

1. INTRODUCTION

In spite of its small size, St. Lucia is a diverse country. Surrounded by the Atlantic Ocean and the Caribbean Sea, its mountainous landscape and tropical location have endowed the island with a range of habitats on land and in the sea. Diverse communities of plants and animals live in these habitats, and several species -- such as the St. Lucia parrot, *Amazona versicolor* -- are found nowhere else in the world. St. Lucia is also diverse in the origin of its people. During the past four centuries of a sometimes turbulent history, the Amerindians were joined by peoples who came from Africa, South Asia, and Europe. St. Lucia's diverse environment and rich cultural history have combined to make it an unusually beautiful and distinctive country.

As in other countries, St. Lucia's biodiversity is threatened by a range of human activities. Agricultural, commercial and residential developments are transforming natural habitats. Freshwater and coastal ecosystems are stressed by high sediment loads and agricultural chemicals. The disposal of raw sewage and the inadequacy of many sewage treatment facilities pose significant risks to human health and natural systems. Some marine species -- especially reef fishes and conch -- show signs of over-exploitation in several areas. Habitat transformation, pollution, and over-harvesting are common factors contributing to the decline of biodiversity around the world.

St. Lucia's biological resources are part of its capital for development, and the health of the country's economy, especially in agriculture, tourism, and fisheries, is intimately tied to the health of its environment. These resources also form an intimate part of the country's natural and cultural heritage. St. Lucia, as all countries of the world, must therefore fashion its own strategy -- reflecting its unique social, economic, and environmental conditions -- to use sustainably and conserve its biological wealth. This is the purpose of the National Biodiversity Strategy and Action Plan (NBSAP).

WHAT IS BIODIVERSITY?

Biodiversity is the term used to describe collectively the various forms of life, namely the genes, species and ecosystems found within a country or region. Ecosystem diversity relates to the variety of different environments: these not only differ in species composition, but also in physical structures. Ecosystems found on the island include coral reefs, seagrass beds, mangroves, and various types of forests. Species diversity refers to the variety of different species which exist in a specific area. Plant species diversity in St. Lucia, for example, is relatively high - over 1,300 species - and many of these species are useful for food, timber and medicines, while others serve as ornamentals. Genetic diversity is the diversity of genetic information that exists in individual organisms. For example, the *Musa* genus (plantains and bananas) includes a number of sub-species and cultivars.

In June 1992, representatives of over 175 countries gathered in Rio de Janeiro, Brazil for the United Nations Conference on Environment and Development. One of the most important agreements to come out of this "Earth Summit" was the Convention on Biological Diversity (CBD). The Convention was designed to help member countries reduce the loss of biodiversity and share in the benefits arising from new uses of genetic resources. St. Lucia -- one of the first countries to sign the treaty at the Earth Summit -- ratified the agreement on 28 July 1993.

THE CONVENTION ON BIOLOGICAL DIVERSITY

The Convention on Biological Diversity (CBD) marks an historic commitment. It is a commitment by the nations of the world to conserve biological diversity, to use biological resources sustainably and to share equitably the benefits arising from the use of genetic resources. It is the first global agreement to address comprehensively all aspects of biological diversity – genetic resources, species and ecosystems. While the Convention does not tell member countries how to conserve and use sustainably their biological resources, it does express general goals that countries should strive to achieve with respect to genetic resources, species and ecosystems. For example, among other goals, it also calls upon nations to include all ecosystems within a network of protected areas and to establish the capacity to conserve economically important genetic resources. It calls upon developed countries to provide financial and technical assistance to help developing countries conserve and use their biological resources sustainably.

To assist in the complex task of using sustainably and conserving their biodiversity, the Convention, in its Article 6, requires all member countries to develop a national strategy and action plan. The purpose of these plans is to identify important problems, evaluate the most urgent and practical actions to remedy those problems, prepare a detailed plan of action to implement those remedies, and establish a mechanism for the on-going monitoring and review of the plan's implementation. While the CBD does not specify how these strategies and action plans should be developed, experience in other countries indicates that broad participation is likely to increase public support for proposed actions to use sustainably and conserve biodiversity.

