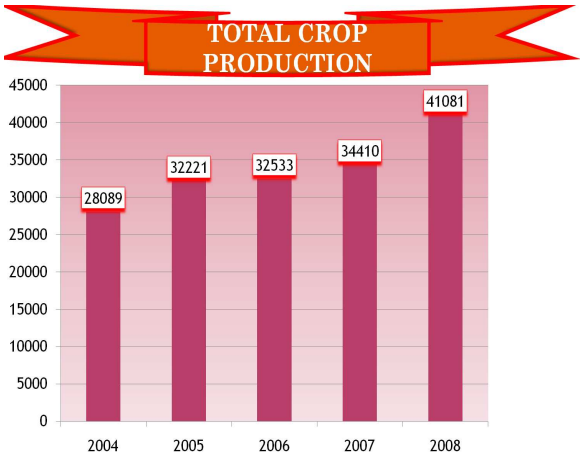


Figure 9. Total Crop Production - Volume **Figure 10. Total Crop Production - Value XCD**
Source: Ministry of Agriculture, Forestry& Fisheries, Department of Agriculture, 2009

Data from the census also point to a significant reduction in the use of pesticides over 1996 (an average decline of 51% from 1996), attributed largely to the sharp decline in banana production. In addition, there has been a move in the agricultural sector towards the adoption of more environmentally friendly farming systems such as Fair Trade and Global GAPs. An increase in use of molluscicides was, however, noted and has been attributed to the introduction of new pests, such as the Giant African Snail: an indication of the emerging threat of invasive alien species to the country's agricultural biodiversity.

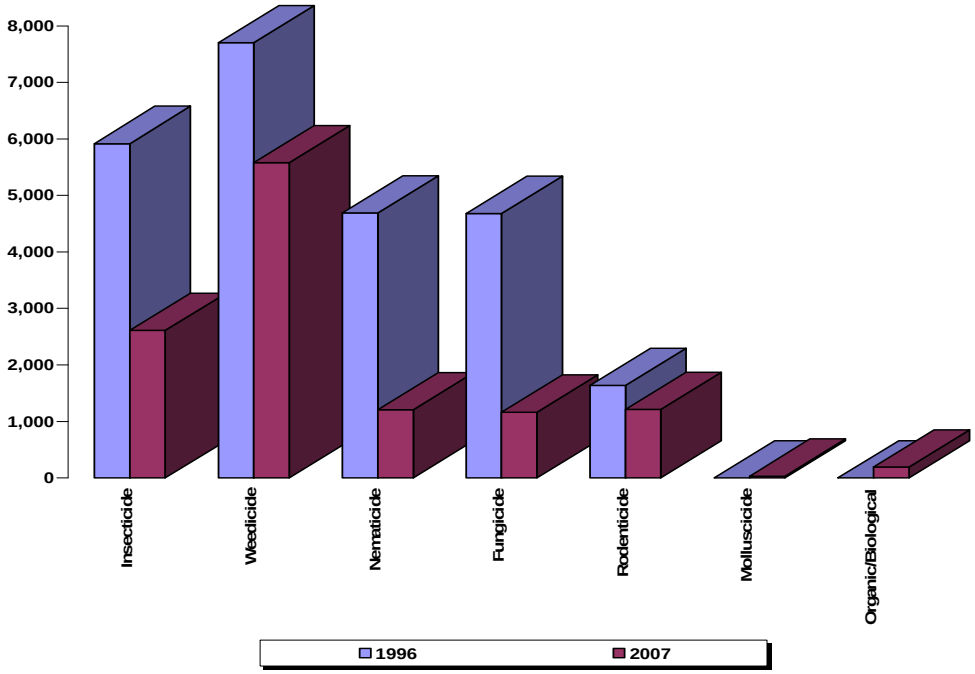


Figure 12. Trends in Agrochemical Use
Source: Ministry of Agriculture, Forestry& Fisheries, Statistical Unit

1.4 Biodiversity Threats

The health and survival of a country's biological resources are dependent on the environment that supports it. The Caribbean is considered one of the world's biodiversity hotspots (CABI News, Issue 2 / Sept 2007), and the situation in Saint Lucia provides further corroboration.

With regard to the increasing rate of biodiversity loss in Africa and South America, the Global Outlook report points to the direct drivers as being climate change, land use, over population and invasive species introduction. However, recommendations to reverse this trend in biodiversity loss are aimed at effectively managing interventions to address the indirect causes or effects of biodiversity loss, namely: the demographics of people, economy and the socio political status of the country, availability and access, and application of science and technology, and culture and religion[7].

These findings are also borne out in the case of Saint Lucia with the main threats to biodiversity identified, through the consultative process, as habitat modification and destruction. The direct drivers in this regard are high population densities combined with population shifts, urbanization and increased development, particularly residential and touristic development, with the attendant

[7] TEEB (2009) and the IUCN (2004) demonstrate the inextricable link between poverty and biodiversity loss, with the loss of biodiversity harshest in "the poor who depend on local ecosystem services for their livelihoods" and who are often the least able to access or afford substitute inputs.

socio-economic pressures resulting in changes in land use. This is further compounded by the emerging trends in climate change and climate variability and the introduction of invasive alien species. A summary of the major threats identified for the various ecosystems is presented in Table 4.

Table 4. Main Threats to Saint Lucia's Biodiversity and Causes

Ecosystems	Threats	Drivers/Causes
Forest and Terrestrial Wildlife	• Habitat destruction and loss: significant loss of forest – particularly deciduous (dry) scrub and semi-evergreen (mesic) forests (critical to endangered species) • Species endangerment: critically endangered bird species; white breasted thrasher s • Species extinction: endemic species thought to be already extinct; Sempers' Warbler, Cribo, West Indian Manatee ,St. Lucia muskrat (mammal) • Loss or degradation of ecosystem function	• Continuous deforestation for development (particularly residential and touristic), prevalent on private lands, especially in dry shrub forest along the coastal area; • Socio-economic pressures/ livelihood needs: - land clearing for squatting, agriculture and charcoal production; - hunting/poaching of wildlife • Increasing incidence of invasive alien species • Agrochemical pollution • Fire
Coastal and Marine Ecosystems	• Destruction of coral reefs - patchy and narrow fringing reefs affected by sedimentation and land-based pollutants • Reduction in beach length • Loss of mangroves • Diminishing stocks of most commercially important benthic species	• Poor solid and liquid waste management • Unregulated land development esp. in coastal areas • Sand mining • Erosion from poor soil/land management practices in agriculture, mining, quarrying, etc. • Conversion and reclamation of mangroves • Marine invasive species • Over-harvesting of commercially important species • Illegal trade in coral and other protected species • Illegal and unsustainable (destructive) fishing methods
Fresh Water Ecosystems	• Loss of wetlands with continuing decline • Competing demands for fresh water resources – demand outstripping supply • Increasing incidence of contamination of water courses from poisons, siltation and other pollutants	• Conversion of mangroves • Continuing use of poisons for fishing • Poor agrochemical use • Increasing population and rapidly growing industry • Changing patterns of consumption and recreation • Expansion of settlements

Ecosystems	Threats	Drivers/Causes
	• Loss or degradation of ecosystem function • Declining fresh water species - populations and species diversity	• Inappropriate river management - river sand mining, river bank cultivation, etc.
Agricultural Ecosystems	• Loss or degradation of ecosystem function • Introduction of genetic material e.g. new hybrids • Degeneration and loss of species, varieties and cultivars due to non-propagation of important genetic material • Poor management of natural resources - Farming systems - Land preparation - Pest and disease control - Agrochemical use	• Conversion of agricultural lands to other uses • Structural and marketing deficiencies • Changes in consumer taste and cultural values - loss in cultural value in terms of use and consequent reduction in demand for local varieties, species, breeds, etc. • Soil erosion from poor soil/land management practices in agriculture • Introduction of Invasive Alien Species (IAS) • Global trade challenges
General	• Poor management of biodiversity due to inconsistent political support • Loss/degradation of ecosystems and species decline due to increased incidence of natural disasters • Loss/degradation of ecosystems and species decline due to human-induced disasters	• Inadequate legislative framework • Lack of monitoring and enforcement • Climate change and climate variability • Poverty and unemployment

With tourism now the lead economic sector, the island's development imperatives appear to be driven purely by economic priorities. This often times leads to extensive land clearing for the establishment of tourism related physical infrastructure and facilities in sensitive areas, which negatively impact the landscape, altering the ecosystem balance in terms of habitats, consequently threatening the endemic flora and fauna with resulting biodiversity loss. Further, land development patterns are currently driven mainly by land market forces, rather than by policy (e.g. country's policy on sustainable development) and strategic planning instruments. Land development planning, which traditionally has been sector-driven, appears to give little attention to a holistic outlook for land management. The result is uncontrolled development of the land and the attendant issues of poor land management and destruction of biological resources with little or no mitigation, with the consequent loss in potential to maintain ecosystem services.

Preliminary findings of the 2009 National Forest Demarcation and Bio-Physical Inventory Project report that almost all of Saint Lucia's semi-evergreen (mesic) forest and much of the deciduous (dry) forest were at some stage converted to farmland. Since these forests are home to most of the endemic species, loss of habitat means increased potential for loss of endemic species. Further, many areas are burned frequently, resulting in a net loss of native species. Fires could also spread to higher elevations if the climate changes.

The study revealed that the island's diverse range of forest species, including the Fer-de-lance and other reptilian species, are at risk due to habitat destruction as a result of continuous deforestation that is prevalent on private lands, especially along the island's coastal zones. Other root causes for the declines were given as alien invasive animals such as the opossum (manicou), rats, dogs, cats, feral pigs, the mongoose and other alien invasive reptiles and amphibians. Many of the country's native species are threatened by invasive alien species from other countries, which continue to be introduced by trade, transport, travel and tourism (the 'four 'T's') (CABI News, Issue 2 / Sept 2007).

Some species, e.g. Saint Lucia Racer (*Liophis ornatus*) are so rare they could be wiped out by genetic inbreeding or by chance. Mongooses, introduced in the late 19th Century, could be the main cause of many reptiles and ground-nesting birds declining. Feral pigs are increasing in number, damaging the forest and endangering a variety of wildlife. Alien green iguanas could compete and hybridize with the Saint Lucia iguana. A major bat roost (Grace Cave) is at risk from a proposed new reservoir for Vieux Fort. Some tree species are, or could be seriously threatened from over-exploitation. Hunting and agrochemical pollution are also significantly associated with the decrease in numbers.

Current threats specific to the main taxonomic groups in forest ecosystems have been identified and assessed for severity, based on outcomes of the 2009 study. These are outlined in Table 5.

Table 5. Main Threats to Forest Animals and Plants

Threat/ Species Type	Over-exploitation/ deliberate killing	Alien invasive species	Habitat loss/ degradation	Pollution (agro-chemicals)
Trees	**xx**	**xx**	**xxx**	**?**
Other Plants	**x**	**xx**	**xxx**	**?**
Invertebrates	**x**	**xxx**	**xx**	**xx**
Reptiles	**x**	**xxx**	**xxx**	**x**
Amphibians	**-**	**xx**	**-**	**x**
Birds	**x**	**xxx**	**xxx**	**x**

Threat/ Species Type	Over-exploitation/ deliberate killing	Alien invasive species	Habitat loss/ degradation	Pollution (agro-chemicals)
Mammals	**x**	**xx**	**xx**	**x**

Key: x - indicates level of severity of threat; x – less severe; xx – more severe; xxx – very severe; ? - unknown

The major threat to agricultural biodiversity stems from the continued intensive and extended cultivation of agricultural lands which adversely impact habitats and species as a result of:

- inappropriate land use: incompatibility between agricultural practices and land capability
- physical loss of soil
- poor soil quality – soil acidity, soil physical and biological degradation and soil pollution from pesticide use

Declining soil quality will also lower the current and/or future capacity of the soil to support biodiversity, in terms of a decline in agricultural productivity and ultimately a decline in species continuity and diversity.

Lands once used for agriculture are now being converted to other uses such as commercial and residential, with the changes in most instances irreversible. Changing consumer taste and cultural values are also contributing to the changing face of the agricultural landscape. As consumer preferences for imported products continue to grow, several native or traditional species are not only used infrequently, but are also not cultivated on a regular basis. Most significant are the wild fruits and plants that have played a part in nutrition and local and herbal medicine over generations. The increasing need for lands for traditional mono-crop agriculture in the 1980's also resulted in the degradation and loss of habitat for many species.

Fresh water and marine and coastal ecosystems are largely threatened by ecosystem degradation caused by unsustainable land-use practices. These include sand mining, topsoil removal from riparian areas, unregulated and unplanned settlements and infrastructural development, poorly planned beachfront development in particular by the tourism sector, poorly planned road building, and inadequate solid and liquid waste disposal. This is especially true of watersheds that have been degraded due to deforesting for timber and charcoal production, clearing for agriculture, poor agricultural practices including excessive and unregulated use of agrochemicals, and the presence of invasive species and feral animals. Watershed connections with marine ecosystems have been cut or impeded, leading to marine ecosystem degradation, especially of reef and mangrove systems. This has led, at least in part, to polluted freshwater systems and reef degradation, and consequent species decline as evidenced by reduced fish catches.

Existing governance and administrative arrangements have not kept pace with the rapid and unregulated development that has characterized the developmental growth of shore areas. For example, overfishing due to a lack of enforcement of fishing regulations, excessive pot fishing on reefs, and poor anchoring techniques have all contributed to reef degradation. Further, new development ventures still do not adequately address environmental impacts, monitoring and

evaluation, carrying capacity issues, limits of acceptable change, and overall impacts on biodiversity. The negative impacts on local biodiversity are exemplified in the:

- Loss of key species (e.g. higher carnivorous reef fish species are disappearing from the food web);
- Declining habitat diversity (e.g. dry scrub forest in coastal areas and wetland coverage are on the decline, over 50% of mangrove wetlands reported lost to development);
- Loss of indigenous species (e.g. the Saint Lucia Muskrat is extinct); and
- Introduction of exotic species (e.g. The tilapia fish found in all fresh and brackish waters on the island and the Pink Mealy Bug, which has degraded some plant species, are not native to Saint Lucia).

Figure 12 illustrates the major threats to the main ecosystems and the intensity of the impact.

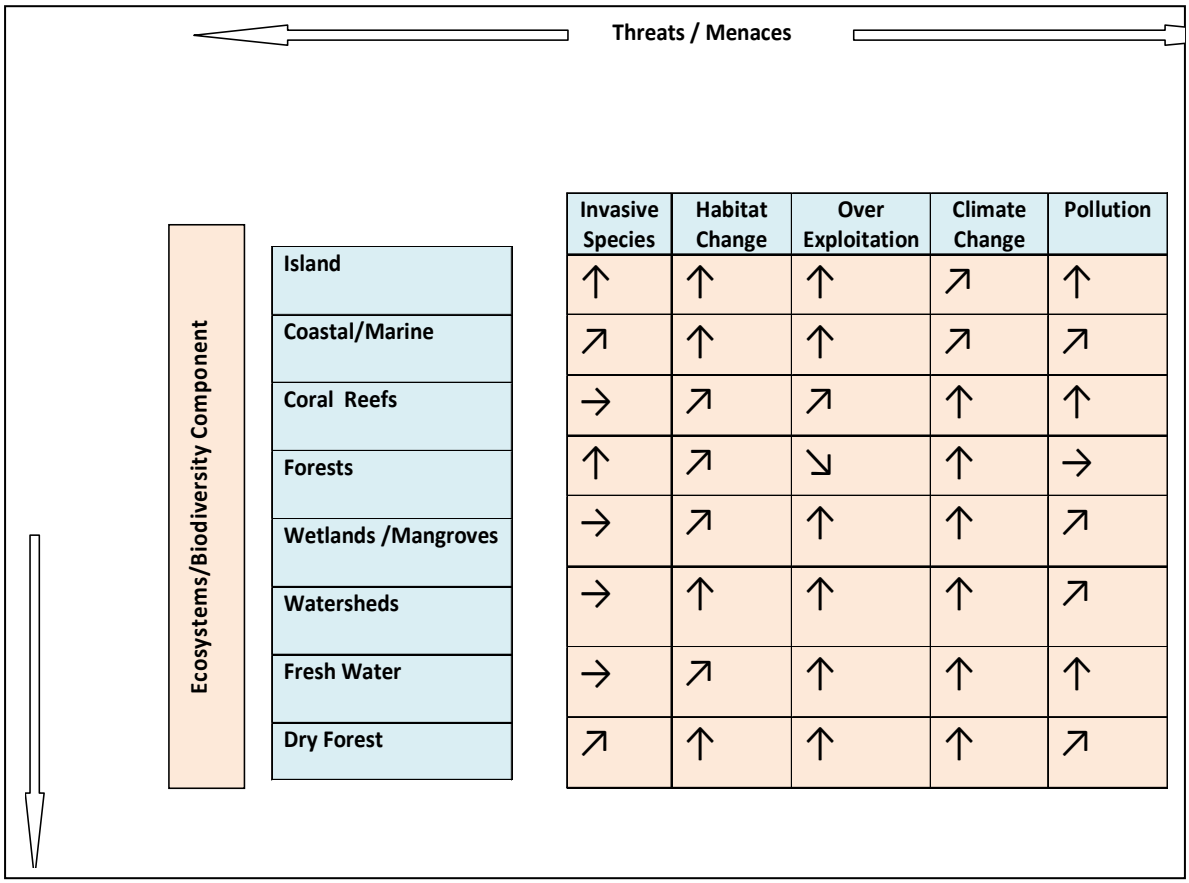


Figure 13. Major Threats to Main Ecosystems in Saint Lucia

1.5 Importance of Biodiversity and Implications for Change

Figure 13 highlights the importance of biodiversity to Saint Lucia. Biodiversity is important to the country for food, shelter, medicines, (all ecosystem provisioning services) and other

ecosystem services, sustainable livelihoods, agriculture and tourism industries and future untapped industries of the country.

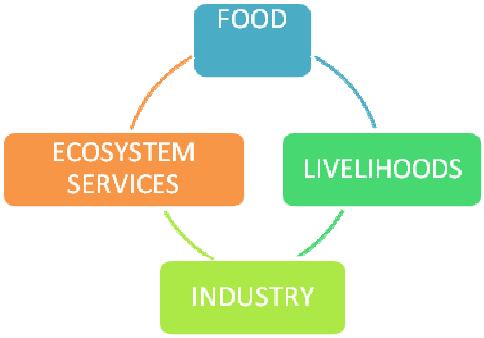


Figure 14. Importance of Biodiversity to Saint Lucia

Experts currently recognize four categories of ecosystem services.[1] Table 6 provides a listing of some relevant examples in each category of service

Table 6. Categories and Examples of Ecosystem Services

Provisioning services	*Regulating services*	*Supporting services*	*Cultural services*
• food (including seafood and game), crops, wild foods, and spices • water • pharmaceuticals, biochemicals, and industrial products • energy (hydropower, biomass fuels)	• carbon sequestration and climate regulation • waste decomposition and detoxification • purification of water and air • crop pollination • pest and disease control	• nutrient dispersal and cycling • seed dispersal • primary production	• cultural, intellectual and spiritual inspiration • recreational experiences (including ecotourism) • scientific discovery

The island's biological resources are however in the main used for food, livelihoods, industry and ecosystem services, and are therefore critical for human well being and socio-economic development. Agro-ecosystems are the primary source of food provisioning. Biological diversity in this regard, is critical for ensuring food security and sustaining other key ecosystem services including regulating services (e.g. crop pollination, pest and disease control), as well as all the above mentioned supporting services.

The forest ecosystems are the mainstay of provisioning for most areas of biological resource use (Figure 14). Many plants and animals are harvested for a myriad of uses, primarily supporting

livelihoods and industry. The most important material extracted from forest (not government forest reserve but private lands) is charcoal, which is a primary source of fuel for some households[8]. It is primarily taken from dry forest and mangrove. It is also an incidental product from land clearing for shifting cultivation.

Other non-timber products include latanyé (*Cocothrinax barbadensis*) used in broom production for local consumption and export, L'encens (*Protium attenuatum*) used in incense production for local consumption and a lucrative export trade to Martinique, and bamboo (*Bambusa vulgaris*) in construction industry.

> The case study for latanyé (*Cocothrinax barbadensis*) used in broom production (Box 2) is one of the notable successes for the country with respect to sustainable use and livelihoods.

An example of successful, community-based sustainable use of non-timber forest products exists on Saint Lucia, with the Au Picon Charcoal and Agricultural Producers Group (APCAPG). The successes of this work have been elaborated by Samuel & Smith (2000) and Anon. (no date). Suffice it to say, it is an example of successful sustainable use of mangroves by restricting access to the resource to local community members. It is also an example of the importance of adequate institutional support for the sustainability of such initiatives (A. Toussaint, pers. comm.). Nevertheless, lessons learned in this regard may be transferable to the sustainable, *in situ* use of other species such as l'encens.

Several wildlife species are also utilized as food. Morton (2009), reports that persons in smaller, and hence more rural, communities, which are likely to have lower socio-economic indicators, are more likely to use wildlife species. This might be expected of persons in these strata both because of their closer geographical proximity to the habitats that support them and the appeal of 'free' products to persons in lower income brackets.

At least two uses for boas (*Tet chyenn*) have been reported; namely, as a tourist attraction (or sometimes to attract St Lucians) and to produce snake oil. Snake oil is apparently especially valued, and valuable, in the French territories (Martinique, Guadeloupe) and may be exported to them. *Kochon mawon* (wild pigs) are hunted for recreation, for food and, increasingly, as pest control at the request of farmers, with these three motives not being mutually exclusive (Morton, 2009).

8 Donatien Gustave Master's Thesis (2009); Saint Lucia's Country Poverty Assessment (2006) highlighted the preference to charcoal for cooking despite the availability of more convenient alternatives.