In November 1997, a Steering Committee established by the Government of St. Lucia and comprising representatives from all relevant sectors began work on the development of the National Biodiversity Strategy and Action Plan. A National Steering Committee was assembled under the direction of a Coordinator to assess the status of biological resources in St. Lucia and to identify important management, policy, and information needs. National experts were commissioned to conduct country studies in six main sectors (forest ecosystems, fresh water ecosystems, coastal and marine ecosystems, agricultural biodiversity, tourism, and socio-economic factors) to assess the current status of biological diversity, and identify issues, needs, gaps and actions. Four public consultations were held involving a wide range of stakeholders, leading to two broad-based national consultative meetings held in March and

August 1999. It is on the basis of these studies and consultations, augmented by the contributions of individual experts and agencies and by the deliberations of the National Steering Committee, that the strategy and action plan has been prepared.

The present report should therefore be read against the background of and in conjunction with the Country Study Report, which provides detailed information on biological resources, issues and trends.

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2. THE VISION

The vision for the future of St. Lucia's biological diversity includes the following elements:

- ▶ the status of biological resources is known, the people of St. 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 organisations, 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 all its people;
- ▶ national, regional and international efforts aimed at conserving biological diversity are consistent, mutually-supportive, and effective.

3. ISSUES AND TRENDS

St. Lucia's biological diversity and its current status can be characterised by the following:

- ▶ a relatively high diversity of species, as illustrated by the fact that there is a total of over 1,300 known species of plants (including seven endemics) and over 150 species of birds (including five endemics). 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).

Social, cultural and economic factors play a key role in shaping and determining the conservation, use and management of St. Lucia's biological resources. These factors can be summarised as follows:

Historical factors

Amerindian societies in the Caribbean were characterised by the diversity of indigenous plant and animal species upon which their systems of production were based. In contrast, the development of the plantation system in the 18th and 19th centuries was based on monoculture crops and on the use of many imported species. As a result, natural systems have been profoundly transformed, and rural landscapes bear little resemblance to the natural formations which existed prior to European colonisation. With the exception of the rainforest and montane forest formations, terrestrial environments have been radically transformed by human activity.

Economic factors

The economy of St. Lucia is built, and continues to depend to a large extent, on the production of goods and services for external consumption. Since the establishment of the plantation system, the main economic sector has been agriculture, with the production of cocoa and coffee, later replaced by sugar, and more recently by banana. Over the past twenty years, tourism has grown to rival agriculture as the largest sector of the economy. In the agricultural sector, bananas constitute the bulk of exports.

St. Lucia has shown slow but steady economic growth during the past decade. However, economic growth has not kept pace with population growth so per capita income has fallen slightly from US\$2,653 to US\$2,626 between 1993 and 1997. A decline in banana markets is a major factor in this slow growth, while rapid expansion in the tourism sector has kept declines in the agricultural sector from depressing the entire economy. Unemployment is relatively high (16.7% in 1996), especially among young people.

The relationship between economic development and biodiversity is complex. The tourism and fishing sectors depend, to a significant extent, on the maintenance of that diversity, and most sectors could benefit from a more systematic exploration and promotion of sustainable uses of species and genetic resources. But economic needs also generate substantial negative impacts on the resource base, because of the need to transform natural habitats for agriculture, residential and commercial construction, and public infrastructures.

Cultural factors

St. Lucia has rich cultural traditions, and there is an important reservoir of traditional and popular knowledge, much of which is related to using and managing the country's biological resources. Several activities, including the production of charcoal, lumber, furniture, dug-out canoes and utensils, depend on an intimate knowledge of elements of local biological resources. Small farming systems have incorporated several cultural influences and are based on a wide variety of species and cultivars. Folk medicine makes extensive use of local plants. There are therefore a number of positive linkages between people and the biological diversity which they use and depend on.

Cultural patterns and values have however evolved rapidly over the past decades, with a significant increase in consumption of imported goods, and the concentration of large sectors of the population in urban centres. Many St. Lucians appear not to be conscious of the importance of biological diversity, and of its current and potential impact on the quality of their lives. There are many cultural patterns, perceptions and attitudes which impact negatively on the natural environment, and on the quality of the relationship that people can develop with it.

Social factors

St. Lucia's population is growing at 1.64% annually, a rate slightly higher than the global average of 1.4%, and now totals approximately 154,540. The United Nations estimates that St. Lucia's population will be approximately 200,000 in 2025. Most of this population growth is concentrated in Castries, along the northwest coast, and in other coastal areas (where many endangered species occur). In fact, more than 50% of the population is now found in Castries and Gros Islet. The population density of this area (over 700 people per square kilometre) is extremely high and puts serious pressures on water supplies, transportation, sanitation and sewage, and solid waste disposal. This rate of population growth is increased by the migration of rural people to the capital city area in search of employment. Because of these growth patterns, remaining natural areas and processes are under severe pressure in the Castries and Gros Islet districts.

Resource tenure and access

Most agricultural lands, and a majority of forest lands, are privately owned. Two significant trends can be observed: on the one hand, many larger farms are being sold and broken into smaller holdings, while, at the lowest end of the scale, small farms between 2 and 4 hectares in size are increasing. Tenure is governed by the Napoleonic code in which all family members can lay claim to the land. This tenurial system fragments family lands, provides few incentives for long-term sustainable land management, and drives land-poor rural residents to clear steep slopes and forest areas. This has adverse impacts on people living, and activities occurring, in the lower parts of the catchment areas, and is a major threat to biodiversity.

There are however large areas of the forest which are under public ownership and management, and the government has embarked on a programme of land acquisition, for the purpose of protecting and managing important watersheds. This programme will have a positive impact on the ability of the forestry administration to conserve and manage the biological diversity contained in these areas.

All marine and most coastal ecosystems are under public ownership and management, and have suffered from a *de facto* situation of open access. This situation has however changed over the past two decades, with the establishment of new legislation for the management of marine resources and areas (1984), and with the strengthening of the agencies responsible for marine resource management, notably the Department of Fisheries in the Ministry of Agriculture, Forestry and Fisheries.

Institutional and legal context

The current institutional and legal context for biodiversity conservation and management is characterised by the following features:

- ▶ management responsibilities for biological resources are placed primarily within the Ministry of Agriculture, Forestry and Fisheries, but there is no formal mechanism for coordination among its various departments concerned with biodiversity issues;
- ▶ sectoral management agencies are strong, and have clear mandates for the management of biological diversity in specific sectors (forestry and wildlife, fisheries and marine resources, and agriculture);
- ▶ research and data management programmes and activities are insufficient to meet the information needs for biodiversity conservation and use in the country;
- ▶ legal instruments for the conservation and management of publicly owned resources appear generally adequate, but mechanisms for conservation and management of biodiversity on private property are weak;

- ▶ a new Physical Planning and Development Act is being considered, which will replace the existing legislation concerning physical planning and development control. The new Act will include Regulations governing the conduct of Environmental Impact Assessments;
- ▶ even when adequate legal instruments are in place, enforcement is often lacking;
- ▶ the country has established a small number of innovative participatory and collaborative natural resource management arrangements which provide examples of institutional arrangements which may be suitable to other areas.