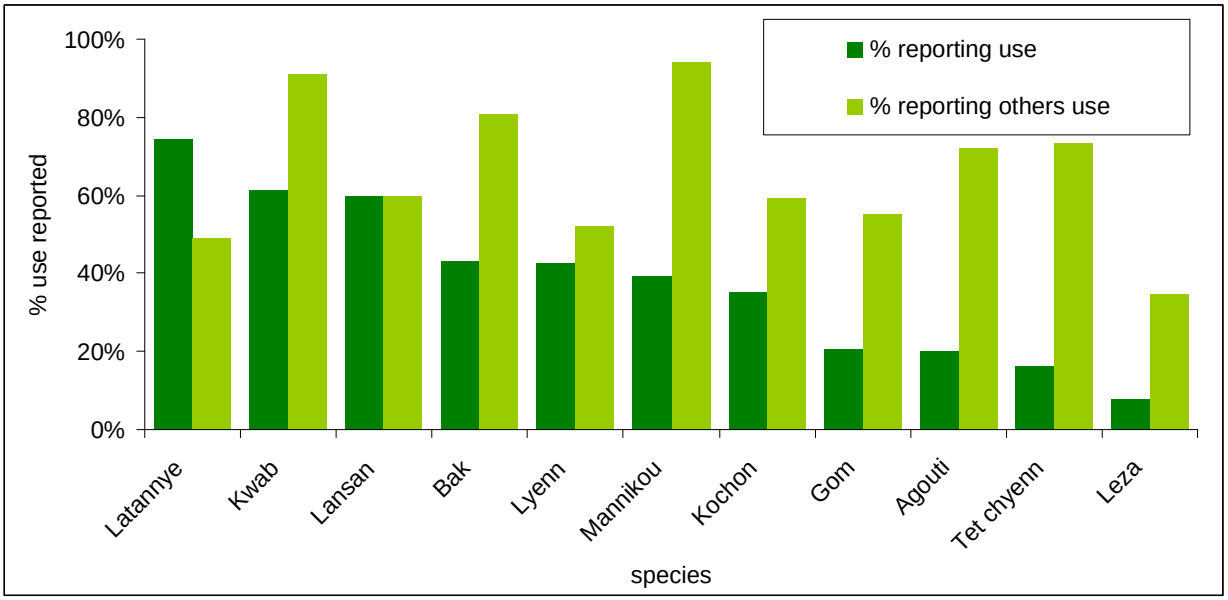


Figure 15. Forest species used (preliminary findings, *National Forest Demarcation and Bio-Physical Resource Inventory Project,* 2009)

Most importantly, the forest reserve comprising the main contiguous forest area in the central region of the island is integral to the protection of the island's fresh water resources and domestic water supply.

As the traditional industries such as agriculture and fisheries decline, the economy is becoming increasingly tied to its attractiveness as a destination for tourism, which is founded upon the island's natural beauty and pristine environment. Coastal and marine resources form the backbone of the tourism industry, the main contributor to the island's economy. The Heritage tourism experience is now an integral part of the island's tourism product, having still a great capacity for growth. Many sites and attractions have been established which provide nature and culture based experiences, including bird watching, hiking, visits to historical sites, and other outdoor and cultural activities. With the tourism market becoming increasingly competitive and discerning, it will be especially important that Saint Lucia places the highest priority on safeguarding its environmental quality and its unique offer as a tourism destination.

The current and emerging threats to the country's biodiversity point to an urgent need to reverse the fast-growing trend of ecosystem destruction and species decline. It is evident though, that attempts to manage biodiversity without addressing economic issues could only result in the rapid loss of ecosystem services that are underpinned by biodiversity. The consequent impact of loss of biodiversity resulting from unsustainable use of resources, loss of habitats and high rates of extinction of species will have serious implications for livelihoods and overall socio-economic development, particularly with respect to food security, human health and poverty; thus, undermining efforts to achieve the Millennium Development Goals (MDGs). What is required in Saint Lucia, at this time, is a more integrated approach to natural resource management and biodiversity conservation that takes into account the realities of indirect drivers of biodiversity loss such as demographics of people, poverty and unemployment, particularly in rural Saint

Lucia. The island would do well to develop and implement timely conservation measures in concert with the recommendation of the Global Outlook report, with respect to the implementation of requisite management interventions to address the indirect causes or effects of biodiversity loss.

Box 2: LATANYE CASE STUDY

Problem: John (2001b) and Gustave et al. (2006) describe the over-harvesting of the species, latanyé (*Cocothrinax barbadensis)*, with Gustave et al. (2006) observing that the occurrence of latanyé on private lands with absentee expatriate owners results in it being regarded as a de facto free resource. The latanyé brooms are produced for the local market and for export. The total value of latanyé brooms exported from Saint Lucia over the period 1992-2003 was $ 24,377 USD.

Gustave *et al*. (2006) document a decline in broom quality resulting from the use of smaller leaves which they attribute to over-harvesting of this species. Due to the demand for Saint Lucian latanyé brooms, there was the over-harvesting of the leaves and the consequent use of smaller and immature leaves. Brooms built with immature leaves had varied standards of measurements and did not last as long as the ones made with older leaves. The authors also report an observed trend of the decrease in the quantity of brooms exported from 1993 to 2001, with more than a ten-fold decrease from 2001 to 2003.

Action: Given that scenario of over-harvesting of latanyé to meet the demand for brooms- locally and regionally, the variability in the quality of brooms produced, the absence of legislation for the harvest/use of latanyé, the threat of bush fires and more importantly, the potential loss of livelihoods and extinction of latanyé in Saint Lucia, the Forestry Department intervened and developed a species recovery strategy for the conservation and the sustainable use of latanyé including:

- Latanyé plants were propagated in nurseries and plantations established on farmers' holdings to supplement wild stocks with cultivated stock.
- Research on sustainable production practices and optimum harvesting regimes were also conducted.
- Training and technical assistance provided to community groups in technical and business areas.

Results:

- Forestry Department with Extension Services successfully translated the maintaining of livelihoods in the establishment of plantations of pure and mixed plots of latanyé on farmers' holdings. Currently, there are approximately 35 plantations on Saint Lucia, all of which are intact and productive, that are on average 2 to 3 years old. (D. Gustave, pers. comm.).
- A Latanyé group, "Superior Broom Producers", was officially formed and registered with the government of Saint Lucia on June 21 2005. Increase in value of brooms resulting in improved livelihoods.
- Conservation strategy and proposal for establishment of a nursery formulated.
- Collaboration with the Propagation Unit, Forestry Department and Latanyé Farmers to establish an ex situ germplasm of latanyé seeds from all over the island.
- A draft copy of the standards for producing brooms was prepared by the Bureau of Standards and is still to be finalized.
- Research conducted for sustainable harvesting and regeneration, and longevity and storage and other economic aspects of production.

Broader implications:

- Stakeholders sensitised and made aware of their impact on the resource.
- Behavioural change instigated through the empowerment of farmers, formed into a business venture, the Superior Broom producers, and the provision of training and assistance from experts in business management and other technical skills.
- The fact that the latanyé is now being cultivated means that the plant will now no longer be scarce as the nursery continues to propagate seedlings for out planting.

Sources of Information:

Donatian Gustave *et al.* 2008. *Development of Latanyé Broom Industry in Saint Lucia*
www.**fao**.org/forestry/webview/media

Chapter II - Current Status of National Biodiversity Strategies and Action Plans

2.0 Introduction

Development of the first NBSAP for Saint Lucia commenced in 1997 and went through a process where baseline studies were conducted in six (6) key areas, followed by an extensive consultation process. Technical and financial assistance from the United Nations Environment Programme - Global Environment Facility (UNEP/GEF) and the Government of Saint Lucia (GOSL) were used for the preparation of the NBSAP.

2.1 Description and Priority Activities of National Biodiversity Strategy and Action Plan

Of the seven (7) established thematic programme areas of the CBD, four thematic programme areas formed the focused of the NBSAP for Saint Lucia, corresponding to the major biomes and cross cutting areas of importance to the country as indicated in Table 7.

Table 7. CBD Thematic Programme Areas and Cross-Cutting Issues

Thematic Programme Areas		Cross-Cutting Issues	
1	Agricultural Biodiversity*	2010 Biodiversity Target	Global Taxonomy Initiative*
2	Dry and Sub-humid Biodiversity	Access to Genetic Resources and Benefit-Sharing*	Impact Assessment *
3	Forest Biodiversity*	Traditional Knowledge, Innovations and Practices*	Indicators
4	Inland Waters Biodiversity*	Biological Diversity and Tourism*	Invasive Alien Species*
5	Island Biodiversity	Climate Change and Biological Diversity*	Liability and Redress – Article 14(2)
6	Marine and Coastal Biodiversity*	Economics, Trade and Incentive Measures	Protected Areas*
7	Mountain Biodiversity	Ecosystem Approach*	Public Education and Awareness*
		Global Strategy for Plant Conservation	Sustainable Use of Biodiversity*
			Technology Transfer and Cooperation*

*Indicates Thematic Areas and issues of primary importance to Saint Lucia in fulfilling its obligations under the CBD

Box 3. Programmatic Areas for Implementation of NBSAP

1. *Planning and Policy Formulation (relating to Articles 6, 15, 19)*
2. *Research and Monitoring (relating to Articles 7, 12)*
3. *Conservation (relating to Articles 8, 9)*
4. *Sustainable Use (relating to Articles 10,14)*
5. *Education and Awareness (relating to Articles 13)*

The implementation of the NBSAP was undertaken through five programmatic areas (Box 4). The objectives of the NBSAP in this regard, were aimed at fulfilling as many of the obligations of the Convention on Biological Diversity (CBD), within the context of current issues and trends of relevance to the thematic areas and cross cutting issues outlined above. In elaborating these five programmatic areas, the intent was to consolidate efforts and resources in implementation of activities to support work under thematic programmes and cross cutting issues.

The implementation plan was developed in accordance with CBD provisions and was supported by a vision, objectives, an implementation approach, and a suite of projects identified by stakeholders, emanating from the five programmatic areas, and deemed as critical for implementing the NBSAP. The approach outlined, was based on the principles of equity, sustainability and social justice. A total of twenty-two projects incorporating priority activities for implementation were also elaborated.

Elements of the Vision for the future of Saint Lucia's Biological Diversity

- *The status of biological resources is known, the people of Saint Lucia and visitors to the island are all aware of the value and importance of these resources, and respect for biodiversity is integrated within the nation's culture*
- *Governmental agencies, non-governmental organizations, the private sector and communities are conscious, active and responsible participants in the management of biodiversity, and the concerns for the management of biodiversity are taken into account within policy-making processes at all levels*
- *The integrity of the country's biological diversity is maintained and, whenever possible, restored;*
- *Biodiversity contributes optimally, through sustainable uses, to the social, economic and cultural development of the country, and to the physical, spiritual , and psychological well-being of its people;*
- *National, regional and international efforts aimed at conserving biological diversity are consistent, mutually supportive, and effective.*

The NBSAP was completed and approved by the Cabinet of Ministers in September, 2000. Since then, many of the programmes and projects outlined in the first NBSAP are either

completed or are in the implementation stage. A few have not yet been implemented due to revised national priorities and or financial constraints. The First National Report to the CBD states as follows: "***the 22 projects outlined do not indicate a time frame for completion, as this is largely dependent on funding becoming available at the national, regional or international level. In addition, the projects were not laid out in order of priority as the latter will be determined by prevailing circumstances and also because at present, all the projects are construed to be of national priority for the country***.

SUMMARY OF PROJECTS PROPOSED FOR IMPLEMENTATION UNDER NBSAP

Project 1: Policy, Institutional and Legislative Review: *Biodiversity, biosafety, environment and other relevant policy and legislation drafted.*

Project 2: Identification and selection of methods, tools, baseline variables, indicators and parameters needed for effective monitoring: *Some progress was made on this under the Biodiversity Enabling Project, by analysing the ongoing monitoring programmes and making recommendations for improvements, including identification of appropriate indicators.*

Project 3: Comprehensive inventory of terrestrial biological resources: *Conducted in large part under the National Forest Demarcation and Bio-Physical Resource Inventory Project (2009).*

Project 4: Inventory of marine and coastal biodiversity: *Some work in this area has been done under the OECS Protected Areas and Associated Livelihood (OPAAL) Project (2010), biodiversity studies conducted for the World Heritage Site 1998), and Coastal resource mapping (2009).*

Project 5: Assessment of the stocks of the Queen Conch (*Strombus gigas): This assessment was conducted to a large degree under an EU Project.*

Project 6: Assessment and management of wetlands: *Some work in this area done under the National Forest Demarcation and Bio-Physical Resource Inventory Project (2009).*

Project 7: Assessment of freshwater biological resources: *Freshwater biodiversity has not yet been comprehensively assessed.*

Project 8: Inventory of biological resources of importance to agriculture: *Some work has been carried by MALFF in terms of identification of biological resources of importance to agriculture and in situ conservation of germplasm.*

Project 9: Study and determination of the carrying capacity of critical areas used for tourism and recreation: *project partially been undertaken by the Saint Lucia Nature Heritage Tourism Program with sites evaluated for tourism and recreation potential.*

Project 10: Design of standards and guidelines of behavior in nature tourism sites and attractions: *Standards have been developed by the Ministry of Tourism.*

Project 11: Review of the national plan for a System of Protected Areas: *Completed under the OPAAL Project.*

Project 12: The economics of biodiversity loss and conservation: *A computer programme was developed by the World Resources Institute to determine the value of coastal and marine systems (beaches and coral reefs) for tourism and fisheries.*

Project 13: Training: *While a comprehensive approach to training for biodiversity management has not been developed, a number of relevant training exercises have been conducted.*

Project 14: Establishment of management programmes for the protection of the endemic and rare species of birds: *Programmes exist for the Saint Lucia parrot and efforts are underway to protect other species, such as the white breasted thrasher.*

Project 15: Establishment of turtle monitoring programme: *Turtle monitoring conducted at one site, but there is a need for expansion of this programme.*

Project 16: Establishment of a photographic and video graphic database on biodiversity: *Done in part with the development of the national biodiversity database.*

Project 17: Education, public awareness and participation: *Much has been done in this area, with several campaigns conducted to highlight biodiversity issues.*

Project 18: Upgrading of national herbarium, and creation of sub-collections: *Herbarium has been updated.*

Project 19: Development of artificial habitats for coastal and marine resources: *The Department of Fisheries is called on to examine structures as they become available for the use as artificial habitats. Procedures for examining these structures and determining appropriate sites for deployment have been developed and are being used by the Department of Fisheries.*

Project 20: Evaluation of the medicinal and culinary properties of herbs: *Under the Second Enabling Activity Project, selected commonly used herbs were surveyed to gain current knowledge of their use.*

Project 21: Promotion of organic farming: *Organic Farmers Association established.*

Project 22: Increasing and managing plant diversity for sustainable rural livelihoods: *The Forestry Department has undertaken the propagation and cultivation of the Latanye and Mauby plants with training and technical assistance provided to community groups.*

The priority activities of the NBSAP articulated in the vision, and further elaborated in the projects, were de facto linked to the cross-cutting areas across the thematic programme areas that were of relevance to the country at that time (table 5). Many of the projects, particularly those related to inventorying and valuation of biological resources, were aimed at generating baseline information, while some of the activities in projects such as project numbers 10, 11, 14, 15, 18, 19, 21 and 22 were directly aimed at addressing issues associated with the threats identified. It was envisaged, however, that the outcomes of the baseline activities would assist in creating a framework for future action to address current and emerging threats, and for monitoring the impact of these actions. For example, the Second Enabling Activity Project supported the establishment of a full-time Biodiversity Office (commenced with UNEP/GEF financing now financed by GOSL and various projects), housed in the MAFF with staff limited to a Project Coordinator, now a biodiversity/biosafety coordinator, and a Secretary. This office also implemented some of the projects within the NBSAP resulting in the following outcomes:

- Production and submission of Benefit Sharing Report (March 2001);
- Assessment of Saint Lucia's capacity building needs with regards to the implementation of CBD (selection of methods, tools, baseline variables, indicators and parameters needed for effective monitoring);
- Promotion and maintenance of the CHM;
- Preparation of information for dissemination to ensure stakeholder understanding and participation;

- Preparation and submission of Second and Third National Report to the CBD;
- Draft Legislation and regulations for Biodiversity produced;
- Monitoring activities commenced, such as sea turtle population;
- National database for biodiversity established;
- Training for biodiversity resource users in using national biodiversity database; and,
- Production of draft Second NBSAP

The establishment of a full-time Biodiversity Unit, albeit on a very small-scale, provided a formal institutional framework through which actions for biodiversity management was focused. The Unit provided regular follow up on activities and sourced requisite support and resources where necessary to ensure completion for same. For example, planning activities commenced under the Second Enabling Project were further advanced with the work of the Unit which procured funding under the EU SFA 2003 programme. Of particular note are draft Legislation for Biodiversity, which was at first focused on the aspects of access and benefit sharing, and the promotion and maintenance of the CHM. Funding sourced under the EU programme was used to develop comprehensive legislation for biodiversity management, and also establish a Biodiversity Information Network (BIN).

2.2 Incorporation of Targets and Indicators into NBSAP

In the Convention's first Strategic Plan, adopted in 2002, the Parties committed themselves to a primary target, namely, "to a more effective and coherent implementation of the three objectives of the Convention, to achieve by 2010 a significant reduction of the current rate of biodiversity loss at the global, regional and national level as a contribution to poverty alleviation and to the benefit of all life on earth." This target, as well as targets and indicators (both the global and national) adopted under the Convention, are expected to underpin the NBSAP.

The aim of Saint Lucia's National Biodiversity Strategy and Action Plan (NBSAP) is to optimise the contribution of biological diversity to the sustainable economic, social and cultural development of Saint Lucia. Thus, the objectives of the NBSAP were generally consistent with the global targets and indicators adopted under the Convention. Table 8 indicates where these targets are linked to the objectives of the NBSAP.

The thrust of the objectives were largely conservation, sustainable use, access and benefit sharing and public education and awareness. Table 8 provides an indication of where global goals and targets adopted under the Convention are incorporated into the NBSAP.

Table 8. NBSAP Objectives and Link to Global Goals and Targets

NBSAP Objectives	Link to Global Goal and Target
(a) Conserve the country's diversity of ecosystems, species and genetic resources	*Goal 1. Promote the conservation of the biological diversity of ecosystems, habitats and biomes* ➢ Target 1.1: At least 10% of each of the world's ecological regions effectively conserved. ➢ Target 1.2: Areas of particular importance to biodiversity protected *Goal 2. Promote the conservation of species diversity* ➢ Target 2.1: Restore, maintain, or reduce the decline of populations of species of selected taxonomic groups. ➢ Target 2.2: Status of threatened species improved. *Goal 3. Promote the conservation of genetic diversity* ➢ Target 3.1: Genetic diversity of crops, livestock, and of harvested species of trees, fish and wildlife and other valuable species conserved, and associated indigenous and local knowledge maintained.
(b) Promote sustainable uses of these resources in support of human development	*Goal 4. Promote sustainable use and consumption.* ➢ Target 4.1: Biodiversity-based products derived from sources that are sustainably managed, and production areas managed consistent with the conservation of biodiversity ➢ Target 4.2. Unsustainable consumption, of biological resources, or that impact upon biodiversity, reduced. ➢ Target 4.3: No species of wild flora or fauna endangered by international trade. ➢ *Goal 8. Maintain capacity of ecosystems to deliver goods and services and support livelihoods* ➢ Target 8.1. Capacity of ecosystems to deliver goods and services maintained. ➢ Target 8.2. Biological resources that support sustainable livelihoods, local food security and health care, especially of poor people maintained.
(c) Encourage the equitable distribution of the benefits derived from the use of biodiversity	*Goal 10. Ensure the fair and equitable sharing of benefits arising out of the use of genetic resources* ➢ Target 10.1. All access to genetic resources is in line with the Convention on Biological Diversity and its relevant provisions. ➢ Target 10.2. Benefits arising from the commercial and other utilization of genetic

	resources shared in a fair and equitable way with the countries providing such resources in line with the Convention on Biological Diversity and its relevant provisions
(d) Facilitate the participation of people and institutions in the management of biodiversity	

The 2010 Biodiversity target has been integrated at a global level into Millennium Development Goals (MDGs) and the Johannesburg Plan of Implementation. Implementation of the CBD at the national level is therefore directly linked to the attainment of MDGs, in particular, Goal 7. However, in as much as strides towards the 2010 Targets contribute to the more productive sectors such as tourism and agriculture, as well as to the overall well-being of the population, all of the MDG goals are of relevance. In so far as the NBSAP in its objectives seeks to promote sustainable use of biological resources in support of human development, it thus incorporates to some extent national indicators within Poverty Reduction Strategies for the country, which take into account the role of ecosystems in the lives of the poor and the potential to reduce poverty (PRSP 2006).

2.3 Contribution of Activities under the NBSAP to Convention Implementation

In general, activities within the five programme areas and twenty-two projects under the NBSAP were designed to address, in the main, implementation of the CBD with respect to meeting the objectives and obligations enshrined in articles of the Convention, through the application of those thematic work programme areas and cross-cutting areas of relevance to the issues, trends and threats facing the country at the time.

Table 9 illustrates the link between, and how activities under the NBSAP contribute to the implementation of the articles of the Convention and the thematic programmes and cross-cutting issues adopted under the Convention.

Activities undertaken within the context of the NBSAP have contributed to the implementation of the requirements under all articles under the Convention. The programme area having the greatest impact in this regard was *Planning and Policy Formulation*, which contributed to the implementation of Articles 6, 11, 14, 15 and 16 and 19. The programme area *Education and Awareness* also contributed significantly to implementation of the articles of the Convention, including Articles 12, 13, 17 and 18. Activities under programme area *Research and Monitoring* contributed to the implementation of Articles 7 and 12, while activities under programme area *Conservation* contributed to the implementation of Articles 8, 9, 11, with programme area

Sustainable Use contributing to the implementation of Articles 10 and 14. A detailed description of the various activities with regard to their contribution to the implementation of the Convention can be found in *A Thematic Assessment of Implementation of the Convention on Biological Diversity in Saint Lucia* (2006). An updated review in this regard is however, provided in Table 9.

Table 9. NBSAP Programme Areas and how Contribute to CBD Implementation

NBSAP PROGRAMME AREA AND PROJECTS/ACTIVITIES	STRATEGIES / PLANS / PROGRAMMES DEVELOPED TO ADDRESS OBLIGATIONS (Inventory of Past and On-going national activities related to thematic area)	RELATING ARTICLES OF CONVENTION	MOST RELEVANT CBD PROGRAMMES OF WORK AND CROSS-CUTTING ISSUES *- PROGRAMME OR ISSUE OF PARTICULAR RELEVANCE TO SAINT LUCIA	HOW CONTRIBUTE TO IMPLEMENTATION OF CBD, THEMATIC PROGRAMMES AND CROSS CUTTING ISSUES ADOPTED UNDER THE CONVENTION
Planning and Policy Formulation Project 1, 11	NBSAP completed in 2000 and approved by Cabinet of Ministers Conservation and sustainable use of biological diversity integrated into national, sectoral and cross sectoral plans e.g. NEP/NEMS (integrates biodiversity issues); Systems Plan for Protected Areas revised under OPAAL Project; Agricultural Sector Policy), National Land Policy, National Water Policy; Coastal Zone Management Policy; Medium Term Development Strategy; Heritage Tourism Program (Charter), Fisheries Management Plan Protected areas established: Forests, Coral Reefs, Mangroves and Beaches and Nature reserves and protection afforded to the World Heritage Site	**Article 6. General Measures for Conservation and Sustainable Use** **Article 11. Incentive**	Biodiversity for Development Protected Areas* Access to Genetic Resources and Benefit-Sharing* Economics, Trade and Incentive Measures	**Development of enabling framework for Convention implementation** **Establish legislative, administrative or policy measures, as appropriate, with the aim of sharing in a fair and equitable way the results of research and development and the benefits arising from the commercial and other utilisation of genetic resources**

	located within the Piton Management Area. Agricultural Incentives Regime Developing and introducing economic and social incentives – Green Globe, GAPs, Fair Trade, LEAP, etc. Planning Legislation (EIAs) Development of Plans under UNEP/GEF regional project "Mitigating the threats of IAS in insular Caribbean" and Feral Pigs Reduction Project of Department of Forestry with DWPT Biodiversity Conservation and Sustainable Use Bill (draft) Implementing the Cartagena Protocol on Biosafety	**Measures** **Article 14. Impact Assessment and Minimizing Adverse Impacts** **Article 15. Access to Genetic Resources** **Article 19. Handling of Biotechnology and Distribution of its Benefits**		
Research and Monitoring Projects 2, 3, 4, 5, 7, 8, 15,	State of the Environment Report provides information on identification and monitoring in relation to biodiversity Enabling Activity Group 2 Report: Assessment and Monitoring of Biodiversity in Saint Lucia	**Art. 7. Identification and Monitoring**	Impact Assessment Indicators Global Strategy for Plant Conservation	**Identification and monitoring of components of biological diversity important for its conservation and sustainable use** **Generation of baseline data for future monitoring** **Capacity building for research and monitoring**

	MALFF ongoing programmes to identify components of biological diversity at the genetic and ecosystem levels National Forest Demarcation and Bio-Physical Resource Inventory Project completed 2009 Coastal habitat Mapping Project completed in 2009 focusing on south/south east/south west of island. North West Coastal Conservation Project completed in 2000. Queen Conch Resource Assessment study completed in 2006 Ongoing Research on species and associated habitats being conducted by the Department of Fisheries Training provided in areas of marine and terrestrial resource monitoring, sustainable harvesting of forest species, sea turtle data collection, herbarium techniques among others	**Article 12. Research and Training** **Article 16. Access to and Transfer of technology**		

	DWPT (former JWPT) at Grambling State University: training of foresters in wildlife monitoring, iguana tracking, etc. Coppicing training for sustainable harvesting of mangrove Sea turtle monitoring by Des Barras Sea Turtle Watch Group for the Department of Fisheries and WIDECAST			
Conservation Projects 6, 9, 10, 12, 14, 18, 19,	Revised Systems Plan for Protected Areas (SPPA); Forestry Department undertaking latanyé and mauby projects Measures to provide conditions needed for compatibility between present uses and the conservation of biological diversity: ▪ Cooperation in the breeding loan agreement program with the Jersey Zoo for parrot ▪ Relationship with breeder and researcher of the Fer de Lance snake. Biodiversity Enabling Project (Component 1) *General Measures For In*	**Article 8. In-situ Conservation**	Sustainable Use of Biodiversity* Biodiversity and Tourism Economics, Trade and Incentive Measures 2010 Biodiversity Target	**In-situ conservation of biological diversity.** **Respect for and preservation of knowledge, innovations and practices of indigenous and local communities** **Develop and introduce economically and socially sound measures that act as incentives for the conservation and sustainable use of components of biological diversity**

	Situ And Ex Situ Conservation: Policy, Institutional And Legislative Review". Germplasm conservation: - 4 agricultural stations - National Herbarium - Tissue culture Unit (in-vitro preservation of endangered plant species) Agricultural Incentives Regime Developing and introducing economic and social incentives – Green Globe, GAPs, Fair Trade, etc.	**Article 9. Ex-situ Conservation** **Article 11. Incentive Measures**		
Sustainable Use **Projects 10, 20, 21, 22**	Charcoal Producers – Mankote Mangrove Latanyé - Superior Broom makers Organic Farmers Association Collaborative sea urchin resource monitoring and management	**Article 10. Sustainable Use of Components of Biological Diversity** **Article 14. Impact Assessment and Minimizing Adverse Impacts**	Sustainable Use of Biodiversity* Economics, Trade and Incentive Measures Biodiversity and Tourism Traditional Knowledge, Innovations and Practices* Global Strategy for Plant Conservation	**Introduce appropriate arrangements to ensure that environmental consequences of relevant programmes and policies are subject to environmental impact assessment and that significant adverse impacts on biological diversity are minimized**
Education and Awareness **Projects 13, 16, 17**	**Training provided in areas of marine and terrestrial resource monitoring, sustainable harvesting, sea turtle data collection, herbarium techniques**	**Article 12. Research and Training** **Article 13. Public Education and Awareness**	**Public Education and Awareness***	**Establish and maintain programmes for scientific and technical education and training** **Promote and encourage understanding of the**

	among others **Substantial public awareness was conducted under component 1 of Saint Lucia's Biodiversity Project.** **Distribution of sea turtle information package to secondary schools island-wide (sponsored by British High Commission and WIDECAST)** **Production and distribution of publications on sea turtle folklore and fisheries resources conservation** **Biodiversity Enabling Project (component 2) Education, public awareness and participation in the CHM** **Biodiversity Web site and CHM supported by MAFF** **Biodiversity Information Network operationalised** **Cooperation agreements such as breeding loan agreement with Jersey Zoo, etc.**	**Article 17. Exchange of Information** **Article 18. Technical and Scientific Cooperation**		**importance of, and the measures required for, the conservation of biological diversity** **Establish and operate clearing-house mechanism (CHM) and Biodiversity Information Network (BIN) to promote and facilitate technical and scientific co-operation**

While the range of projects and activities did not cover the full range of cross-cutting areas they, for all intents and purposes, established a framework at the national level for meeting the primary objectives of the CBD and the implementation of articles under the Convention.

Summaries of Saint Lucia's progress in fulfilling its obligations under the CBD can be found in the following national biodiversity reports submitted to the Secretariat of the CBD

- NBSAP
- First National Report (2000)
- Second National Report (2001)
- Third National Report (2006)
- Thematic Report on Access and Benefit Sharing)

Consistent though, with the view from the third edition of the Global Biodiversity Outlook (GBO-3), it is apparent from this review process, that the NBSAP and actions taken to implement the Convention have not been sufficient to allow for the 2010 Biodiversity Target to be achieved. Despite the implementation of almost all projects under the 1st NBSAP, the island continues to witness declines in gene, species and ecosystem diversity, as pressures on biodiversity increase in intensity as a result of human actions. Importantly though, is that the country, is able to boast of positive and favourable reversals in trends in this regard, for species such as the Saint Lucia Parrot, the latanyé palm and the Saint Lucia whiptail lizard.

Currently, the elements of vision of the 1st NBSAP are still pertinent and cover most of the issues of relevance to Saint Lucia. However, the integration of issues associated with the cross-cutting areas, in particular Climate Change and Biological Diversity, Ecosystem Approach and Invasive Alien Species, needed to be deepened to describe a more holistic vision, in order to meet the strategy goals and targets of the new post 2010 Strategic Plan. To this end, a revision and updating of the 1st NBSAP was undertaken in 2008, and the 2nd NBSAP that was produced has since been designed to address this.

2.4 Overview of Progress made in Implementation of Priority Activities

Various reviews and dialogue with stakeholders indicate that much progress has been made in the implementation of the projects and activities under the 1st NBSAP. At least nineteen (19) of the twenty-two (22) projects elaborated in the 1st NBSAP have been completed or are at implementation stage. Many of the activities within these programme areas have been executed to some extent, though not always adequately to fully achieve the objectives of these programmes or the Articles of the CBD. This has mainly been due to the short term nature of these activities, inconsistent levels of political, community, private sector and public support, absence of measures to ensure sustainability and insufficient human and financial resources.

An overview of achievements under the NBSAP with respect to the five programme areas and related priority projects is presented in Table 10.

Table 10. Level of Achievement in Priority Programme Areas

NBSAP PROGRAMME AREA	RELEVANT PROJECT(S)/ ACTIVITIES	LEVEL OF ACHIEVEMENT KEY: GOOD, FAIR OR POOR	KEY OUTCOMES
Planning and Policy Formulation (relating to Articles 6, 15, 19)	Project 1, 11	Good (need to implement NEP/NEMS; also IDP - IDP has been proposed for a number of years but there have been a number of administrative delays in its implementation. More realistic target maybe Department of the Environment as is being proposed.	**Draft legislation produced:** **Draft Biodiversity Conservation and Sustainable Use Act for Saint Lucia (draft);** **Environmental Management Act (draft);** **Environmental Management Policy and Strategy (Draft)** **Forest (Timber And Non Timber Products) Regulations, 2008)** **Saint Lucia Forest Policy (draft)** **Institutional mechanism for biodiversity management in Saint Lucia formalized through establishment of Biodiversity Unit** **In addition a National Environmental Commission (NEC) was launched in 2008 to perform an integral role in facilitating inter-agency collaboration and coordination.** **A Department of the Environment (DOE) has been proposed to pursue IDP approach** **Preparation and Review of a Revised Systems Plan of Parks and Protected Areas – coordinated by the SLNT under OPAAL Project[1]** **(Systems Plan for Protected Areas promotes management of biodiversity through establishment of new or strengthening of existing Protected Areas (PAs) and support of new / alternative livelihoods in vicinity of Pas)** **Establishment of two more legally protected areas, i.e. the Piton Management Area (PMA) which is a World Heritage centre; and the Point Sable Environmental Protection Area (PSEPA)** **Development of Biosafety Framework** **Fisheries Management Plan 2006-2011**

Research and Monitoring (relating to Articles 7, 12)	Projects 2, 3, 4, 5, 7, 8, 15,	Fair (Report entitled *Assessment and Monitoring of Biodiversity in Saint Lucia* undertaken under the 2nd.Enabling Activity Project is an important tool) Inadequate data and information management systems (from collection to storage and analysis)	**Under 2nd Enabling Activity Project:** **Preparation of an inventory on floral and agro-biological resources;** **Draft Procedures Manual for research developed** **Study of the status of iguana, parrot, selected bats, and ground lizard;** **New methodologies established for estimation of *Amazona versicolor* populations, and for increasing genetic diversity of the St. Lucia Whiptail populations** **Additionally there is the monitoring of introduced species that threaten crop production as in the case of the fruit fly (*Anastrepha obliqua*), Giant African Snail (*Achatina fullica*)and other organisms** **Training by Nature Conservancy in Ecological Gap Assessment and Analysis for development of revised system of protected areas, in development of management plans under the OPAAL Project** **Under IWCAM project communities in the Fond D'Or watershed trained in sampling rivers for fecal contamination, constructed wetlands using native plant species** **Under National Forest Demarcation and Bio-Physical Resource Inventory Project (2009)** **(i) Identification, description and mapping of forest types and Biodiversity inventory (including species presence and distribution)** **(ii) Identification of priority species and forest areas requiring special attention.** **(iii) Assessment of the use of wildlife.** **Queen Conch *(Strombus Gigas)* Resource Assessment designed to:** **• obtain a historical perspective of the fishery,** **• locate specific areas where conch populations inhabit,**

			• determine the distribution of conch resources around the island, both within fished and non-fished areas, **• determine the abundance and density of conch within the various populations around the island,** **• obtain data on the population structure of the various populations of conch, and** **• obtain information on the costs and earnings pertaining to the conch fishery.** **Continued collaboration with the Des Barras Sea Turtle Watch Group in monitoring sea turtle nesting activities and biological data collection at the Grande Anse Beach.**
Conservation (relating to Articles 6, 8, 9)	Projects 6, 9, 10, 12, 14, 18, 19,	High (Some programmes successfully implemented; management plans for some protected areas developed and implemented)	▪ **Design and implementation of Standards and guidelines of behaviour in nature tourism sites and attractions by the Ministry of Tourism;** ▪ **Cooperation in the breeding loan agreement program with the Jersey Zoo in the Channel Islands to ensure preservation of the *Amazona versicolor* (Parrot Preservation Programme);** ▪ **Cooperation with the Durrel Wildlife Preservation Trust for:** ➢ **management programme for the Saint Lucia parrot has been developed and is being implemented progressively;** ➢ **DNA testing to ensure sustainability of the St. Lucia whiptail lizard.** ▪ **Relationship with Christopher Smith, a breeder and researcher of the Fer-de-lance snake** ▪ **Germplasm conservation of traditional agricultural crops at 4 agricultural stations and increased cultivation by farmers**

			▪ **National herbarium upgraded.** ▪ **Conservation with Pride Campaign on Iguana with collaboration of RARE by Forestry Department from 2008 to 2009 focusing on communities, school children, general public** ▪ **Study undertaken for compensation for environmental services in one watershed. The findings of the study are under review and discussion to actualize the study**
Sustainable Use (relating to Articles 9, 10, 11,14)	Projects 10, 20, 21, 22	Fair (in general but significant strides undertaken with e.g. latanyé and mauby initiatives)	**Design and implementation of standards and guidelines of behaviour in nature tourism sites and attractions by the Ministry of Tourism;** **Training and technical assistance to:** **- Charcoal Producers – Mankoté Mangrove** **- Broom makers** **- Organic Farmers Association** **- Fishers, sea urchin harvesters and seamoss farmers, in use of sustainable fishing methods, rules and regulations, etc.** **Latanyé and mauby project undertaken by DoF (EC$40,000 to establish plantation)** **Research into sustainable harvesting and post harvest treatment of brooms** **Pilot whale harvesting is done practicing sustainable use methods**
Education and Awareness (relating to Articles 13)	**Project 13, 16, 17**	**High (need to ascertain impact)**	**Biodiversity Education and Awareness Strategy and Action Plan produced, and comprehensive public awareness campaign conducted** **Biodiversity Enabling Project (component 2) Education, public awareness and participation in the CHM assessment, completed in 2004, expected to guide future**

			work on the same. **Public education programmes - MALFF and other agencies in work programmes routinely highlight the importance of biodiversity via National Television Network (NTN) and other radio and television stations.** **Training and capacity building in areas such as monitoring and sustainable production systems (e.g. wildlife, lizard translocation, iguana tracking; sustainable harvesting of mangroves)** **Establishment of a National Biodiversity Information Network;** **Photographic and video graphic database on Saint Lucian biodiversity has been created and is widely used;**

[1]First Systems Plan for Protected Areas (SPPA) was developed to build upon past efforts and to establish a broad network of marine and terrestrial areas to manage the country's biological and cultural diversity

Planning and Policy Formulation

This programme area sought to create an enabling environment for effective biodiversity planning, conservation and sustainable use.

At the time of accession to the CBD, there was no overall policy framework to guide the conservation and management of biological diversity with the exception of the Systems Plan for Protected Areas prepared in 1992 under the auspices of the Saint Lucia National Trust (SLNT). Under this plan a number of areas throughout the country were proposed for protection through a process which was consultative involving local communities, membership of the Trust as well as the relevant public sector agencies. Policy guidance was provided primarily by legislation governing individual sectors, in particular the Fisheries Act (1984), the Wildlife Protection Act; Forest, Soil and Water Conservation Ordinance), and by the (1992-2002 Forest Management Plan. Some key legislation relevant to biodiversity is listed in Table 11.

Table 11. Biodiversity Conservation Enabling Legislation

AGENCY	ENABLING LEGISLATION	KEY FEATURES
Department of Forestry, MAFF	Forest, Soil and Water Conservation Act (1946) and Amendment 1983, No. 11	➢ Management of Forest resources ➢ Establishment of Forest Reserve and protected forests ➢ Protection of Forest, Soil and Water. Wildlife resources ➢ Management of water catchments
Department of Forestry, MAFF	Wildlife Protection Act, 1980	➢ Conservation of wildlife; ➢ Designation of wildlife reserves
Development Control Authority, Ministry of Planning, etc.	Physical Planning and Development Act (No. 29 of 2001)	➢ Ensuring appropriate and sustainable use of all land, ➢ Providing for the orderly sub-division of land, and; ➢ Protecting and conserving the natural and cultural heritage of Saint Lucia. It governs (i) the preparation of physical plans, (ii) development control and regulation, (iii) environmental impact assessment and (iv) miscellaneous matters related to land management and development.
Department of Agriculture, MAFF	Agricultural Small Tenancies Act (No.22of 1983).	➢ Enforcement of regulations requiring sound soil and water conservation practices on land leased for agricultural purposes.
Ministry of Agriculture, Forestry & Fisheries	Land Conservation & Improvement Act 1992	➢ Establishes a Land Conservation Board, and with extensive powers in matters of land development and management, including the issuance of protection orders, the establishment on conservation areas, the compulsory acquisition and vesting of lands, and the provision of advice to the Minister of Agriculture
Department of Agriculture, MAFF	Pesticides Control Act. 1975; Pesticides Control Regulations, 1987	➢ Establishment of Pesticide Control Board; ➢ Control of import, use, labeling and storage of pesticides; ➢ Registration of and licenses for use and storage of pesticides
Department of Agriculture, MAFF	Plant Protection Act, 1988: Regulations SI, 1995	➢ Control of pests and diseases injurious to plants ; ➢ Prevent the introduction of potentially harmful exotic species
Ministry of Health	Public Health Act, 1975	➢ Regulatory oversight of sewage, industrial and solid

		waste disposal; ➢ Regulatory oversight of domestic water supply
National Solid Waste Management Authority	St. Lucia Solid Waste Management Act, 1996	➢ Responsibility for solid waste disposal
St. Lucia National Trust	National Trust Act 1975	➢ Management of Parks and Protected Areas; ➢ Preservation of buildings and other objects of historic and architectural value
National Water and Sewerage Commission /Water Resources Agency	Water and Sewerage Act, 2005	➢ Regulates the granting of licenses ➢ Development and control of water supply and sewerage facilities and related matters; ➢ Designation of water and waste control areas
National Conservation Authority	National Conservation Authority Act (1999)	➢ Establishment of National Conservation Authority ➢ Management of beaches and public spaces; ➢ Declaration of area of land or water a protected area.
Crown Lands Department, MPDE&H	Crown Lands Ordinance 1946	➢ Management of Crown Lands, including unallocated Crown lands and vacant lands. ➢ Acquisition and divestment of lands
Survey and lands Department, MPDE&H	Land Registration Act 1984, No. 12, Land Registration (Amendment) Act 1986, No. 7, Land Adjudication Act 1984, and Land Adjudication (Amendment) Act 1986, No.8	➢ Land registration and adjudication; ➢ Creation of a Land Registry. ➢ Provide guarantee of title to land owners, and set mechanisms for settlement of boundary and other disputes.
Ministry of Communications, Works, Transport and public Utilities	Beach Protection Act 1967, No.2 and Amendment 1984, No. 9	➢ Governs the removal and possession of sand.
National Development Corporation (NDC)	National Development Corporation Act 1971, No. 8	➢ Creates a National Development Corporation and gives it the power to manage lands for industrial and other development purposes.
MALFF	International Trade in Wild Fauna and Flora (CITES) Act No. 15 of 2007	➢ Monitor and regulate the movement of wild animals and plants from one country to the next.
Department of Fisheries, MAFF	Fisheries Act (1984) and Regulations (1994)	➢ Establishment of a fisheries advisory committee, fisheries access agreements, local and foreign fishing licensing, ➢ Governs fish processing establishments, fisheries research, fisheries enforcement and the registration of fishing vessels: ➢ Provides for conservation measures such as prohibiting the use of any explosive, poison or other noxious substance for the purpose of killing, stunning, disabling, or catching fish; close seasons, gear restrictions ➢ Creation of marine reserves ➢ Creation of new regulations for the management of fisheries as and when necessary (Minister responsible).

More recently, additional legislation, policies and procedures (Box 5) which give recognition to key biodiversity components have been developed to redress deficiencies in legal and institutional capacity and assist in creating the requisite enabling environment, including the capacity to address access and benefit sharing. Some key legislation, policies and procedures in this regard were developed through funding under the EU Special Framework of Assistance

(SFA) 2003 programme, titled "*Economic and Agricultural Diversification and Poverty Reduction through Integrated Natural Resources Management.*"

Box 4. Additional Legislation, Policies and Procedures

- *National Environmental Policy (NEP)*
- *National Environmental Management Strategy (NEMS)*
- *Biodiversity Conservation and Sustainable Use Act for Saint Lucia*
- *Environmental Management Act (Draft)*
- *Environmental Management Policy and Strategy (Draft)*
- *Wildlife Protection Act (Amendment)*
- *Forest Act*
- *Forest (Timber and Non Timber Products) Regulations*
- *Saint Lucia Forest Policy (Draft)*
- *Fisheries Management and Development Plan*
- *Coastal Habitat Mapping - Bathymetric and topographic mapping of coastal area*
- *Saint Lucia Protected Areas Systems Plan (Draft)*
- *Coastal Zone Management in Saint Lucia: Policy, Guidelines and Selected Projects*

The effective implementation of the supporting environment for the NBSAP has also been constrained by inadequate human resources, infrastructure and coordination. One of the key requirements identified in the NBSAP was the 'establishment of a coordinating body to guide implementing, monitoring and review' of a national policy. The requirement for such an entity or coordinating mechanism has also been identified in other sectoral and cross sectoral policies and plans. Though institutional arrangements such as the coordinating entity has not established, co-ordination among agencies has improved; but not to extent required for effective biodiversity management. A new environmental management framework has been proposed as one of the outcomes under the EU SFA 2003 Programme, and seeks to develop and implement an effective institutional framework to strengthen execution of environmental programmes including management of biological resources and ecosystems. In support of this framework, a National Environmental Commission (NEC) was established in 2008 to perform an integral role in facilitating inter-agency collaboration and coordination.

Although the MALFF has lead responsibility for biodiversity management, it does not have sufficient resources or authority to monitor and mandate other stakeholders, especially beneficiaries including the private sector, to contribute to the management of ecosystems within their sphere. More so, the conservation and sustainable use of the biological resources contained within the capacity assessments for biodiversity management have been conducted or are being conducted through implementation of a number of projects. Some capacity building has taken place but not to the extent required for effective implementation of the NBSAP.

Cooperation with international development partners, *inter alia* the OECS Secretariat, the Inter-American Institute for Cooperation on Agriculture (IICA), the UN Food and Agricultural Organisation (FAO), the Canadian International Development Agency (CIDA) and the United States Agency for International Development (USAID), as well as the European Union and other Governments has significantly enabled the implementation process.

Comprehensive reviews of capacity assessment can be found in the following reference documents:

- A Thematic Assessment of Implementation of the Convention on Biological Diversity in Saint Lucia
- General Measures for *in situ* and *ex situ* Germplasm Conservation
- Policy Institution and Legislation Review – 2nd Biodiversity Enabling Activity Project (BEAP)

Research and Monitoring

Monitoring and Evaluation was considered an essential component for NBSAP implementation. However, there were no measurable targets set for the NBSAP[9], but the process of implementation benefited from the input of strong sectoral management agencies. Reporting requirements were largely fulfilled under the purview of the Biodiversity Unit, with three national biodiversity reports outlining Saint Lucia's progress in fulfilling the obligations of the CBD submitted to the Secretariat to date. A 2006 State of the Environment Report (GEO Saint Lucia, 2006) which includes an assessment of key ecosystems was also published by the Sustainable Development and Environment Unit of the Ministry of the Environment. However, the arrangements for executing the monitoring and evaluation component of the NBSAP were not implemented and this remains one of the major gaps of the NBSAP.

Assessments have been conducted for some species and habitats including updating of the plant species inventory and specimen collections by the national herbarium. New methodologies have been established and draft procedures for undertaking research developed. However, there remains a dearth of usable data and information for conduct of on-going assessments and monitoring of biodiversity.

The level of execution of research and information components, considered integral to the implementation of the NBSAP was thus considered as very low, mainly due to the absence of coordinated research and information management programmes. The main constraint though however, was a lack of funds for both programmes.

Initial attempts to implement a comprehensive data and information system under the auspices of the Ministry of Agriculture, Forestry and Fisheries were not fully realised due to inadequate funding and technical support. In 2008, under the EU SFA 2003 programme, the Biodiversity Unit was able to realise the establishment an operational information system to support biodiversity management. A national Biodiversity Information Network (BIN) was established and operationalised. There is need however for ongoing maintenance of the BIN and to promote the use of the Biodiversity Clearing House Mechanism and other biodiversity information

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management systems by providers and users of biodiversity information. As part of the DOF Work Programme, a national database was commenced with limited fields for biodiversity under EU/SFA 2003. The OECS has also produced a regional biodiversity database with Saint Lucia as the pilot under the PERB project. The DOF database has been further upgraded under the Biophysical Inventory Project (2009) and general biodiversity database under the Coastal Habitat Monitoring Project (2008).

Conservation

Several initiatives aimed at both in-situ and ex-situ conservation of biological diversity, including protected area system management was executed. A system for the management of protected areas has been developed and revised to include marine and terrestrial areas, to manage the country's biological and cultural diversity.

Ex -situ conservation of components of biological diversity include the collection of biological resources from natural habitats for ex-situ conservation purposes. Several measures have been taken to provide conditions needed for compatibility between present uses and the conservation of biological diversity. Prime of these have been the establishment of collaborative relationships to ensure sustainability of species. The breeding loan agreement with Jersey Zoo in the Channel Islands is a success story in this regard. Box 6 illustrates the resulting down listing of the Saint Lucia Parrot by two levels from critically endangered to vulnerable; only twenty (20) species in the whole world have ever been able to boast of this accolade.

Other measures of ex-situ conservation include conserving of traditional agricultural and horticultural crops[10] through germplasm conservation at agricultural stations around the island, tissue culture propagation and increased cultivation by farmers. In addition, under the Management of Biological Resources Project funded by the GOSL, the upgrading of the national herbarium was completed by the Department of Forestry.

National Herbarium Achievements:

- Family Cyperaceae (58 collections)
- Family Poaceae (80 collections)
- 200 species mapped using ARCVIEW (put into plant atlas)
- 4110 species filed and logged into ACCESS Data base
- Permanent Sample Plot of natural and Exotic Forest Trees

10 Principally guava, wax apple, mango, citrus varieties, sugar apple, orchids, cocoa, cashew, coconut, Musseanda, ixora, palms, Cherry, ginger lilies, pawpaw (resistant to Erwinia)

Box 5. Case Study on Amazona Versicolor

	1977	1987	2008		2009
Status	Critically Endangered		Vulnerable		
	Illegal hunting / loss of habitat		The area of apparently suitable (but unoccupied) habitat may be decreasing. If this begins to affect occupied habitat, the species will immediately qualify as Endangered" (IUCN 2004)	Durrell and SLFD have formulated a three year strategy (for 2007-2009) to obtain a reliable estimate of the current size of the St Lucia Amazon population	"Increase in population represents a very uncommon, and impressive, down-listing of a species' endangerment [risk of extinction] status and is a testament to the impressive efforts of MALFF, Durrell, RARE and other agencies over the past 30 years".
Distribution	Saint Lucia (50 – 65 km^2 of forest)				Range within the rain forest also appears to have expanded considerably as in 1970s; parrots were not reported outside of the southern core of the Government Reserve.
Population	**100 - 150**	**200 - 250**	**≈1000**		**1,900 -3,759**
Habitat	Indigenous mountain forest				
Conservation Measures Taken	Legal protection (inadequate enforcement)	Establishment of reserves, legislative revision, broad based education	Collaboration with Durrell Wildlife Conservation Trust and the DOF	Durrell and the DOF formulated a three year strategy (for 2007-2009) to obtain a reliable estimate of the current parrot population	Wildlife Protection (amendment) Act and Forest Policy drafted:
Conservation Measures proposed	Establishment of nature reserve; provisions for strengthening of legal framework for more effective enforcement				
	Programme to		there exists no		Although the

breed in captivity	reliable means to monitor this small island population and no current mechanisms to monitor pressures that may impact it	population *density* estimate is high, the area which *Amazon versicolor* occupies is still small compared to many other *Amazon* species. And although the population *size* has increased impressively, it is still a *small* population that could be severely impacted by losses from it.

Achievements:

SLFD has a number of tree-top platforms in St Lucia's Forest Reserves that were erected over the previous two decades to allow monitoring of nesting parrots.

Parrot Management Guidelines have been developed as a collaborative effort between the Forestry Department (SLFD) and Durrell Wildlife conservation Trust based on more than 20 years of research. Between 2002 and 2009 2 chicks were successfully hatched in captivity but neither survived[11]

Lessons Learned

- **Public Awareness and Education programmes were so comprehensive that it resulted in the building of a sense of national pride in the general populace.**
- **Legislative framework (establishing the forest reserve updating the Forestry Policy and Wildlife Protection Act) and enforcement very effective.**
- **Parrot sanctuary designated in forest reserve**
- **Collaboration among agencies studying the parrot**

Sustainable Use

The primary thrust of this programme area, was consistent with one of the key components of Article 10 c) "*Protect and encourage customary use of biological resources in accordance with traditional cultural practices that are compatible with conservation or sustainable use requirements".*

Programme interventions were aimed at sustaining traditional cultural practices. Successful interventions in this regard were those impacting the latanyé broom makers (previously illustrated in Box 1), charcoal producers – Mankoté Mangrove, and the organic farmers Association. The Latanyé broom makers story, also illustrates how synergies were derived with

11 St Lucia Parrot: Captive Population. – Summary August 2006

the Research and Monitoring programme area using the outcomes of the latter to inform activities under this programme area. An ongoing monitoring study on a key threat to biodiversity confirmed the over exploitation or unsustainable treatment of the Latanyé Palm leaves that were being harvested prematurely for use in broom making. Socio-economic studies (e.g. L. John, 2001) led to research into the propagation and establishment of these palms on farmers' holdings, and the determination of optimum sustainable harvesting regimes.

Public Education and Awareness

A wealth of public awareness programmes was implemented. Television public service announcements were sustained mainly through government media sources. Articles on biodiversity are submitted regularly to the press by the biodiversity coordinator in the MALFF. Articles on biodiversity are also produced in MALFFNEWS for MALFF staff and AGRINEWS for the agricultural sector, and in NEXUS, environment newsletter of the Ministry of the Environment by the biodiversity coordinator. Panel discussion on various biodiversity topics are carried on the National Television Network (NTN). Activities are undertaken for International Day for Biological Diversity and are recorded and broadcasted on NTN. School lectures on biodiversity topics are also given on demand or in celebration of significant days. The Forestry and Fisheries Departments also contribute to biodiversity public awareness programs to the schools and general public populations.

Capacity building in the form of training has been undertaken at the agency and community level for effective biodiversity management (Box 7 & 8).

Box 6. Related Capacity Building Initiatives

- Training by Nature Conservancy in Ecological Gap Assessment and Analysis for development of revised system of protected areas, in development of management plans was carried out under the OPAAL Project
- Training in sampling rivers for fæcal contamination, and demonstrations of constructed wetlands conducted under the IWCAM project communities in the Fond D'Or watershed
- Saint Lucians were trained in inventorying insects and various forest species under the Biophysical Resource Inventory program (EU SFA 2003)
- PERB project also provided database training, data entry training on resource use for biodiversity resource users under EU/SFA 2003 project
- The Environmental Education and Awareness Project (SFA 2003) also recommended a framework for sustained EE& A, which would create a more favourable policy and operational environment for EE&A.

Box 7. Other Education and Awareness Initiatives and Outcomes

- Personnel from Saint Lucia National Trust and Fisheries Department trained at training of trainers workshop on marine resources and marine protected areas, to conduct teacher training workshop in area, in collaboration with Ministry of Education
- Production of mangroves brochures for policy makers and the general public and iguana brochures for private sector and the general public, and radio and TV PSAs on same subjects under EU/SFA 2003 project
- Conservation with Pride Campaign on Iguana with collaboration of RARE by Forestry Department from 2008 to 2009 focusing on communities, school children, general public; brochures produced for private sector for better appreciation of development in iguana habitat
- Saint Lucia actively participates in the international negotiations for the development of the text for the International Regime on Access and Benefit Sharing (ABS). Saint Lucia's expert from the Saint Lucia Folk Research centre served as an expert to discuss traditional knowledge and its contribution to the discussions on the International Regime on ABS.
- Report produced on preserving biodiversity related traditional knowledge under Second Enabling activity Project
- Folk Research documenting traditional knowledge biodiversity related practices

2.5 Funding Dedicated to Priority Activities

There were no clear funding mechanisms for implementation of programmes under the NBSAP. Results in the area of funding/financing for priority activities have thus been mixed. Execution of many of the projects outlined for the NBSAP has commenced and in many cases completed, utilising a mix of domestic and international funding.

The successful implementation of these projects, as well as other related projects not included in the first NBSAP but complementing its implementation, has been due in part to the funding provided by key donor agencies and financing by the Government of Saint Lucia (GOSL). Local institutions have received support from development partners *inter alia* the OECS Secretariat, the Inter-American Institute for Cooperation on Agriculture (IICA), the UN Food and Agricultural Organisation (FAO), the Canadian International Development Agency (CIDA), the United States Agency for International Development (USAID) as well as the European Union and other Governments. In most instances the level of funding was over USD 100,000.00 for the particular intervention.

However, local sources of funding have been limited. The First Enabling Activity Project, Second Enabling Activity project and the Project for Managing Biological Resources were all funded at the national level by the GOSL. EU SFA 2003 programme provided funding for components of the programme area, Public Education and Awareness including PSAs and brochures, as well as the procurement of computers and equipment for regional nodes for the Biodiversity Information Network, (120,000.00 USD); USAID funded The OECS Protecting

Eastern Caribbean's Biodiversity (PERB) project including (i) establishment of the Millet interpretive centre and signage for trail, (ii) setting up an OECS database using Saint Lucia as the pilot and (iii) drafting of regulations for biodiversity legislation for Saint Lucia.

The 2nd NBSAP, building on lessons learned in the implementation of the first plan, is pursuing a deliberate mechanism for financing activities under the Plan. In this regard the feasibility of establishing of a Biodiversity Trust Fund or utilising the resources from an Environment Fund or similar financing mechanisms is to be investigated.

2.6 Review of Successes, Obstacles and Lessons Learned in Implementation

The many successes and obstacles encountered in implementation of the NBSAP have generally been alluded to in the previous sections. This section, however, seeks to highlight the major successes or "bright spots" and obstacles or "hotspots" encountered, as well as lessons learned both in terms of high points and problems and constraints, in an attempt to assist in the replication of the various processes at other locations, either locally or regionally.

The various issues will be addressed under the broad headings of the NBSAP components namely:

1. Planning and Policy Formulation
2. Research and Monitoring
3. Conservation
4. Sustainable Use
5. Public Awareness and Education.

A review of the successes and obstacles in terms of special constraints and challenges encountered, as well as lessons learned in implementation of the NBSAP is provided in Table 12.

Table 12. Review of Successes (Bright Spots) and Obstacles (Hotspots) Encountered in Implementation of the NBSAP

NBSAP Programme Area	"Bright Spots"	"Hotspots"	Lessons Learned
Planning and Policy Formulation	Improvement and implementation of legal measures for effective biodiversity management (to include conservation and sustainable use of biological resources, protection of all ecosystems, and threatened and endemic species) Implementation process benefited from the input of strong sectoral management agencies; including establishment of a dedicated Biodiversity Unit Networking among agencies allowed for synergies to be realized in implementation; the proliferation of a number of committees for oversight of various but inter-related International Conventions and Agreements also facilitated the process of mainstreaming; Collaborative approach allowed for relatively easier access to funding for implementation activities Stakeholder involvement in the policy and legislative review process resulted in better appreciation of the direct application of legislative issues, policies and procedures addressing key biodiversity components developed Global/worldwide enabling environment facilitated biodiversity into becoming mainstreamed on the international agenda, so many activities proposed at the national level readily dovetailed into global and regional activities making it relatively easy to obtain funding and other support	Desultory government policies regarding development imperatives – political business cycle of 5 years tends to promote development over conservation Rise and decline of key economic sectors with tourism now lead sector, and attendant change in development pressures; Other events at national, regional and international level inter alia natural disasters, fuel price rise, global economic recession increased the complexity in the relationship between economics and biodiversity conservation Population dynamics and change in demographics further intensifying development pressures Limited information on impacts of activities (development, economic, etc) on ecosystems Allocation of resources for executing programmes and actions related to biodiversity management insufficient (at both government and private sector level)	Need to deepen the process of mainstreaming biodiversity issues into land use planning, development control, and foreign investment planning. A fully participatory approach is required for effective biodiversity management Collaboration due to size and scale is advantageous particularly with respect to the accessing resources – financial, technical assistance, etc. EIA process can be made more effective through better definition and more public participation encouraged; Also need for monitoring compliance during and after. Need to integrate hazard / vulnerability risk mitigation strategies into disaster management plans (tend to focus more on response rather than mitigation) Means for integrating the economic value of the natural resources into decision making must be considered: an urgent requirement if a case is to be made for mature deciduous "dry" forests where greatest threat is being observed

Research and Monitoring	Biodiversity Unit maintained a coordinated focus with regard to research and monitoring activities Reports to COP have been submitted in a timely fashion and a designated - Biodiversity Unit is seen as a particular strength in this regard.	Introduction of new technologies and emerging issues that impact biodiversity such as invasive alien species, climate change and variability, intellectual property rights have brought on increased challenges Though data and information is currently available for some of the thematic areas in biodiversity management, these databases are not updated regularly Low priority given to collection of biodiversity information; purpose, relevance and use of information collected not properly articulated; infrastructure for data base management inadequate Human and financial capacity limitations	Information management systems need to be reviewed and revised regularly to take into account relevant emerging issues: the outcome of the recently concluded Biophysical Resource Inventory Project clearly points to the need for establishing data management systems that are operational for key parameters (e.g. carrying capacity, inventories, population studies and other indicators required for biodiversity management) and priority species / ecosystems. Greater capacity needed in systematic monitoring in term of both physical facilities and manpower Need to maintain currency of data and information to better inform decision making;
Conservation	Strong conservation ethos in MALFF departments, e.g. fisheries, agriculture and forestry made conservation a focus and inherently mainstreamed into work plans and programmes ; Programme in agricultural conservation – involving germplasm of traditional crops Under Systems Plan for Protected Areas biodiversity management promoted through establishment of new or strengthening of existing Protected Areas (PAs) and support of new / alternative livelihoods in vicinity of PAs	Introduction of new technologies and emerging issues that impact biodiversity such as invasive alien species, climate change and variability, intellectual property rights have brought on increased challenges Political support for biodiversity issues not consistent in the face of increasing conflict in development imperatives between economics and conservation Inadequate economic and social instruments in support of conservation Supporting research and information management are inadequate;	Need for policy makers to recognise the true value of Protected Areas, which are the cornerstone of biodiversity conservation and critical for sustainable livelihoods for income generation, and environmental stability;

		Community support for co-management approach low; Financial support inadequate ; Sustainability of programmes – mainly short term	
Sustainable Use	Support of new / alternative livelihoods in vicinity of Protected Areas (PAs): Adoption of measures to reduce or halt erosion of species and genetic diversity within ecosystems: e.g. Latanyé for broom making, Mankoté Mangrove for charcoal production Moratorium on hunting increased awareness of need for conservation and respect for biodiversity	Supporting research and information management are inadequate; Community support for co-management approach low; Financial support inadequate ; Sustainability of programmes – mainly short term	Approaches to biodiversity management to include pursuing product development for sustainable livelihoods from use of biological resources Support and involvement of local communities is critical so that they play an active and meaningful role in the management of PAs and community assets, and are able to share in any economic and social benefits that may be generated
Public Awareness and Education	Strong leadership on biodiversity issues since the 1980's – leaders such as Gabriel "Coco" Charles in Forestry, Horace Walters in Fisheries, and continuing up to this time in key departments of the MALFF, have been able to engender a conservation ethos on a national scale NBSAP Public Awareness Campaign and work of MAFF and other public sector agencies enhanced awareness to biodiversity issues on several fronts including goods and services within all sectors of the local population (communities, schools, judiciary, politicians, businesses, etc.) Protection of traditional knowledge	Impacts of public awareness and education not assessed Limited private sector support to promote programmes Sustainability too dependent on support from local media and private sector	Ongoing public sensitization is critical - programmes should be targeted at students / schools, resource users, civil society, decision makers Need for mechanisms to encourage key sectors that benefit from biodiversity (tourism) to sponsor or undertake public awareness programmes Capacity building at agency and community level essential for effective biodiversity management

	practices and innovations and associated biological resources though various capacity enhancement training initiatives SFA 2003 Environmental Education and Awareness (EE& A) Project proposed a framework for more sustained EE& A; adoption at the earliest would help create a more favourable policy and operational environment for EE&A.	

2.7 Analysis of the effectiveness of NBSAP

The effectiveness of the NBSAP has been reasonably well demonstrated in the foregoing sections with some of the favourable outcomes highlighted in Box 9.

Box 8. Some Favourable Changes Observed in Biodiversity Status and Trends

- SMMA: increase in fish stocks and *diadema antillarum* populations
- Forest: resurgence of Saint Lucia parrot; conservation of latanye and mauby species;
- Forests conserved on some private lands used for ecotourism
- Agro biodiversity: more traditional crops planted by farmers and householders
- Alien invasive species now includes environmental invasives

For the most part, changes in status and trends and biodiversity appear to be largely incidental to the implementation of the NBSAP's, as many of the activities resulting in these changes were undertaken across a myriad of agencies and were not within the strict context of the NBSAP. However, deeper examination of these observed changes in status and trends shows close correspondence with the measures taken to implement the NBSAP and the Convention on a national scale. A fully participatory approach using a broad base of stakeholders was adopted in the development of the NBSAP, and this meant that the objectives and outlook of these various stakeholders/agencies involved would have been well integrated into the NBSAP. Hence, the projects and activities selected for implementation under the NBSAP would have reflected this. Further, these proposed projects and activities would also have been infused with the ethos, as well as elements of the work programmes of these agencies. Consequently the implementation of the work programmes of the various agencies would have been well aligned with the implementation of activities under the NBSAP.

However, not all the observed changes in status and trends were positive. Despite the strong conservation ethic which exists within the country, and the fact that the NBSAP was endorsed by the country's Cabinet of Ministers, declining trends in genetic, ecosystem and species diversity were reported, particularly with respect to forest species. The political directorate appears to have embraced a development ethic, which does not appear to be easily reconciled with the conservation ethic.

Overall, the NBSAP has stimulated actions on many fronts, with the outcomes of actions and activities implemented under the NBSAP having generally positively impacted biodiversity, particularly with respect to restoration and to a lesser extent, protection (Box 10). While these actions and activities have sought to address the threats directly and in some instances bring about a reversal in declining trends, they would however, need to be re-oriented and scaled up to tackle more root causes or drivers in order to effectively address biodiversity loss.

Box 9. Success Stories Demonstrating Effectiveness of NBSAP

Protection of *Amazona versicolor*
(species down-listed from critically endangered to vulnerable)

Latanyé Broom making Success Story

Saint Lucia Nature Heritage Tourism Program

Establishment of a Turtle Monitoring Program

Upgrading of National Herbarium

Development of FADs (artificial habitats) for marine resources

Promotion of Organic Farming (HOAM)

Soufriere Marine Management Authority establishment

These success stories illustrate how natural resource management activities undertaken at all levels, (national, sector and community) though not always directly allied to specific projects/activities under the NBSAP, have led to desired outcomes, that are consistent with the objectives of the NBSAP. The deliberate actions implemented through the work programmes of these agencies, particularly in regard to conservation, sustainable use and public awareness have directly or indirectly addressed some of the major threats to biodiversity. These activities have led to a greater appreciation of the importance of maintaining ecosystem services and an increased awareness of the need to conserve species, hence the reported successes. Case in point is the appreciation for the dry forest where latanye grows naturally which has allowed for the resurgence of the latanye species.

One contradiction though, is that while the *Amazona versicolor* is protected (habitat central rain forest), the adverse impacts on white breasted thrasher (habitat, dry forest, outside main forest reserve) have not been minimized: pointing to an inconsistency in the way in which threats are currently managed and the likely uncertain future for other endangered species.

2.7.1 Is current NBSAP adequate to address threats to biodiversity identified in Chapter I?

The current NBSAP was developed a decade ago and was therefore, designed to address issues, trends and threats affecting the country at that time. Many of the issues and trends identified at that time were in one way or another impacted by the implementation of the NBSAP. Issues, for example, of deforestation due to demand for agricultural lands and over-exploitation of species were considered critical then; hence conservation and sustainable use were a primary objective of the NBSAP. As indicated in the tables 6 and 7, many of the interventions implemented under the NBSAP have recorded successes in this regard. A key issue at that time was the complexity of the relationship between economic development and biodiversity. As a result of the approach

taken for implementation of the NBSAP, which was to address existing threats directly through the issues and trends, this issue remains of major concern and has possibly increased in importance, thus presenting the biggest threat to biodiversity management in this current era.

Also, since the development of the 1st NBSAP in 2000, new and emerging issues which had not been considered priority a decade ago have increased in significance; many of which must be addressed with urgency for more effective management of biodiversity in the country. Changes in terms of threats since the 1st NBSAP are reflected in the following issues:

- Changes in Government and policy direction particularly with regard to development imperatives
- New trading regimes, such as the Caribbean Single Market and Economy (CSME) and the Economic Partnership Agreement (EPA)
- Changes in institutional and legal frameworks
- Economic factors, *inter alia*, changes in fuel prices, decline in the banana-based agriculture industry, and an increased focus on tourism-based initiatives
- Social factors – population growth, demographic changes, land use changes, and changes in support systems
- Environmental factors:
  - Environmental obligations: e.g. Saint Lucia has become signatory to an increased number of multilateral environmental agreements and treaties since 2000, including the St. George's Declaration of Principles for Environmental Sustainability in the OECS (SGD) and the Protocol on Land Based Sources of Marine Pollution to the Cartagena Convention
  - Environmental phenomena: for example, climate change and climate variability, and changes in patterns and types of natural disasters and technological hazards
- Knowledge management
  - More scientific research (new studies and technological innovations)
  - Increased use of Information and Communication Technology (ICT)
  - Greater focus on issues relating to Copyright/Intellectual Property
  - Increased public awareness and sensitisation on environmental and biodiversity issues

The Ministry of Agriculture, Lands, Fisheries and Forestry (MALFF), the agency with primary responsibility for the sustainable management of biological resources in Saint Lucia, has since undertaken a revision and updating of the original NBSAP. The 2nd NBSAP produced in 2008 builds on the vision of the 1st NBSAP, while ensuring a more holistic vision to address the abovementioned issues. This revised strategy and action

plan encompasses a more holistic vision and integrated action plan for biodiversity management in Saint Lucia and includes goals, outcomes defined by targets within specific time frames.

2.7.2 Improving NBSAP to Overcome Obstacles

Consultation with stakeholders generated the following suggestions for overcoming the identified obstacles or hotspots towards improvement of implementation of the NBSAP:

- Recognition that NBSAPs at some point will be fully implemented and hence successive NBSAPs are necessitated;
- NBSAPs should have a finite term;
- NBSAPs should entail a strong monitoring and evaluation component.
- The process of reporting based on COP reporting requirements has in the past been a bit obscure and requires greater clarity with respect to terminologies and expectations
- Co-ordinating mechanisms and institutional framework for biodiversity and environmental management should be strengthened including:
    - consideration for an institutional framework that promotes the integrated development planning process to facilitate mainstreaming of biodiversity issues
    - the integrated approach should consider cementing link between biodiversity management, environmental management and sustainable development at all levels
    - establish and/or maintain collaborative relationships for NBSAP implementation
    - Memoranda of Understanding and other agreements should be developed and adhered with roles and responsibilities clearly defined and requisite support (legal, financial) in place

- Allocation of resources (human, financial, technical, etc. - for NBSAP) should be timely and strategic

- Given the constraints of private land ownership, need to consider different approaches for conservation of resources in public and private domains

- Examples of best practices should be built on in development of a framework for implementation

2.8 Specific information requested in COP 8 decisions

VIII/5 (Article 8 (j)) – Submissions through National Reports

Various mechanisms have been adopted to preserve and maintain knowledge, innovations and practices of indigenous and local communities as per the requirements of Article 8 (j). Progress in achieving participation range from community meetings, community training, community participation through various departments and programmes such as:

- Folk Research Centre documenting traditional knowledge biodiversity related practices
- Fisheries Department – Sustainable use of biological resources e.g. Des Barras sea turtle; sea urchins in Laborie, sea moss in Vieux Fort, pilot whales harvesting
- St Lucia Heritage Tourism Programme – sustainable use of common natural assets/biological resources in various communities for touristic purposes
- Saint Lucia National Trust – island wide conservation of natural and cultural heritage
- Forestry Department - Timber dealers, Lianes harvesters, Lencens producers; latanyé and mauby farmers

VIII/21 (Marine and coastal – deep seabed)

Not applicable to Saint Lucia

VIII/22 (Marine and coastal – IMCAM)

Not applicable to Saint Lucia

VIII/24 (Protected Areas)
Summary on Protected Areas presented in Appendix 3.

VIII/28 (Impact Assessments)

With regard to impact assessments, the country has not applied the voluntary guidelines on biodiversity-inclusive environmental impact assessment (EIA). However, EIAs are being carried out under the Physical Planning and Development Act (2001). Under this Act, the Head of the Physical Planning and Development Division has been granted the authority to require Environmental Impact Assessments (EIA) when deemed necessary. In addition, draft EIA Regulations have been developed. Natural resource management agencies normally serve as referral agencies, with public participation in such procedures occurring from time to time and increasing.

The EIA process still needs to be strengthened, particularly with regard to mechanisms for monitoring during and after development activities. The challenge, however, would be whether there is adequate capacity within the current Ministry with the responsibility for Planning and Environment and other related agencies to undertake such monitoring and the need to establish the requisite protocols for future ongoing monitoring.

Chapter III - Integration or Mainstreaming of Biodiversity Considerations

3.0 Introduction

Saint Lucia's biological resources continue to play a significant role in the country's socio-economic development, especially in the key sectors of tourism, agriculture and fisheries, and are intimately tied to the health of its environment. Despite the distinctive shift from a predominantly agrarian-based economy, which by very nature is exploitative, to a service-based economy, there is still a heavy reliance on the island's natural resources for tourism. Biological resources have also become increasingly important in light of the growing trends in eco-tourism. Rural communities still depend heavily on sustainable livelihoods, which are underpinned by the use of biological resources such as timber, latanyé for broom making, mauby, charcoal, fish for community fiestas, etc. The major shift in sector dominance has brought with it new and emerging challenges and opportunities, as well as new threats to the biological resources of the country.

It is against this backdrop that the country recognizes the imperative of continuing to seek the integration of biodiversity concerns into national, sectoral and cross-sectoral strategies and plans, as called for in Article 6 of the Convention, General Measures for Conservation and Sustainable Use:

> (a) Develop national strategies, plans or programmes for the conservation and sustainable use of biological diversity or adapt for this purpose existing strategies, plans or programmes
>
> (b) Integrate, as far as possible and as appropriate, the conservation and sustainable use of biological diversity into relevant sectoral or cross-sectoral plans, programmes and policies.

Clearly, achieving the objectives of the Convention, and in particular the 2010 target and goals and objectives of the Strategic Plan, will be impossible without engaging the main sectors and key actors that have impacts on the conservation and sustainable use of biodiversity.

3.1 Mainstreaming Biodiversity into Sectoral and Cross-Sectoral Strategies and Plans

With respect to article 6b, since the adoption of the NBSAP in 2000, biodiversity concerns have progressively been integrated into the agenda of the various departments in the key sector, agriculture, principally, the departments of agriculture, forestry and fisheries. Several other government departments and other national and local levels of government have also embraced biodiversity within their agendas. The extent to which these issues have been integrated into the national agenda is exemplified by the current policy, legislative and institutional framework.

The framework for a new enabling environment, though evolving as many of the outputs from the EU SFA 2003 programme completed in 2008 are still to be implemented, speaks to addressing biodiversity management under an overarching environmental management framework. The

National Environmental Commission (NEC) launched in 2008, is to perform an integral role in facilitating inter-agency collaboration and coordination, and a Department of the Environment is proposed through which an Integrated Development Planning (IDP) approach could be pursued, thus giving consideration to biodiversity conservation and sustainable use within sector specific and thematic / cross cutting areas.

Further, Saint Lucia is a contracting party to fourteen (14) regional and international multilateral environmental agreements (MEAs) relating directly to the conservation and sustainable use of biological resources. All these agreements provide an opportunity for unified commitment of government departments and other institutions and agencies to deal with common environmental issues. Similarity in agendas has thus fuelled the need to seek integration of biodiversity issues into many strategies and plans. The extent to which these issues have been integrated into the national agenda is manifested in the many national, sectoral and cross-sectoral policies, strategies, and action plans, which cover biodiversity issues as outlined in Table 13 and Box 9:

Table 13. Extent of Integration of Biodiversity Issues into National Agenda

Policies and Strategies	Programmes and Plans	Biodiversity and Business
• **Millennium Development Goals** • **NEP/NEMS** • **Climate Change Adaptation Policy** • **National Water Policy** • **National Land Policy** • **Saint Lucia Forest Sector Policy (draft)** • **Agricultural Sector Policy and Strategy** • **Saint Lucia Heritage Tourism Programme (SLHTP) Charter**	• National Vision Plan • Systems Plan of Protected Areas (SPPA) - OPAAL project • Coastal Zone Management (CZM) Strategy and Action Plan • UNCCD National Action Plan (NAP) • Integrated Water and Coastal Zone Management (IWCAM) • Sustainable Energy Policy & Action Plan • Renewable energy in MALFF • Disaster Management Plans • Sustainable Land Management Project	• Environmental Management Systems - Green globe certification - Fair Trade, GAPs, LEAP - ISO 14000 • Sustainable Tourism Protocol under the ACS

Worthy of note, is that the country has had a cultural ethos of conservation established since the 1970's, due to the diligent pioneering work of persons such as the late Gabriel "Coco" Charles who spearheaded within the Department of Forestry the legendary "Jacquot campaign" for the conservation of the St. Lucia Parrot, which had been deemed to be nearing extinction. Fisheries management as well, under the then Chief Fisheries Office, Horace Walters, also promoted a conservation thrust. Hence, as early as the 1980's concerted efforts were made, even in the absence of adequate funding, to establish designated marine reserves. In the area on in-situ and ex-situ conservation of agricultural biodiversity, the Department of Agriculture in the MALFF also made some strides,

albeit with its focus being on improving its production base.

The inherent appreciation for conservation mentioned earlier has also, for the most part, influenced many of the initiatives, programmes and plans in the attainment of the mandates of the various agencies, government departments and community organizations (Box 11). Hence, many of their programmes and plans are generally *de facto* in support of biodiversity conservation, and though seeming to be coincidental, have in fact realised the integration of biodiversity conservation into their strategies and plans.

This type of "incidental" mainstreaming is exemplified in the manner in which projects in the NBSAP were developed and implemented. The very process of selection of the suite of projects was a demonstration of the diverse range of sectors and other interests whose mandates all embodied biodiversity conservation to some extent, with projects developed across the various sectors.

Box 10. Biodiversity issues have been tangibly integrated into the sectoral agenda through:

- The NEP/NEMS - **Obj. # 7 of the NEP is** to fulfill regional and international responsibilities., 5 of 7 objectives biodiversity related
- National Vision Plan
- Systems Plan for Protected Areas (revised under OPAAL Project, (still to be endorsed) by Cabinet of Ministers
- Agricultural Sector Policy (includes biodiversity conservation)
- National Forest Demarcation and Bio-Physical Resource Inventory Project (2009)
- Coastal Habitat Mapping Project (2009
- National Forest Policy (draft) and Forestry Management Plan (1992 – 2002) – under revision
- Revised Fisheries Act and Regulations
- International Trade in Wild Fauna and Flora Act
- Marine Pollution Act
- National Land Policy
- National Water Policy
- Coastal Zone Management in Saint Lucia: Policy, Guidelines and Selected Projects April, 2004; CZM Strategy and Action Plan (2008)
- Medium Term Development Strategy
- Heritage Tourism Program (Charter)
- Several Protected areas have been established and include Forests, Coral Reefs and Beaches and Nature reserves, the Soufriere Marine Management Area (SMMA), Pitons Management Area, Canaries /Anse La Raye Marine Management Area (CAMMA). 26 Marine reserves have been established including Savannes and Mankote Mangroves that are also Saint Lucia's Ramsar sites.
- Additionally protection is afforded to the World Heritage Site located within the Pitons Management Area.
- Planning Legislation (EIAs)
- Millennium Development Goals for the country
- Folk Research Centre documentation with regard to food and cultural festivals

However, the issue of co-ordination among agencies though slightly improved, has not been to the extent required for effective biodiversity management. Actions to support implementation of policies are not always forthcoming or implemented at a slow pace.

Table 14 provides a summary of the role of other government departments, levels of government (from national to local) and other stakeholders that develop and implement strategies, plans and programmes having significant impacts on biodiversity.

Table 14. Primary Stakeholders and Roles in CBD

STAKEHOLDER /AGENCY	MANDATE /PROGRAMME AREAS	ROLE IN THE CBD
Ministry of Agriculture, Lands, Forestry and Fisheries	Forestry, fisheries, agriculture and other natural resource management Nature conservation Designation of Protected Areas (Forestry) Germplasm conservation Research	**Focal Point to CBD, the SBSTTA; GPSC and Protected Areas Focal Point** **Policy (e.g. National Forest Policy; Agriculture Sector Policy and Strategy; Trade in Endangered Species (wild flora and fauna) Policy – CITES, Agricultural Health, Food Safety and Standards Plan ;)** **Biosafety Framework** **Control of invasive alien species and the protection of plant and animal life** **Resource monitoring and management**
Sustainable Development and Environment Section of the MPDE&H	Environment, Energy, Science and Technology, Integrated Development Planning (IDP)	**Policy (NEP-NEMS, draft Land Policy, CZM, National Climate Change Policy and Adaptation Strategy); Advocacy, IDP process commenced but never completed;** **State of Environment Report** **Proposals for 5 year National Development Plan - Vision Plan (2007)** ***"Framework for Environmental Management" proposed espousing IDP and ISM.- 2008*** - ***Recommendation for Department of Environment*** - ***Environmental Management Act drafted and several policies and strategies updated*** - ***National Environmental Commission (NEC) endorsed by Cabinet of Ministers in December 2007; launched 2008***
Physical Development of the MPDE&H	Development Control	**Requirements for EIAs; Designation of Protected Areas**
Ministry of Finance	Economic Affairs	**Budgetary allocations (need for better understanding of issues and application of economic valuation of natural resources);**
Ministry of Education	Education	**Facilitation of school based public awareness and sensitization programs**
Ministry of Legal Affairs	Legislative Drafting	**Biodiversity and Biosafety legislation**
Ministry of Health	Food safety and human health	**Biosafety framework & legislation**
Ministry of Tourism, SLTB, SLHTA	Develop and maintain a high quality tourism product	**Policy (Tourism Strategy and Action Plan) Heritage and Adventure Tourism programmes; Agro-Tourism Initiative.**
Ministry of Social	Implementation social	**Ensure environmental sustainability - *Integrate***

Transformation	agenda – MDG's, Johannesburg Plan of Action; poverty alleviation;	***the principles of sustainable development into country policies and programmes.***
National Emergency Management Office (NEMO)	Disaster Management	**Disaster Management Act** **Hazard Mitigation Policy and Plans**
SLNT/ OECS Protected Areas And Associated Livelihoods (OPAAL) PROJECT	Protected Areas	**Review of Systems Plan for Protected areas;** ***Capacity Building for Protected Areas Planning and Management and Associated Livelihoods***
SMMA	Resource Management	**Monitoring (Marine protected area) and resource management**
IWCAM	Resource Management	**Monitoring and capacity building**
NTN /GIS	Information Services	**Facilitate dissemination of biodiversity information**
Community Based Organisations (Gros Piton Trail, Aldet Centre, Charcoal Producers, Praslin Development Committee, Des Barras Sea Turtle Watch Group)	Sustainable livelihoods; Advocacy on a variety of issues	**Biodiversity management as part of sustainable livelihoods** **Involvement in M&E as well as information dissemination, public awareness and sensitisation** **Biological data collection and monitoring**

3.2 Processes for Mainstreaming Biodiversity into Sectoral and Cross-Sectoral Strategies and Plans

The process towards the formulation of this 4th National Report identified several processes by which biodiversity concerns were integrated into sectoral and cross-sectoral strategies and plans, inter alia:

- Legislative Mandate
- Functional collaboration
- Integrated development planning
- Inter-sectoral committees
- Networking

Legislative Mandate

Biodiversity conservation is enshrined within the various legislations governing the work of the Ministry of Agriculture, Lands, Forestry and Fisheries. The Ministry operates within the following programme areas:

- Agriculture
- Forest Resource Development
- Fisheries Development
- Corporate Planning and Statistics
- Marketing

Is also has a Water Resources Agency (WRA) established with funding from the European Union (EU) under its Special Framework of Assistance (SFA) portfolio. The MALFF was identified as having the best facility for biodiversity work in Saint Lucia12.

Given this definitive mandate, the work programmes of these departments inherently addressed biodiversity issues, and were the *de facto* measures and arrangements for ensuring implementation of the NBSAP and the CBD. Achievements in terms of how these measures and arrangements impacted on biodiversity or contributed to the objectives of the Convention are illustrated as follows.

The Forestry Department undertakes the following sub-programmes and is guided by its Forestry Management Plan (recently updated), National Forest Policy and under the Forest Demarcation Project (2008) the new *Forest Act (Draft), and Forest (Timber and Non Timber Products) Regulations:*

- Forest management
- Nature conservation
- Germplasm conservation
- Forest research

The achievements of the Department related to the CBD have been quite significant and are well expounded throughout the report with a summary provided in Box 12.

Box 11. CBD related Achievements of Department of Forestry

- Focal Point to the SBSTTA, COP, GPSC and Protected Areas Focal Point
- Programmes and initiatives for conservation and sustainable use – Saint Lucia Parrot, Latanyé, etc.
- Research and monitoring programmes and studies on biological diversity at the genetic and ecosystem levels.
- Cooperation in the breeding loan agreement program with the Jersey Zoo in the Channel Islands to ensure preservation of the *Amazona versicolor* (Saint Lucia Parrot).
- Relationship with Christopher Smith, a breeder and researcher of the Fer-de-lance snake.
- National Herbarium Achievements

The Department of Fisheries served as the first coordinator of the biodiversity project in Saint Lucia. This Department boasts a very accomplished Research Unit set up to *undertake relevant studies to manage the living marine resources and promote sustainable utilization of fish stocks*. Box 13 summarises some of the CBD related achievements of the Department.

12 Saint Lucia Biodiversity Enabling Project: Group 2 Assessment and Monitoring of Biodiversity in Saint Lucia

Box 12. CBD related Achievements of Department of Fisheries

Activities undertaken by Fisheries Department include *protected marine area establishment; lobster, conch, sea turtle, sea urchin and coastal zone management; cetaceans, mangrove, coral reef, and beach monitoring; sea-moss cultivation; freshwater fish and shrimp culture; management of aquaculture ponds; data management and ongoing public education; establishment and oversight of the SMMA.*

As indicated previously the MAFF serves as Focal Point to the Convention. The former Director of Agricultural Service served in a full-time capacity (though the full-time aspect was shortened) as a Biodiversity Project Coordinator and continued to function in that capacity. The Department of Agriculture through its Research and Development Division and its Agricultural Extension Services Division has made some strides in the area of *in-situ* and *ex-situ* conservation. CBD-related achievements of the Department are indicated in Box 14.

Box 13. CBD-related Achievements of Department of Agriculture

- Focal Point to CBD directly under the Permanent Secretary
- Sustainable Use Focal Point
- Project on production of agro biodiversity education materials
- Establishment of Biodiversity Unit and Biodiversity/Biosafety Project Coordinator
- Monitoring of introduced species that threaten crop and animal production as in the case of the fruit fly *(Anastrepha obliqua*), Giant African Snail (*Achatina fullica*), etc.
- Enforcement plant and animal health and quarantine legislation; as well as for other invasive species covered under legislation in specific areas such as apiculture, coastal and marine environments, forests, protected areas and wildlife.
- Germplasm conservation:
    - ex situ germplasm collection of root crops, tree crops, forest trees and medicinal plants
    - in-situ preservation of a number of species of yam and other food crops
- Information Management - Clearing House Mechanism (CHM) and Biodiversity Information Network (BIN)
- Ongoing public education

Functional Collaboration

While no measurable targets were set[13] in the 2001 NBSAP, its implementation however benefited from strong sectoral management agencies that work closely together. A formal mechanism for coordination among various departments concerned with biodiversity issues is yet to be established to date. However, departments such as Fisheries and Forestry as a matter of practice and also as a means of ensuring that those objectives with overlapping components of their work programme are achieved, collaborate with various other departments, agencies, and community groups.

Early initiatives such as that of the MALFF in establishing a Conventions and Protocols Committee in order to realise synergies and ensure follow-up on the multiplicity of international agreements is commendable. However, this has not been sustained and greater commitment, time and human resources are still required by departments and focal points to facilitate the functioning of such a committee. Difficulties of juggling time, assignments out of state and various meetings make meetings of the committee very challenging. The MALFF management committee, established at the ministerial level to undertake monthly programme monitoring provides another option with regards to a mechanism for integration at the sectoral level.

Integrated Development Planning

The country has been pursuing an approach of integrated development planning (IDP), which seeks to promote an inter-sectoral approach to planning and development, in order to minimise potential conflicts, particularly as it relates to the use of resources. IDP has been proposed for a number of years but there have been a number of administrative delays in its implementation. However, even in its limited application, the utilization of the IDP approach gives consideration to the mainstreaming of biodiversity conservation and sustainable use within sector specific and thematic / cross cutting areas.

The IDP framework has further evolved into a framework for Environmental Management which espouses IDP and Island Systems Management (ISM). It is envisaged that the process of mainstreaming biodiversity issues sectorally and inter-sectorally will be further deepened as the proposed environmental management framework has as a more realistic target in the establishment of a Department of the Environment. The National Environmental Commission (NEC) as a multi-sectoral body is intended to perform an integral role in facilitating inter-agency collaboration and coordination. An Environmental Management Act has been drafted and several policies and strategies for environmental and natural resources management have been updated as well.

The Sustainable Land Management (SLM) Project (being funded by UNDP) also addresses the issue of mainstreaming.

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Inter-Sectoral Committees

Box 14. Range of Inter-Sectoral Committees

- OPAAL Technical Advisory Committee
- SMMA
- UNFCC/Climate Change
- Adhoc Committee UNCCD
- CZMAC
- Sustainable Land Management
- National Biodiversity Committee
- National Biosafety Coordinating Committee
- Biosafety Clearing House Task Force
- Wildfire Management Committee

Currently, there are several inter-sectoral committees (Box 15) established for oversight of the various conventions and agreements, especially multilateral environmental agreements (MEAs), with many of the same persons members of these committees. While this may seem to pose a challenge for the available human resources, there is the distinct advantage of promoting synergy in implementation of the MEAs, as well as other biodiversity related conventions (CITES, WHC, Ramsar, CMS, ITPGRFA, SPAW), building upon the work of the CBD related Committees. Joint expert groups and meetings of intergovernmental bodies on selected issues of mutual concern further complement this type of inter-secretariat cooperation.

The recently adopted UNCCD- National Action Plan (NAP) is one example of a mechanism for seeking opportunity within the implementation of the Plan to ensure synergy with the implementation of the CBD's plan. The success in the ***Soufriere Marine Management Area (SMMA)*** further demonstrates the real potential for success of harmonized action within an inter-sectoral grouping (Box 16).

Box 15: Success Story - Soufriere Marine Management Area (SMMA)	
Location	Saint Lucia
Responsible Organization	Department of Fisheries, Ministry of Agriculture, Forestry and Fisheries of Saint Lucia.
Description	Created in 1995, the Soufriere Marine Management Area (SMMA) was designed specifically to cater to the myriad of uses in the area, reduce conflict among users and protect critical marine resources. The Management Area is divided into five zones: marine reserves, fishing priority areas, yacht mooring areas, recreational areas and multiple use areas. The zoned areas were established in an agreement after a number of consultations with all stakeholders, including governmental organizations, non-governmental organizations and users of the areas. A co-management arrangement allows all stakeholders to provide input during potential conflicts and their resolutions. Formal support from the Cabinet of Ministers for the SMMA agreement was received in 1995, and support for the institutional and legal arrangements for the SMMA was given in 2000. Over the years, the SMMA has benefited from a number of funding agencies. Most provided the financial assistance which allowed it to begin. These funding agencies include the Caribbean Conservation Association, ENCORE Project and the French Government. However, the SMMA is currently self-financing, although external funding occasionally allows for the financing of pertinent additional endeavours.
Issues Addressed and Actions Taken	Coastal and marine resources (Chapter IV of the Barbados Programme of Action)
Results Achieved	• Reduction of conflicts among users • An increase in fish biomass within marine reserves • An increase in fish biodiversity (increased number of fish species observed per count in annual censuses) • A self-financing management area • A management team, which involves continued participation of all stakeholders (Board of Directors and a Technical Advisory Committee)
Lessons Learned	• Community participation is vital if no-take zones are to be effective. At the outset of the management plan, it is essential to identify and include all the different stakeholders. • Continuous involvement of the stakeholders allows potential conflicts to be addressed before reaching a critical stage. • Benefits of marine reserves can increase rapidly if three conditions are met: no-take zones cover a sufficiently large proportion of the area, no-take zones are interspersed with fishing areas, and good compliance of no-take regulations.

Networking

Strong networking among agencies allowed for synergies to be realized in implementation of the NBSAP. A case in point is the Department of Forestry, which has used a collaborative approach and has established networks with regional and international government and non-governmental agencies and institutions to overcome the many constraints and challenges in implementing biodiversity conservation measures, including more technical assistance in the areas of research and monitoring and training in conservation strategies (Box 17).

Box 16. Examples of Success of Department of Forestry in Partnering with Agencies

- Collaboration with Durrell Wildlife Conservation Trust for:
  - Research and Development of Parrot Management Guidelines
  - DNA testing to ensure sustainability of the St. Lucia whiptail lizard.

    Results:
    - *New methodologies established for estimation of Amazona versicolor populations, and for increasing genetic diversity of the St. Lucia Whiptail populations*
    - *Amazona versicolor - species down-listed from critically endangered to vulnerable*
- Conservation with Pride Campaign on Iguana with collaboration of RARE
- Relationship with Christopher Smith, a breeder and researcher of the Fer de Lance snake
- National Forest Demarcation and Bio-Physical Resource Inventory Project (2009) - Preliminary findings available on:
  (i) Identification, description and mapping of forest types and Biodiversity inventory (including species presence and distribution);
  (ii) Identification of priority species and forest areas requiring special attention
  (iii) Assessment of use of wildlife

The Department also continues to promote a co-management approach to biodiversity conservation and sustainable use, one such example being the *Mankoté Mangrove for charcoal production*.

The Department of Fisheries likewise has formed some important collaborative networks with regional and international agencies such as WIDECAST, CFRN and ICRAN.

(i) The use of any positive incentives and removal of perverse incentives.

Various economic and social incentives have been developed and introduced which support mainstreaming of biodiversity issues in key economic sectors. However, many of these incentives are of a voluntary nature and do not always demonstrate a direct economic benefit.

The Agricultural Incentives Regime developed by the MALFF, promotes mainstreaming at all levels (national, sector and community) through the provision of concessions to farmers and

farmers groups for the adoption of environmental management measures. Mainstreaming at the community level is also promoted through other agricultural related incentives programmes such as Fair Trade, Global GAP and LEAP.

Incentives to promote mainstreaming of biodiversity issues in the tourism sector and industry include the use of global environment awards such as Green Globe and ISO 14001 – Environmental Management Systems (EMS).

A National Biodiversity Awards Ceremony developed by the MALFF and sponsored by the private sector (Bank of Saint Lucia), targets schools, communities, individuals, private sector and the media thus promoting biodiversity integration at all levels.

However, there are no incentive packages offered to technical personnel on the whole; and, quite often the remuneration, when compared with persons of similar qualification in other sectors, is not very attractive.

3.3 Ecosystem approach Adopted and Employed

The ecosystem approach is a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way. The application of the ecosystem approach will help to reach a balance of the three objectives of the Convention: conservation; sustainable use; and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources. In addition the ecosystem approach has been recognized by the World Summit on Sustainable Development as an important instrument for enhancing sustainable development and poverty alleviation. ***UNEP/CBD/SBSTTA/9/INF/4***

The NBSAP implementation process recognized that there are some inter-sectoral issues, which cannot be fully addressed within the implementation framework of the CBD. Consequently, a means of mainstreaming biodiversity into sectoral and cross-sectoral strategies, plans and programmes in order to address in a more comprehensive way the issues of scale, with particular respect to risks and threats was needed. It must be noted that the regard given to the ecosystem approach under the 1st NBSAP was somewhat incidental and was largely because the desired framework for addressing the aforementioned issues was consistent with the framework that it provided for decision-making at various levels, including national policy-making and site-level management.

In so far as the concept of Integrated Development Planning (IDP) was considered a potential framework for integrating biodiversity it, to all intents and purposes, proved to be a vehicle for promoting the ecosystem approach. Though the implementation of the IDP met with many challenges, the concept was generally embraced and in a few instances attempts were made to infuse IDP into the implementation of some NBSAP activities. The primary focus then was the involvement of all actors, at all levels, and combining this with community awareness and participation to pursue conservation and sustainable use of biodiversity. So too, are the pursuit of the sustainable livelihoods approach and the sustainable land management approach which are considered complementary and mutually supporting to the ecosystem approach.

Hence, though the ecosystem approach was not explicitly adopted or employed, some of the activities undertaken towards implementation of the NBSAP and the Convention illustrate some measure of mainstreaming similar to the application of the ecosystem approach; with particular respect to the principle of integration. Indeed many of the measures adopted under the existing framework have served to reduce or halt erosion of species and genetic diversity within ecosystems. Further, to the extent that the application of the ecosystem approach should contribute to sustainable development and to attaining the Millennium Development Goals (MDGs), then since these measures contributed to the attainment of the same, it can be reasoned that the approaches implemented were similar to the application of the ecosystems approach. Examples of the application of such approaches include ***the Soufriere Marine Management Area (SMMA), St Lucia Heritage Tourism Programme and the Sustainable Land Management Project.***

Box 17. Initiatives to assist in creating enabling environment

- Environmental Management Framework (2008)
  - National Environmental Commission (NEC)
  - Policy and Legislation for Environmental Management in Saint Lucia
  - Department of Environment
  - Implementation of NEP/NEMS
- Protocol for Research in Science and Technology (including biodiversity in Saint Lucia)
  - Outlines needs and opportunities for biodiversity research and monitoring
  - Presents recommendations for development of an overall protocol for science and technology in Saint Lucia
- GEO – Saint Lucia 2006 – State of the Environment Report
  - Provides information on status and trends of marine and coastal, forest and freshwater systems
  - Identifies major impacts and key issues relevant to the environment and in particular these systems.

Cognisant that the ecosystem approach is the primary framework for the implementation of the Convention on Biological Diversity, the revision of the 1st NBSAP acknowledged a deficiency in this regard, and incorporates the adoption of an ecosystem approach as a key element of the 2nd NBSAP. However, there is need for an enabling environment to support an ecosystem approach. Box 18, outlines initiatives that assist in creating an enabling environment to support an ecosystem approach including:

- Policy reform
- Research and other scientific information required for establishing baseline data, assessing threats to ecosystem, species and genetic diversity, and for developing measures to minimise or mitigate threats.

Most of the initiatives mentioned including the policies and strategies require institutional arrangements (e.g. Units, Agencies or Committees) for implementation. Challenges include resource limitations, irresolute agency commitments, desultory political support, and lack of formal coordinating mechanisms and institutional arrangements.

3.4 Biodiversity in Environmental Impact Assessments and Strategic Environmental Assessments

Strategic environmental assessments (***SEAs)*** are not done within the current framework

The Environmental Impact Assessment process, as described in Section 2, involves the participation of government departments (natural resource agencies and environment section) as referral agencies and public participation is also encouraged.

Biodiversity issues are therefore addressed in EIAs through the relevant recommendations made by the natural resource agencies; for example Department of Forestry's recommendations regarding forest and wildlife conservation, Department of agriculture's recommendations regarding agro-biodiversity protection and conservation, etc.

3.5 Summary of Outcomes achieved through Implementation of Measures for Mainstreaming

Outcomes achieved through implementation of these measures with regard to the extent to which these measures contribute to the implementation of NBSAPs include:

- Biodiversity objectives (conservation, sustainable use, benefit-sharing) **partly** mainstreamed into national development planning at all levels:
    - Biodiversity linkages strengthened with initiatives aimed at environmental management, cultural, social and economic development
    - Wildfire management plan endorsed by Cabinet as part of Disaster management plan for country
    - Finance ministry encouraged to develop new innovative financing mechanisms for biodiversity conservation with biodiversity related agencies
- Community participation and involvement in biodiversity management maximized
- Development of Risk Mitigation Strategies
- Observed changes in biodiversity status and trends for example:
    - SMMA: increase in fish stocks

- Forestry: conservation of latanyé and mauby species, down-listing of Saint Lucia Parrot
- Forests conserved on some private lands used for ecotourism
- More traditional crops planted by farmers and householders
- Alien invasive species now includes environmental invasives

Other significant outcomes achieved through the implementation of measures for mainstreaming follow (Box 19 – 22):

Box 18. Integrated Watershed and Coastal Area Management (IWCAM) Project

- Coordinated by UNEP/CEHI Water Resource Conservation and Management
- Development of watershed management plans for the Fond d'Or watershed for water resource conservation and management
- Protecting and Valuing Watershed Services and Developing Management Incentives in the Fond d'Or Watershed Area of St. Lucia
- Formation of Watershed Management Advisory group to oversee conservation of the watershed comprising representatives from various sectors

Box 19. Capacity Building

- General measures for in situ and ex situ conservation
- Assessment and monitoring
- Preservation of traditional knowledge related to biodiversity, public awareness and information management - (CHM and BIN)

Box 20. Development of a Biosafety Framework for Saint Lucia

- Biosafety Framework and Biosafety legislation developed to comply with obligations of the Cartagena Protocol on Biosafety
- Challenges and opportunities for bio-technology including introduction and management of GMOs / LMOs assessed
- Party to Biosafety Protocol that seeks to offer protection from the adverse effects of Genetically Modified Organisms – GMO application and approval process
- Pursuance of harmonisation and regional collaboration
- Public awareness materials
- Development of a Bio-safety clearing house mechanism
- Training of agencies/users in using and accessing Biosafety Clearing House

Box 21. OECS Protected Areas and Associated Livelihoods (OPAAL) Project

- *Addresses harmonisation of institutional, policy and legal frameworks for biodiversity conservation*
- *Framework for managing protected areas*
- *Promotes management of biodiversity through establishment of new or strengthening of existing Protected Areas (PAs) and support of new / alternative livelihoods in vicinity of PAs*
- *Includes preparation of Management Plans for Protected Areas in Member States of the OECS region*
- *Ecological gap analysis as develop the Systems for Protected Areas representative species and ecosystems are being conserved*

The St Lucia Heritage Tourism Programme (SLHTP) is one success story (Box 23), which illustrates the application of the various processes used in mainstreaming and integrating biodiversity into national, sectoral and cross-sectoral programmes and plans, in that:

- Approach employed was similar to ecosystems approach:
  - All relevant actors were brought together;
  - Biodiversity objectives of conservation, sustainable use and access & benefit sharing were mainstreamed through the establishment of an Authority;
- Tangible results achieved:
  - common property natural resources used as assets to the benefit of people and communities,
  - *communities having a better appreciation of biodiversity and now claiming ownership,* and no doubt contributing to the halting of the erosion of species and genetic diversity.

-

Box 22. SUCCESS STORY – SAINT LUCIA HERITAGE TOURISM PROGRAMME

Problem:
Despite the active development of and the major contribution made by the tourism sector to the national economy, many persons, especially the poor, were not able to take advantage of opportunities to participate in tourism initiatives. This was largely due to their lack of physical and financial assets. It has been recognized, both locally and in other countries, that common property natural resources constitute assets that can be used to the benefit of people and communities, to help them overcome these obstacles and create economic opportunities that are sustainable and equitable. There is also a growing realisation that common property natural resources have the potential to support more tourism-related activities and therefore assist in the diversification of the tourism product, to ensure sustainability of the tourism sector.

Action: Saint Lucia Heritage Tourism Programme (SLHTP) facilitated the development of community heritage sites and festivals.

SUMMARY OF ACTIONS

- *Infrastructure development*
- *Funding mechanism*
- *Product development on traditional activity*
- *Multi-stakeholder design and planning*
- *Institutional support*
- *Use of common property resources*
- *Participatory planning*
- *Capacity building and skills development*
- *Community leadership*
- *Local economic linkages*
- *Tourism impact management*

Results:

- Social and economic benefits to people, especially the poor, optimized, in several communities:
  - *Anse La Raye Seafood Friday, "Joyeux" waterfall, Piton Flore trail, Fond d'Or Nature Reserve and Historical Park, Rudy John Beach Park in Laborie, and the Gros Piton trail, Fond LatiSab Heritage Site, Des Barras Sea Turtle Tour Guiding Group*
- Secure and appropriate management of natural and cultural resources.

Broader Implications:

- *Improved coordination of natural resource conservation and environmental management efforts at the local and national level*
- *Empowerment of local communities through the establishment of co-management agreements*
- *And the vesting of management authority respects and enhances the rights of communities, and promotes their active involvement in management.*

Chapter IV - Conclusions: Progress towards the 2010 Target and Implementation of the Strategic Plan

4.0 Introduction

This chapter provides summary information on the assessment of how actions taken to implement the Convention on the national level have contributed to achieving progress towards the 2010 target and the goals and objectives of the Strategic Plan of the Convention[14] have contributed to achieving progress towards the 2010 target and the goals and objectives of the Strategic Plan of the Convention. While no specific national targets were established, there were objectives outlined within the NBSAP that were aimed at achieving the goals and objectives of the Strategic Plan of the Convention. Progress, though, has been based on the global targets adopted. Indicators used to measure progress were also not specified or standardised, so progress has been assessed using parameters for which data and information are available.

4.1 Progress towards the 2010 Target

Goals and targets	Progress made towards the target
Protect the components of biodiversity	
Goal 1. Promote the conservation of the biological diversity of ecosystems, habitats and biomes	
Target 1.1: At least 10% of each of the world's ecological regions effectively conserved.	• Protected areas as percent of total land area was 14.7% in 2003 (IUCN); Protected areas expanded – about 300 additional acres included in forest reserve; Extent of forest ecosystems enlarged, with resultant enlargement of habitat for species such as the Saint Lucia Parrot • Increase in abundance and distribution of Saint Lucia Parrot realising an impressive down listing of the species from critically endangered to vulnerable species;

14 The Conference of the Parties, in its decision VI/26, adopted the Strategic Plan of the Convention till 2010. In its mission, the Strategic Plan commits Parties to a more effective and coherent implementation of the three objectives of the Convention to achieve by 2010, a significant reduction in the rate of biodiversity loss. The 2010 Biodiversity Target was endorsed by the World Summit on Sustainable Development held in the same year in Johannesburg, South Africa. The Conference of the Parties elaborated this target at its seventh and eighth meetings and adopted in its decisions VII/30 and VIII/15 a provisional framework of goals and targets for the 2010 target.

Target 1.2: Areas of particular importance to biodiversity protected	• First SPPA produced through an extensive island wide participatory process and since reviewed moved from 27 protected areas to 7 larger areas – to be presented with management plans to the Cabinet of Ministers; funding from UNEP-GEF under OPAAL project for reviewing SPPAs; ecological gap analysis was carried to ensure that there are representative ecosystems and species in the selected protected areas. • Seven (7) types of protected areas in Saint Lucia, namely, marine reserves, fisheries management areas, forest reserves, wildlife reserves, environmental protection areas, other areas – including fishing priority areas. • More areas, national monument, nature reserves and national parks, added as environmental protection areas – Piton Management Area (World Heritage Site)
Goal 2. Promote the conservation of species diversity	
Target 2.1: Restore, maintain, or reduce the decline of populations of species of selected taxonomic groups.	• Trends in abundance and distribution of selected species • Species restored, maintained or decline reduced include Latanyé, mauby, traditional crops, parrot, iguana, whiptail lizard; • "Fat pork" plants to assist in wildfire management, cultivated by Forestry Department for out planting by farmers • White breasted thrasher monitored, migrant species monitored • Reversal in decline of parrot species
Target 2.2: Status of threatened species improved.	• Change in status of threatened species - Saint Lucia Parrot down listed from critically endangered to vulnerable
Goal 3. Promote the conservation of genetic diversity	
Target 3.1: Genetic diversity of crops, livestock, and of harvested species of trees, fish and wildlife and other valuable species conserved, and associated indigenous and local knowledge maintained.	• Study carried out for crops and livestock on genetic diversity; • Germplasm conserved for crops of socio-economic importance including traditional crops (e.g. bananas), latanyé and mauby, and medicinal plants (national herbarium); traditional knowledge maintained; folk lore of turtles surveyed and documented • Management plan for parrot developed and implemented; management plans for lizard and iguana in place; plan to eliminate invasive iguana
Promote sustainable use	
Goal 4. Promote sustainable use and consumption.	
Target 4.1: Biodiversity-based products derived from sources that are sustainably managed, and production	• Timber harvesting and non-forest timber products under management of Department Forestry; latanyé brooms, mauby beverage derived from non-forest timber species now sustainably managed application of appropriate

areas managed consistent with the conservation of biodiversity.	production and harvesting techniques • Coppicing training done for sustainable harvesting by mangrove harvesters • Pilot whales harvested sustainably, not more than four adults taken in any one year
Target 4.2. Unsustainable consumption, of biological resources, or that impacts upon biodiversity, reduced.	• Unsustainable consumption of biological resources reduced: ✓ Marine resource managed with closed and open seasons – lobsters, ✓ Wildlife resources managed with moratorium on hunting ✓ Efficiency of mangrove harvesting for sustainability; ✓ More research on Non Forest timber products such as: o **Lianas- Awali (*Clusia* spp.) and Pomdelien (*Passiflora laurifolia*): used for craft industry;** o **Mauby (*Colubrina elliptica*): used for drinks;** o **Lencens *(Protium attenuatum):*** the exudate is used for religious purposes for sustainable use and maintenance of livelihoods; Lencens/incense harvesting studied to make more sustainable ✓ Latanyé and mauby species brought back from the brink of extinction ✓ Sustainable Land Management Approach applied
Target 4.3: No species of wild flora or fauna endangered by international trade.	• No known issues in this regard at present. Attempts to smuggle Saint Lucian Parrots out of country closely monitored; agreements entered into with parties interested in taking live specimens of species out of country
Address threats to biodiversity	
Goal 5. Pressures from habitat loss, land use change and degradation, and unsustainable water use, reduced.	
Target 5.1. Rate of loss and degradation of natural habitats decreased.	Target not effectively addressed: • Rate of loss of Forest ecosystem in forest reserve halted and reversed; semi-deciduous "dry" forests though now under threat impacting several species of wildlife • Coral reefs and wetlands under threat • Agro-ecosystems under threat from land use changes
Goal 6. Control threats from invasive alien species	

Target 6.1. Pathways for major potential alien invasive species controlled.	• Biosafety Framework established; Biosafety legislation completed • Quarantine measures including legislation in place • Trends in invasive alien species to be determined under new IAS project • Ballast waters being considered to be monitored as a possible pathway
Target 6. 2. Management plans in place for major alien species that threaten ecosystems, habitats or species.	• Plans being developed under UNEP/GEF regional project "Mitigating the threats of IAS in insular Caribbean" and Feral Pigs Reduction Project of Department of Forestry with DWPT • Ballast water IAS threats to be monitored with assistance of IMO
Goal 7. Address challenges to biodiversity from climate change, and pollution	
Target 7.1. Maintain and enhance resilience of the components of biodiversity to adapt to climate change.	• Biodiversity integrated into climate change policy for country • Vulnerability and Adaption Assessment currently underway for preparation of country's Second National Report to the UNFCC looking at all aspects of biodiversity in country
Target 7.2. Reduce pollution and its impacts on biodiversity.	Progress towards improving water quality in aquatic ecosystems: • EIA's undertaken in conjunction with referral agencies; limitation with regard to enforcement and ongoing monitoring for compliance due to constraints in human resource • IWCAM pilot demonstrations on constructed wetlands for sewage management • Riverbank stabilization programme by Department of Forestry and IWCAM • Good Agricultural Practices and Fair Trade standards adopted by farmers to reduce soil loss and minimize effects of agro-chemical use • Recreational water quality standards developed • Solid waste management legislation in place – implemented through waste collection services; beverage container legislation drafted • Ship generated waste legislation in place • Saint Lucia now party to CBSMPP • Coastal Zone Management Section in place in SDE and to be strengthened • Active CZMAC in place to monitor impacts on the coast
Maintain goods and services from biodiversity to support human well-being	

Goal 8. Maintain capacity of ecosystems to deliver goods and services and support livelihoods	
Target 8.1. Capacity of ecosystems to deliver goods and services maintained.	• Increase in forest reserves to improve ecosystem service of water supply • Capacity of wetlands and "dry" forests ecosystem to deliver goods and provide services under threat • Increasing incidence of human-induced ecosystem failure as land use changes due to development pressures negatively impact ecological function.
Target 8.2. Biological resources that support sustainable livelihoods, local food security and health care, especially of poor people maintained.	• National Biodiversity Information Network (BIN) established- includes information on use of biological resources by users; ongoing training in data management • Cultivation and sale of traditionally food crops increasing • Herb Farmers and Organic Farmers associations formed • Commercial natural herbal remedies businesses operating • Fisher folk cooperatives established and functioning; in collaboration with Extension section of Fisheries Department • HERITAS program supporting community development through use of biological resources for touristic purposes • Sea urchin fishery monitored and strengthened through help of fisheries department • Sea turtle monitoring in place assisted by Fisheries Department • Seamoss farmers helped by Fisheries Department • Latanyé broom producers developed into a commercial enterprise • SMMA established and functioning; monitoring impacts on coral reefs
Protect traditional knowledge, innovations and practices	
Goal 9 Maintain socio-cultural diversity of indigenous and local communities	
Target 9.1. Protect traditional knowledge, innovations and practices.	• Folk Research Centre working closely with communities to sustain indigenous kweyol language, culture and traditions • Department of Forestry working with: latanyé and mauby farmers to sustain traditional knowledge and practices; introduction of the cultivation of traditional crop, 'fat pork' as a fire management tool; incense producers to make extraction more sustainable; • Traditional Pilot whales harvesters, conch harvesters; sea turtle and sea urchin harvesters, assisted by Fisheries Department

Target 9.2. Protect the rights of indigenous and local communities over their traditional knowledge, innovations and practices, including their rights to benefit-sharing.	• Draft Biodiversity Legislation takes into account access and benefit sharing • Co-management of resources promoted • Draft procedures manual for biodiversity research produced
Ensure the fair and equitable sharing of benefits arising out of the use of genetic resources	
Goal 10. Ensure the fair and equitable sharing of benefits arising out of the use of genetic resources	
Target 10.1. All access to genetic resources is in line with the Convention on Biological Diversity and its relevant provisions.	• Agreements drafted by Departments of Forestry and Fisheries and implemented– e.g. breeding loan agreement program with the Jersey Zoo and research into any fishery resource • Draft regulations for Biodiversity Legislation developed
Target 10.2. Benefits arising from the commercial and other utilization of genetic resources shared in a fair and equitable way with the countries providing such resources in line with the Convention on Biological Diversity and its relevant provisions	• Participation in development of International Regime for Access and Benefit Sharing
Ensure provision of adequate resources	
Goal 11: Parties have improved financial, human, scientific, technical and technological capacity to implement the Convention	
Target 11.1. New and additional financial resources are transferred to developing country Parties, to allow for the effective implementation of their commitments under the Convention, in accordance with Article 20.	• Official development assistance provided in support of the Convention through funding in support of Convention provided by UNEP-GEF, UNDP-GEF; Additional financial resources were sourced from international donors such as EU/SFA, USAID/OECS – PERB; and from domestic resources - Government of Saint Lucia national budget • Working on development of a sustainable financing mechanism for protected areas through a new regional GEF project in collaboration with TNC and World Bank
Target 11.2. Technology is transferred to developing country Parties, to allow for the effective implementation of their commitments under the Convention, in accordance with its Article	• Technology transfer through various training including resource monitoring and assessment methods, wildlife management technology, coastal habitat mapping, ecological gap analysis for protected areas, sustainable harvesting techniques; wildfire management techniques; disaster management/hazard mapping

20, paragraph 4.	

Based on the global targets, it is clear that not every target was effectively addressed, *Target 5.1: Rate of loss and degradation of natural habitats decreased,* being a case in point. However, the significant progress recorded throughout this report, in terms of the various activities undertaken for NBSAP implementation, as well as implementation of thematic programmes and cross-cutting areas, is in keeping with the 2010 target and is therefore, used to demonstrate the various contributions made towards achieving these targets. So, though there was no deliberate attempt to incorporate the 2010 target into relevant sectoral and cross-sectoral strategies, plans and programmes, the outcomes of actions implemented in realising the objectives of the NBSAP have been able to demonstrate progress toward meeting the target, as well as achieving other global goals such as the Millennium Development Goals (MDGs).

With the exception of the global indicators provided for the targets for goals 1 to 6, indicators used for measuring progress in this regard were based largely on parameters for which information was readily available. Targets were generally intrinsic to sectoral and cross-sectoral initiatives given the biodiversity management thrust exhibited within the work programmes areas, and as such were more qualitative than quantitative in nature. For example, the indicators used to report progress on 2010 targets, 4.1, 4.2, 8.1 and 8.2 also reflect progress in achieving MDG Goal 7: *ensure environmental sustainability.*

Targets for MDG Goal 7

- *Integrate the principles of sustainable development into country policies and programmes*
- *Maintain and enhance natural productivity of key ecosystems, including watersheds, soils and marine habitats***

Obstacles encountered in making progress towards the 2010 target were no different from those elaborated in Table 10, in so far as the making of progress toward the target is related to the implementation of the five NBSAP programme area and the relevant Articles of the Convention.

4.2 Progress towards Meeting Goals and Objectives of Strategic Plan

A similar situation as for the 2010 target existed for assessing progress in meeting goals and objectives of the Strategic Plan. There were no targets set. However, the objectives of the NBSAP were generally aligned to that of the Strategic Plan, and this provided a point of departure for assessing progress towards meeting the goals and objectives of the latter. To the extent that the outcomes of activities implemented under the NBSAP represented progress towards meeting the objectives of the same, then it was deduced that goals and objectives of the Strategic Plan were implicitly addressed.

Strategic goals and objectives	Progress towards Goal
Goal 1: The Convention is fulfilling its leadership role in international biodiversity issues.	
1.1 The Convention is setting the global biodiversity agenda.	*CBD provisions, COP decisions and 2010 target reflected in work plans of major international fora:* • *The Cartagena Convention for conservation of Regional Caribbean Seas.* • *The Biosafety Protocol that seeks to offer protection from the adverse effects of Genetically Modified Organisms.* • *The Convention on the prevention of Marine Pollution by dumping wastes and other matter.* • *International Convention for the regulation of whaling.* • *Declaration of Caribbean Sea as special protected area,* • *United Nations Framework Convention on Climate Change.* • *The St. George's Declaration of Principles for Environmental Sustainability* • *The Johannesburg Plan of Action (2000)* • *The Millennium Development Goals*
1.2 The Convention is promoting cooperation between all relevant international instruments and processes to enhance policy coherence.	
1.3 Other international processes are actively supporting implementation of the Convention, in a manner consistent with their respective frameworks.	
1.4 The Cartagena Protocol on Biosafety is widely implemented.	• *Biosafety Framework established* • *Biosafety legislation completed*
1.5 Biodiversity concerns are being integrated into relevant sectoral or cross-sectoral plans, programmes and policies at the regional and global levels.	*Several regional plans, programmes and policies which address integration of biodiversity concerns including:* • *St. Georges Declaration of Environmental Principles has a biodiversity component* • *Biotechnology and Biosafety Policy and Strategy drafted for CARICOM region* • *Sustainable Tourism Protocol at Association of Caribbean States level where Saint Lucia is a party* • *IUCN Biodiversity Caribbean Initiative* • *UWI St. Augustine Biodiversity Program*
1.6 Parties are collaborating at the regional and subregional levels to implement the Convention.	*Ongoing collaboration among parties that are part of (sub-) regional biodiversity-related agreements (See above).*
Goal 2: Parties have improved financial, human, scientific, technical, and technological capacity to implement the Convention.	
2.1 All Parties have adequate capacity for implementation of priority actions in national biodiversity strategy and action plans.	*Saint Lucia is well on its way from the above narratives but needs further help in strategic areas.*

Strategic goals and objectives	Progress towards Goal
2.2 Developing country Parties, in particular the least developed and the small island developing States amongst them, and other Parties with economies in transition, have sufficient resources available to implement the three objectives of the Convention.	*Official development assistance provided in support of the Convention (OECD-DAC Statistics Committee)* *Resources provided by GEF. Issues with GEF however. Needs to be reworked to better suit the needs of SIDS.* *Other funding agencies have been forthcoming such as RARE Centre for Tropical Conservation and other governments/agencies such as Germany in collaboration with the TNC, the EU and USAID.*
2.3 Developing country Parties, in particular the least developed and the small island developing States amongst them, and other Parties with economies in transition, have increased resources and technology transfer available to implement the Cartagena Protocol on Biosafety.	*Resources provided by GEF to implement protocol and for training.*
2.4 All Parties have adequate capacity to implement the Cartagena Protocol on Biosafety.	*See above*
2.5 Technical and scientific cooperation is making a significant contribution to building capacity.	*Notable successes recorded in technical and scientific cooperation and contribution to capacity building (Box 5,6 and 15)*
Goal 3: National biodiversity strategies and action plans and the integration of biodiversity concerns into relevant sectors serve as an effective framework for the implementation of the objectives of the Convention.	
3.1 Every Party has effective national strategies, plans and programmes in place to provide a national framework for implementing the three objectives of the Convention and to set clear national priorities.	*1st National Biodiversity Strategy and Plan more or less implemented. 2nd NBSAP drafted, still to be endorsed.*
3.2 Every Party to the Cartagena Protocol on Biosafety has a regulatory framework in place and functioning to implement the Protocol.	*Biosafety Framework developed; To be implemented under the new proposed regional project. Agencies and other persons trained in use of Biosafety Clearing House.*
3.3 Biodiversity concerns are being integrated into relevant national sectoral and cross-sectoral plans, programmes and policies.	*Biodiversity concerns mainstreamed into national, sectoral and cross-sectoral plans, programmes and policies*
3.4 The priorities in national biodiversity strategies and action plans are being actively implemented, as a means to achieve national implementation of the Convention, and as a significant contribution towards the global biodiversity agenda.	*Saint Lucia 1st National biodiversity strategies and action plan being actively implemented and most activities near completion.*
Goal 4: There is a better understanding of the importance of biodiversity and of the Convention, and this has led to broader engagement across society in implementation.	

Strategic goals and objectives	Progress towards Goal
4.1 All Parties are implementing a communication, education, and public awareness strategy and promoting public participation in support of the Convention.	*Biodiversity Education and Awareness Strategy and Action Plan was produced, and comprehensive public awareness campaigns were conducted.* *Substantial public awareness was conducted under component 1 of Saint Lucia's Biodiversity Project.* *Biodiversity Enabling Project (component 2) Education, public awareness and participation in the CHM assessment, completed in 2004, expected to guide future work on the same.* *Survey which assessed people's awareness of biodiversity conducted. In addition, a CD-ROM of various biodiversity related themes, including interactive games is also being completed.* *MALFF and other agencies in work programmes routinely highlight the importance of biodiversity. Also National Television Network (NTN) and other radio and television stations.*
4.2 Every Party to the Cartagena Protocol on Biosafety is promoting and facilitating public awareness, education and participation in support of the Protocol.	*Currently being done to a limited degree in collaboration with the Biosafety Clearing House Program.*
4.3 Indigenous and local communities are effectively involved in implementation and in the processes of the Convention, at national, regional and international levels.	*Several initiatives in train with regard to preserving indigenous and local knowledge, innovations and practices.*
4.4 Key actors and stakeholders, including the private sector, are engaged in partnership to implement the Convention and are integrating biodiversity concerns into their relevant sectoral and cross-sectoral plans, programmes and policies.	*Private Sector were successfully targeted for biodiversity Awards in 2005. Private sector assisting with biosafety issues in country. Need to work closer with private sector agencies for more to come on board in other areas. To be developed.*

5.0 Conclusions

5.1 Assessment of Implementation of Convention

The Ministry of Agriculture, Lands, Forestry, and Fisheries in the absence of the necessary financial and human resources has since the country's accession to the CBD, performed commendably in its implementation. This was due largely to a high level of dedication and commitment on the part of the staff involved. Further, the entire process has been highly participatory and has been able to stimulate action at many levels, from almost every Ministry of Government, institutions of learning (at every level), the scientific community, private sector, NGOs and, most importantly community based / grass roots organizations.

Overall, implementation of the NBSAP and measures for the implementation of the Convention have had a significant positive impact on conservation and sustainable use of biodiversity and the fair and equitable sharing of benefits arising out of the utilization of genetic resources.

While the proposed protected areas have been reduced in number, they have been expanded in area. Deforestation rates have been greatly reduced in the rain forest and this has favoured the restoration of species such as the Saint Lucia parrot. The Draft Biodiversity Bill addressed conservation and sustainable use and fair and equitable sharing, and its process of development has helped to promote appreciation for and improve conservation and sustainable use. At the local, regional and international level, financial resources have been mobilized and progress has been made in developing mechanisms for research, monitoring and scientific assessment.

There is a wealth of experience in implementing the Convention that could be built upon to support more effective implementation at the national level and by other Parties. However, the actions taken to implement the Convention have not been on a sufficient scale to address the current pressures on biodiversity. Decision-makers and other implementers of policy still seem not to be fully aware of the long-ranging impacts of certain policies or lack thereof on biodiversity and consequently sustainable development. While environmental impact assessments are more widely applied and input encouraged through the use of natural resource management agencies as referral agencies, conservation recommendations in this regard are often underplayed or even ignored in the pursuit of economic development. Consequently, the effects of some of the actions undertaken towards the implementation of the NBSAP and the Convention have been diluted or neutralized in some instances (Box 24).

Box 23. Less Successful Actions

- Systems Plan for Protected Areas has not yet become a legal document in spite of its being widely accepted at the very grassroots level since 1992; it is hoped that with the presentation of the revised SPA that it will be accepted by Cabinet
- SLNT undertook pioneering work in the area of community involvement, yet "flagship" of proposed Protected Areas – the Mandele Protected Landscape and the Frigate islands Nature Reserve is undergoing a major development which puts endemic and endangered species at risk; this questions the real capacity of the island for species protection and conservation, if the value of such protection cannot be demonstrated to Policy Makers and community members (planners are now on the side of environmentalists);
- World Heritage Site Conservation Area demarcation being challenged; Comments from Gros Piton Trail personnel and others seem to indicate that management structures for World Heritage Site Conservation Area may not be adequate.
- Use of EIAS need to be strengthened; *Amazona versicolor* protected however adverse impacts on white breasted thrasher not minimized. Does this mean an uncertain future for other endangered species?

5.2 Summary of future priorities and capacity-building needs for further national-level implementation of the Convention

While Saint Lucia has made noteworthy progress in implementing the NBSAP and the Convention, there is still more to be done to ensure that biodiversity issues enter the mainstream of national planning. The ability to do so is hindered by a number of gaps which still exist at the national, institutional and individual levels, the small human resource base as well as technological and financial constraints. These must be successfully addressed in order to realize more effective implementation of the Convention.

A key priority in this regard is the implementation of the goal and programmes emanating from the 2nd NBSAP within the ten (10) year time frame, which would serve to build on the many positive outcomes of the 1st NBSAP, while seeking to amalgamate in a holistic vision, new and emerging issues not adequately covered in the 1st NBSAP. What is recommended in the implementation process, this time around, is the development of a programme approach to biodiversity management focusing on results-based strategies, including goals, targets and timeframes that would reflect the new vision for biodiversity. Effort is still required in creating the institutional, policy and legal framework for mainstreaming biodiversity management into the country's development goals and for reducing the overlaps and conflicts between different agencies involved in natural resources management in Saint Lucia. The framework should, however, be reoriented to focus on strengthening the execution of environmental programmes that would thus facilitate the adoption of the ecosystem approach for the management of biological resources; thus assisting to build the necessary resilience to emerging threats such as climate change and variability. The framework should also emphasise the need to factor economic challenges, which bring with them additional pressures on existing resources. It is important therefore that economic valuation of resources/natural resource accounting be utilized in the formulating of decisions of a national development nature.

Existing institutional arrangements therefore need to be further enhanced. Central to these arrangements is the establishment of a formal coordinating mechanism that would serve to improve the inter-agency communication and collaboration and foster an integrated approach for mainstreaming of biodiversity management objectives into sustainable development strategies and plans, which is clearly necessary for the implementation of the Convention. The establishment of a regularized and official Biodiversity Unit at the Ministry of Agriculture, Lands, Fisheries and Forestry would assist tremendously in this regard, serving as the possible secretariat for the coordinating mechanism. Efforts in this direction would also be greatly enhanced by the implementation of the various recommendations for an environmental management framework (EMF) that promotes the integrated development planning process and includes cementing the link between biodiversity management, environmental management and sustainable development at all levels. The launch of the National Environmental Commission (NEC) establishes the foundation for enabling effective inter-agency collaboration on national planning and more specifically, environmental planning and management.

The NEC and the EMF would need to be fully supported by the requisite policy and legislation through the implementation of the NEP/NEMS, the new Environmental Management Policy and related new legislations such as the Environmental Management Act (draft) and the Biodiversity Conservation and Sustainable Use Act (Draft), as well as other revised polices and plans. The EMF would also benefit from the establishment of the proposed Department of Environment (DOE), which would serve to further establish and maintain collaborative relationships thereby strengthening the coordinating mechanism and institutional framework for biodiversity and environmental management. Memoranda of Understanding (MOUs) and other agreements, with roles and responsibilities clearly defined, could also be utilized for collaboration and cooperation, once the requisite support (legal, financial) is in place to ensure adherence.

As highlighted in chapter one, one of the major threats to biodiversity, is that of habitat destruction resulting from random changes in land use patterns. To effectively address this threat, it will be necessary to incorporate biodiversity conservation issues into land use planning and physical development initiatives and foreign investment planning by creating appropriate regulations and procedures governing development planning and land zoning and ensuring compliance with conditions established for approval. In addition, the biodiversity coordinating mechanism would need to establish linkages with key entities such as the Development Control Authority and the National Development Corporation. The link with the National Development Corporation is also invaluable to presenting the possibilities of innovative and creative industries from use of local biological resources for investors to be involved in, for sustainable socio-economic development.

Box 24. Summary of Future Priorities for Framework for Convention Implementation

- Implement goal and programmes emanating from 2nd NBSAP
- Implement NEP/NEMS
- Implement recommended Environmental Management Framework:
  - Environmental Management Policy, Environmental Management Act (Draft) and the Biodiversity Conservation and Sustainable Use Act (Draft), as well as other revised polices and plans; establish Department of Environment
- Implement Biosafety Framework; Establish linkages with key entities such as the Development Control Authority and the National Development Corporation to mainstream biodiversity conservation issues into land use planning and physical development initiatives and foreign investment planning and to explore investment opportunities using local biological resources for sustainable socio-economic development. For example, biomimicry(learning from nature) is expanding in areas such as architecture, engineering and product development; with appropriate investment, it offers major potential for new markets.
- Establish Biodiversity/Biosafety Unit to serve as secretariat of coordination mechanisms for biodiversity
- Undertake research and systematic observation
- Promotion of co-management approach to biodiversity conservation and sustainable use

Research and Monitoring (Systematic Observation) and concomitant data management are areas requiring specific attention. While more data and information is now available for a few thematic areas, some of these databases and information sources are not consistently updated. Further, data management systems that are operational for key parameters (e.g. carrying capacity, inventories, population studies and other indicators required for biodiversity management) and priority species / ecosystems, will need to be established. Information management systems would also need to be improved or new systems established to take into account relevant emerging issues (invasive species, biotechnology, intellectual property). Efforts will also need to be increased to obtain the requisite equipment and skills in this regard. Given existing personnel constraints, however, automated equipment should be considered wherever feasible. Research and Monitoring would also be greatly enhanced through promoting the use of the Biodiversity Clearing House Mechanism and other biodiversity information management systems such as the Biodiversity Information Network by providers and users of biodiversity information.

In the furtherance of the implementation of Article 12, the country will need to maintain or upgrade existing programmes, or establish new programmes, for scientific and technical education and training in measures for the identification, conservation and sustainable use of biological diversity and its components. Institutional capacity for systematic monitoring and to ensure compliance with regulatory procedures will need to be strengthened. One of the priorities at this stage should be to provide improve laboratory capability to support molecular biology; this could be handled at a regional level for more effective use of resources. The draft procedures manual should be reviewed and made policy to guide biodiversity research in country.

Human capacity, from all indications, is currently inadequate both in terms of numbers and skills. In the medium-to-long term, efforts will have to be made to increase staffing levels within the appropriate departments or agencies, which will have financial implications for the Government. It will also be necessary to clearly identify areas where skills need to be enhanced, and to provide the necessary training or redeploy existing staff (Box 26).

Box 25. Additional trained personnel (or training and redeployment of existing staff) required to perform the following functions:

- Monitoring of the implementation of the convention (provide the necessary follow-up on decisions taken and identify gaps and constraints as they arise) through the establishment of the Biodiversity/Biosafety Unit
- A suite of Training products is required in the area of Natural Resource Accounting, Natural Resource Economics and Environmental Audits so as to provide a scientific basis to inform decisions;
- At the professional level, there is a need to build capacity with respect to advocacy, negotiation and policy formulation;
- Data Collection and Monitoring (for both coastal/marine and terrestrial ecosystems)
- Specialised training based on an assessment of needs in areas such as taxonomy, herbarium Management, conservation strategies and product development;
- Need for some sort of "affirmative action" as regards science education in the school system so as to make communities more responsive to biodiversity issues.

Ongoing public sensitisation and awareness are critical to the Convention implementation process. Hence, a programmatic approach needs to be pursued. Such programmes, however, need to be informed by scientifically sound data and packaged specifically for the intended target group. Biodiversity education programmes should be specifically targeted at decision makers, as well as the private sector, resource users, civil society and students / schools in order to achieve maximum success. Communities for example need to be specifically targeted to improve their understanding of ecosystem functioning especially with respect to relationships between ecosystems. If possible PA programmes should be based on a KAP analysis.

Information management as a whole is critical for proper understanding of the issues, options, and achievements at the policy-making, technical, community and other levels. Currently, the economic significance of resources is not emphasized due to ineffective information exchange and knowledge management, but is necessary to inform decision making as regards biodiversity. While the infrastructure for data management has been established through the implementation actions under the 1st NBSAP, there are still some gaps and overlaps that would need to be addressed for more effective implementation of the NBSAP and Convention as a whole. Some of the priorities for information management are highlighted in Box 27.

Box 26. Information Management Priorities

- Programmatic approach to public sensitization and awareness to be pursued. Current work with the Sustainable Development and Environment section should be pursued in this regard.
- Public Awareness supported by research and systematic observation
- Mechanisms to encourage key sectors that benefit from biodiversity (tourism/private sector) to sponsor public awareness programmes. Need for established Biodiversity/Biosafety Unit to help make this happen.
- Support for Biodiversity Web site and CHM and Biodiversity Information Network for effective functioning
    - Need to have designated Web Master and Information Manager
    - Establish data management systems that are operational for key parameters
    - Improve existing information management systems or establish new systems to take into account relevant emerging issues (invasive species, biotechnology, intellectual property)
- Promote the use of the Biodiversity Clearing House Mechanism and other biodiversity information management systems by providers and users of biodiversity information

The availability of financial resources for implementing programmes under the NBSAP and for implementing the Convention will continue to be an issue. In this regard, the proposed approach of establishing a ***Biodiversity Trust Fund*** or utilise resources from a broader ***Environment Fund*** or similar financing mechanisms should be explored as a mechanism for the mobilization of resources for Convention implementation. Also, the proposed regional GEF project on sustainable financing for protected areas should prove to be quite instructive in providing guidance in this matter.

5.3 Suggestions for actions that need to be taken at the regional and global levels to further enhance implementation of the Convention at the national level

There have been notable successes with regard to cooperation and collaboration in the area of scientific and technology transfer. Local institutions, such as the Department of Forestry of the MALFF have formed some useful linkages and partnerships with foreign-based institutions to undertake research locally, train Saint Lucians in biodiversity conservation techniques and help restore dwindling populations of species (e.g. RARE, Durrell Wildlife Preservation Trust at Grambling State University, University of Puerto Rico, CANARI, WIDECAST,). The Department of Fisheries likewise has formed some important collaborative networks with regional and international agencies such as WIDECAST, CRFM, ICRAN. The MALFF needs to further strengthen and refine such arrangements to ensure, as far as possible, more effective mobilisation of scarce resources for research and training; and, that technical staff derive adequate benefit through scientific knowledge and technology transfer, and research and monitoring.

The country should continue to be fully engaged in regional initiatives to address emerging issues related to climate change and variability, modern biotechnology and introduction of genetically engineered organisms. These include the development of Plans under UNEP/GEF regional project "Mitigating the threats of IAS in insular Caribbean" and Feral Pigs Reduction Project of Department of Forestry with DWPT. Another key initiative in the strengthening of research capability would be to improve laboratory capability to support molecular biology.

There is also need for a regional approach to strengthen product development and marketing of species in support of sustainable livelihoods.

The country should also continue to seek harmonisation and standardisation of information systems and other ICT protocols with regional and international standards as with CHM and BIN to improve information exchange and knowledge management.

Other suggestions for action at the regional level include the need for countries to work closer together in implementation sharing methods, experiences, technologies, lessons learned and expertise. The proposed regional centre for biodiversity (discussed at a regional CBD meeting in October 2008) should be pursued and established. Also as a region there is need to pursue cooperation in technology transfer and assessment and monitoring. Expertise from the different countries should assist one another in implementation of components, through for example attachments

APPENDICES

Appendix 1.Information Concerning Reporting Party and Preparation of National Report

A. Reporting Party

Contracting Party	**SAINT LUCIA**
NATIONAL FOCAL POINT	
Full name of the institution	Ministry of Agriculture, Lands. Forestry and Fisheries
Name and title of contact officer	Ms. Hubert Emmanuel, Permanent Secretary
Mailing address	5th Floor, Sir Stanislaus James Building, Waterfront, Castries, Saint Lucia
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CONTACT OFFICER FOR NATIONAL REPORT (IF DIFFERENT FROM ABOVE)	
Full name of the institution	Ministry of Agriculture, Lands. Forestry and Fisheries
Name and title of contact officer	Anita James, Biodiversity/Biosafety Coordinator
Mailing address	4th Floor, Sir Stanislaus James Building, The Waterfront, Castries, Saint Lucia
Telephone	1 (758) 468-4122/27
Fax	1 (758) 453-2035
E-mail	biodivproject@slubiodiv.org or anitavja@yahoo.com
SUBMISSION	
Signature of officer responsible for submitting national report	
Date of submission	

B: Process of preparation of national report:

The preparation of the 4th National Report for Saint Lucia commenced with the establishment of a Project National Steering Committee (NSC) in September 2009 to oversee the production of the Fourth National Report and to engage the various stakeholders using a participatory approach.

The Fourth National Report Steering Committee (NSC) comprised representatives from the following agencies/departments:

- Department of Fisheries, MALFF (Coordinator)
- Research and Development Division, MALFF
- Department of Forestry, MALFF
- Plant Propagation Station, MALFF
- St. Lucia Air and Seaports Authority
- Agricultural Extension Division, MALFF
- Saint Lucia National Trust
- Ministry of Social Transformation.

The first phase of information gathering began in October 2009, by one of the National Consultants. Following on this activity, the compilation of the report commenced in November 2009 under the purview of the other designated national Consultant.

The formulation of the 4th National report evolved from:

- Multiple planning/reporting meetings of a the consultants and biodiversity coordinator to discuss report format and the process as per the CBD guidelines for preparation of 4th National Report;
- Data gathering and reviews by national consultants focused on six thematic areas: Socio-Economic Issues; Agricultural Biodiversity; Forest Ecosystems; Marine and Coastal Ecosystems; Freshwater Ecosystems; and Tourism (the reviews identified the status and trends with regards to biodiversity and sought to identify the broad issues, gaps, and actions required);
- Four (4) focus group discussion and several one-on–one interviews and individual consultations within communities and among major stakeholders from around the island;
- Two broad-based national consultations convened in the north and south of the island to review the first draft of the report, in particular Chapters 1 and 2 ensuring island wide participation and input into the report;
- Public awareness/sensitisation activities involving the mass media.

The comments received through the various focus groups, interviews and consultations at the various stages were incorporated into the document.

The Draft Final Report with feedback from stakeholders was subjected to a review and final verification by the NSC and the requisite feedback incorporated into the Final Report.

Main Difficulties encountered in undertaking the process include:

- Insufficient time to contact all relevant stakeholders due to conflicts in schedule of some stakeholders;
- Difficulty in obtaining all documents dealing with biodiversity from other sectors
- Insufficient data available;
- Mainstreaming process in country hamstrung by governance issues.

Appendix 2. Further Sources of Information

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Appendix 3. Overview of Progress towards Targets of the Global Strategy for Plant Conservation (GSPC)

The Global Strategy for Plant Conservation (GSPC), declared a plan to save the world plant species, was adopted by the COP in decision VI/9 and contains 16 targets which will lead to the ultimate goal – to halt the current and continuing loss of plant diversity by 2010. The call for the integration of these targets within the reporting framework of the CBD, in decision VII/10, has realised significant reporting on information on implementation in the Third National Report for the country. The table below consequently provides a brief updated overview of progress towards the 16 targets contained in the GSPC. A traffic light system coded as follows is used to depict the status of progress towards targets.

Colour Code	Depiction
	Improving
	Little or no change
	Deterioration
	Insufficient or no comparable data

Target	Progress Towards Targets of the Global Strategy for Plant Conservation (GSPC)		
	Status	Outcome	Actions
Target 1: A widely accessible working list of known plant species, as a step towards a complete world flora		(j) Revised compilation of flowering plants, gymnosperms and ferns (k) Identification, description and mapping of forest types and biodiversity inventory	National Forest Demarcation and Bio-Physical Resource Inventory Project - completed 2009
Target 2: A preliminary assessment of the conservation status of all known plant species, at national, regional and international levels		▪ Capacity building needs explored for Assessment and Monitoring of Biodiversity ▪ Preparation of an inventory on floral and agro-biological resources	▪ 2nd Biodiversity Enabling Activity Project activities
Target 3: Development of models with protocols for plant conservation and sustainable use, based on research and practical experience		▪ Draft Procedures Manual for research developed ▪ General Measures for in situ and ex situ Conservation: Policy, Institutional and Legislative Review". ▪ Propagation and cultivation of the Latanye and mauby plants to promote sustainable use	▪ 2nd Biodiversity Enabling Activity Project activities
Target 4: At least 10 per cent of each of the world's ecological regions effectively conserved		▪ First Systems Plan for Protected Areas (SPPA) developed establishing a broad network of marine and terrestrial areas to manage the country's biological and cultural diversity; Systems Plan for Protected Areas revised under OPAAL Project (2008);	▪ Establishment of new or strengthening of existing Protected Areas (PAs)
Target 5: Protection of 50 per cent of the most important areas for plant diversity assured		▪ Ongoing identification and protection of areas which preserve plant diversity	▪ Agro-biodiversity conserved at agricultural stations ▪ Establishment of National Herbarium

Target	Progress Towards Targets of the Global Strategy for Plant Conservation (GSPC)		
	Status	Outcome	Actions
			▪ Tissue culture Unit (in-vitro preservation of endangered plant species
Target 6: At least 30 per cent of production lands managed consistent with the conservation of plant diversity		▪ Ongoing conservation of plant diversity on production lands by promoting production of traditional agricultural crops	▪ Increased cultivation of traditional agricultural crops by farmers
Target 7: 60 per cent of the world's threatened species conserved in situ.		▪ in situ conservation of threatened species	▪ Tissue culture Unit (in-vitro preservation of endangered plant species) ▪ *in-situ* preservation of a number of species of yam and other food crops
Target 8: 60 per cent of threatened plant species in accessible *ex situ* collections, preferably in the country of origin, and 10 per cent of them included in recovery and restoration programmes		▪ ex situ conservation of threatened species	▪ Monitoring of introduced species that threaten crop and animal production as in the case of the fruit fly (*Anastrepha obliqua*), Giant African Snail (*Achatina fullica*), etc. ▪ Enforcement plant and animal health and quarantine legislation; as well as for other invasive species covered under legislation in specific areas such as apiculture, coastal and marine environments, forests, protected areas and wildlife ▪ ex situ germplasm collection of root crops, tree crops, forest trees and medicinal plants
Target 9: 70 per cent of the genetic diversity of crops and other major socio-economically valuable plant species conserved, and associated indigenous and local knowledge maintained		▪ Germplasm conservation of traditional agricultural crops at 4 agricultural stations and increased cultivation by farmers •	• Cultivation and sale of traditionally food crops increasing • Herb Farmers and Organic Farmers associations formed • Commercial natural herbal remedies businesses operating • Folk Research Centre working closely with communities to sustain indigenous kweyol language, culture and traditions • Department of Forestry working with: latanyé and mauby farmers to sustain traditional knowledge and practices; introduction of the cultivation of traditional crop, 'fat pork' as a fire management tool; incense producers to make extraction more sustainable
Target 10: Management plans in place for at least 100 major alien species that threaten plants, plant communities and associated habitats and ecosystems		▪ Disaster Management Act ▪ Hazard Mitigation Policy and Plans ▪ Biosafety Framework established ▪ Development of Plans for mitigating IAS	▪ Development of protocols for Genetically Modified Organisms (GMOs) application and approval process ▪ Control of Ivy Gourd floral invasive species carried out in 2009 ▪ UNEP/GEF regional project "Mitigating the threats of IAS in insular Caribbean" and Feral Pigs Reduction Project of Department of Forestry with DWPT

Target	Progress Towards Targets of the Global Strategy for Plant Conservation (GSPC)		
	Status	Outcome	Actions
Target 11: No species of wild flora endangered by international trade		▪ No known issues in this regard at present	▪ Agreements entered into with parties interested in taking live specimens of species out of country
Target 12: 30 percent of plant-based products derived from sources that are sustainably managed		▪ Introduction of economic and social incentives for sustainable production	▪ Adoption of Global GAP, Fair Trade, LEAP, etc. sustainable production practices
Target 13: The decline of plant resources, and associated indigenous and local knowledge innovations and practices that support sustainable livelihoods, local food security and health care, halted.		▪ Adoption of measures to reduce or halt erosion of species and genetic diversity within ecosystems	▪ Latanyé case study ▪ Mankote Mangrove for charcoal production ▪ organic farming
Target 14: The importance of plant diversity and the need for its conservation incorporated into communication, education and public awareness programmes.		▪ Biodiversity Education and Awareness Strategy and Action Plan ▪ Participation in the CHM assessment, completed in 2004, expected to guide future work on the same. ▪ Public education programmes - Establishment of a National Biodiversity Information Network;	▪ Comprehensive public awareness campaign conducted ▪ 2nd Biodiversity Enabling Activity Project ▪ MALFF and other agencies in work programmes routinely highlight the importance of biodiversity via National Television Network (NTN) and other radio and television stations. ▪ Photographic and video graphic database on Saint Lucian biodiversity created and constantly updated and widely used
Target 15: The number of trained people working with appropriate facilities in plant conservation increased, according to national needs, to achieve the targets of this Strategy.		▪ Training and capacity building in areas such as monitoring and sustainable production systems • National Biodiversity Information Network (BIN) established	▪ Coppicing training ▪ (e.g. sustainable harvesting of mangroves, latanyé;) ▪ Taxonomic training and herbarium management undertaken ▪ Collection of information on use of biological resources by users; ongoing training in data management
Target 16: Networks for plant conservation activities established or strengthened at national, regional and international levels			▪ Organic farming association established

Appendix 4. Progress towards Achieving Targets of the Programme of Work on Protected Areas

The Programme of Work on Protected Areas (PoWPA) commits CBD Parties to a global network of protected area systems that not only conserves the biodiversity on which all life depends, but also provides resilience and adaptation to the effects of climate change, as well as providing a range of valuable ecosystem services and income sources for local communities and national economies. To date, Saint Lucia has created over 100 protected areas, covering nearly 41% of the country's terrestrial surface. Progress made towards implementing the PoWPA over the last few years has steadily improved the framework to strengthen protected areas systems.

Goals and Targets of the Programme of Work on Protected Areas		
Goals	**Target**	**Progress Towards Target**
1.1. To establish and strengthen national and regional systems of protected areas integrated into a global network as a contribution to globally agreed goals.	By 2010, terrestrially 15/ and 2012 in the marine area, a global network of comprehensive, representative and effectively managed national and regional protected area system is established as a contribution to (i) the goal of the Strategic Plan of the Convention and the World Summit on Sustainable Development of achieving a significant reduction in the rate of biodiversity loss by 2010; (ii) the Millennium Development Goals – particularly goal 7 on ensuring environmental sustainability; and (iii) the Global Strategy for Plant Conservation	Protected areas established: Forests, Coral Reefs and Beaches and Nature reserves and protection afforded to the World Heritage Site located within the Piton Management Area. [1]First Systems Plan for Protected Areas (SPPA) developed to build upon past efforts and to establish a broad network of marine and terrestrial areas to manage the country's biological and cultural diversity; Systems Plan for Protected Areas revised under OPAAL Project (2008); OECS Protected Areas and Associated Livelihoods (OPAAL) Project: • *Addresses harmonisation of institutional, policy and legal frameworks for biodiversity conservation* • *Framework for managing protected areas*
1.2. To integrate protected areas into broader land- and seascapes and sectors so as to maintain ecological structure and function.	By 2015, all protected areas and protected area systems are integrated into the wider land- and seascape, and relevant sectors, by applying the ecosystem approach and taking into account ecological connectivity 5/ and the concept, where appropriate, of ecological networks.	Under Systems Plan for Protected Areas biodiversity management promoted through establishment of new or strengthening of existing Protected Areas (PAs) and support of new / alternative livelihoods in vicinity of PAs. 7 categories of

15/ Terrestrial includes inland water ecosystems.

5/ The concept of connectivity may not be applicable to all Parties.

Goals and Targets of the Programme of Work on Protected Areas		
Goals	**Target**	**Progress Towards Target**
		protected areas proposed according to IUCN Protected Area Management Categories, integrating some of the previous categories of the 1st Systems Plan.
1.3. To establish and strengthen regional networks, transboundary protected areas (TBPAs) and collaboration between neighbouring protected areas across national boundaries.	Establish and strengthen by 2010/2012 6/ transboundary protected areas, other forms of collaboration between neighbouring protected areas across national boundaries and regional networks, to enhance the conservation and sustainable use of biological diversity, implementing the ecosystem approach, and improving international cooperation	Protected Areas strengthening being undertaken through OPAAL regional project, regional database for protected areas established under PERB project.
1.4. To substantially improve site-based protected area planning and management.	All protected areas to have effective management in existence by 2012, using participatory and science-based site planning processes that incorporate clear biodiversity objectives, targets, management strategies and monitoring programmes, drawing upon existing methodologies and a long-term management plan with active stakeholder involvement	OECS Protected Areas and Associated Livelihoods (OPAAL) Project: • *Preparation of Management Plans for Protected Areas in Member States of the OECS region* Management plans for some protected areas developed and implemented; Management Plans developed for Point Sables Environmental Protection Area under OPAAL Project and Millet Trail/Bird Sanctuary under PERB Project and for Pitons Management Area World Heritage Site
1.5. To prevent and mitigate the negative impacts of key threats to protected areas.	By 2008, effective mechanisms for identifying and preventing, and/or mitigating the negative impacts of key threats to protected areas are in place.	▪ Enforcement plant and animal health and quarantine legislation; as well as for other invasive species covered under legislation in specific areas such as apiculture, coastal and marine environments, forests, protected areas and wildlife.
2.1. To promote equity and benefit-sharing.	Establish by 2008 mechanisms for the equitable sharing of both costs and benefits arising from the establishment and management of protected areas	• Participation in development of International Regime for Access and Benefit Sharing • Currently signed agreements mandatory to undertake research in managed protected

6/ References to marine protected area networks to be consistent with the target in the WSSD plan of implementation.

Goals and Targets of the Programme of Work on Protected Areas		
Goals	**Target**	**Progress Towards Target**
		areas
2.2. To enhance and secure involvement of indigenous and local communities and relevant stakeholders.	Full and effective participation by 2008, of indigenous and local communities, in full respect of their rights and recognition of their responsibilities, consistent with national law and applicable international obligations, and the participation of relevant stakeholders, in the management of existing, and the establishment and management of new, protected areas	• Community Based Organisations established and involved in management of protected areas: • Gros Piton Trail, Mankote Charcoal Producers, Praslin Development Committee • Heritage and Adventure Tourism programmes supporting community development through use of biological resources for touristic purposes
3.1. To provide an enabling policy, institutional and socio-economic environment for protected areas.	By 2008 review and revise policies as appropriate, including use of social and economic valuation and incentives, to provide a supportive enabling environment for more effective establishment and management of protected areas and protected areas systems.	Environmental Management Framework (2008) - National Environmental Commission (NEC) - Policy and Legislation for Environmental Management in Saint Lucia - Department of Environment - Implementation of NEP/NEMS • Introduction of economic and social incentives such as Green Globe, Global GAP, Fair Trade, LEAP, etc. • IWCAM project: Protecting and Valuing Watershed Services and Developing Management Incentives in the Fond D'or Watershed Area • Section on protected areas in draft Biodiversity Sustainable Use Bill
3.2. To build capacity for the planning, establishment and management of protected areas.	By 2010, comprehensive capacity building programmes and initiatives are implemented to develop knowledge and skills at individual, community and institutional levels, and raise professional standards	• Capacity Building for Protected Areas Planning and Management and Associated Livelihoods undertaken with OPAAL Project
3.3. To develop, apply and transfer appropriate technologies for protected areas.	By 2010 the development, validation, and transfer of appropriate technologies and innovative approaches for the effective management of protected areas is	• Technology transfer through various training including resource monitoring and assessment methods,

Goals and Targets of the Programme of Work on Protected Areas		
Goals	**Target**	**Progress Towards Target**
	substantially improved, taking into account decisions of the Conference of the Parties on technology transfer and cooperation.	ecological gap analysis for protected areas, sustainable harvesting techniques; wildfire management techniques; disaster management/hazard mapping
3.4. To ensure financial sustainability of protected areas and national and regional systems of protected areas.	By 2008, sufficient financial, technical and other resources to meet the costs to effectively implement and manage national and regional systems of protected areas are secured, including both from national and international sources, particularly to support the needs of developing countries and countries with economies in transition and small island developing States.	• Working on development of a sustainable financing mechanism for protected areas through a new regional GEF project in collaboration with TNC and World Bank • User fees established for SMMA and forest trails
3.5. To strengthen communication, education and public awareness.	By 2008 public awareness, understanding and appreciation of the importance and benefits of protected areas is significantly increased	Carried out under OPAAL And PERB Projects; Forest trails serve as public awareness and education media on importance of conservation of forests; SMMA carries out public awareness programs
4.1. To develop and adopt minimum standards and best practices for national and regional protected area systems.	By 2008, standards, criteria, and best practices for planning, selecting, establishing, managing and governance of national and regional systems of protected areas are developed and adopted.	Not carried out as yet for protected areas per se, although under nature heritage program, standards, criteria and best practices developed and implemented for nature heritage sites
4.2. To evaluate and improve the effectiveness of protected areas management.	By 2010**,** frameworks for monitoring, evaluating and reporting protected areas management effectiveness at sites, national and regional systems, and transboundary protected area levels adopted and implemented by Parties	Being developed under the OPAAL Project
4.3. To assess and monitor protected area status and trends.	By 2010, national and regional systems are established to enable effective monitoring of protected-area coverage, status and trends at national, regional and global scales, and to assist in evaluating progress in meeting global biodiversity targets	Monitoring systems put in place under the Biophysical resources Assessment and monitoring project for the forest resources of the island; coral reef monitoring systems in place for the SMMA
4.4 To ensure that scientific knowledge contributes to the establishment and effectiveness of protected areas and protected area systems.	Scientific knowledge relevant to protected areas is further developed as a contribution to their establishment, effectiveness, and management	Technology transfer through various training including resource monitoring and assessment methods,