Policy context

The policy context within which biodiversity conservation and management programmes are designed and implemented is characterised by the following:

- ▶ generally, low priority is given to biodiversity issues, which are not mentioned in the main national planning and policy making instruments. This reality is reflected in insufficient funding for biodiversity programmes;
- ▶ there is no overall policy framework to guide the conservation and management of biological diversity, except for the plan for a System of Protected Areas, which was prepared in 1992 under the auspices of the St. Lucia National Trust, but which has not been formally approved by government;
- ▶ there is no overall land and resource use plan. There are physical development plans, at various stages of formulation, for specific regions;
- ▶ policy guidance on biodiversity issues is provided, primarily, by the legislation governing individual sectors (Fisheries Act; Wildlife Protection Act; Forest, Soil and Water Conservation Ordinance), and by the relevant sectoral management plans (1992-2002 Forest Management Plan);
- ▶ there are a number of other sectors where policies impact significantly on the country's biodiversity. Indeed, it can be observed that the status of that diversity is determined, to a large extent, by prevailing policies in other sectors, namely:
 - * agricultural development policies, which determine land use patterns as well as the use of selected species and varieties;
 - * taxation policies and fiscal incentives, which have an impact on land use patterns and on technologies used in various sectors;
 - * development control policies and procedures, which regulate many aspects of the construction and industrial sectors;
 - * tourism development policies, particularly in relation to land use;

- ▶ regional and international agreements also provide policy guidance and direction, sometimes in very specific terms. Conventions of which St. Lucia is a contracting Party and which relate directly to biological diversity are as follows (see Country Study Report for detailed listing and description of status):
 - * the United Nations Convention on Biological Diversity;
 - * the Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES);
 - * the United Nations Convention on the Law of the Sea, and the Agreement for the Implementation of the Provisions of the UN Convention on the Law of the Sea Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks;
 - * the Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region, known as the Cartagena Convention;
 - * the Convention Concerning the Protection of the World Cultural and Natural Heritage;
 - * the International Convention for the Regulation of Whaling;
- ▶ there exist some discrepancies between the national frameworks and instruments on the one hand, and the requirements of international agreements on the other.

A summary of issues, which are described in greater detail in the Country Study Report, is presented in the following appendices:

Appendix 1: trends affecting St. Lucia's biodiversity and causes of these trends;

Appendix 2: relationship between biodiversity and the main social and economic sectors.

4. AIM AND OBJECTIVES

The aim of the National Biodiversity Strategy and Action Plan (NBSAP) is to optimise the contribution of biological diversity to the sustainable economic, social and cultural development of St. Lucia.

The objectives of the strategy and action plan are to:

- ▶ conserve the country's diversity of ecosystems, species and genetic resources;
- ▶ promote sustainable uses of these resources in support of human development;
- ▶ encourage the equitable distribution of the benefits derived from the use of biodiversity;

- ▶ facilitate the participation of people and institutions in the management of biodiversity.

In order to achieve these objectives, the present strategy and action plan has been developed for the specific purpose of:

- ▶ providing a mandate and a set of policy directions to management authorities, developers and policy-makers;
- ▶ giving a reference point to government, non-governmental organisations, community-based groups and the general public to assist in the design and implementation of programmes and actions related to biodiversity;
- ▶ helping garner support, internally and externally, for the implementation of projects related to biodiversity.

5. APPROACH

An analysis of the issues and trends affecting St. Lucia's biological diversity reveals that they are the products of the patterns of development and management which have prevailed throughout the country's modern history. The vision for St. Lucia's biodiversity, as expressed in section 2 above, demands the adoption of a new approach to development, based on the principles of equity, sustainability and social justice.

A shift towards this new approach to development will require new management systems, at all levels, characterised by the following elements:

- ▶ *equity*: all stakeholders should have the opportunity to access the country's natural capital, and to generate benefits from the use of natural resources;
- ▶ *participation*: all sectors of society should have the opportunity to participate in the formulation and implementation of decisions which affect their lives and their future;
- ▶ *institutional collaboration*: management requires functional linkages and collaborative approaches among a wide range of institutions within government and civil society;
- ▶ *decentralisation and co-management*: whenever desirable and possible, management arrangements should be decentralised, and institutional collaboration should be governed by formal co-management agreements;
- ▶ *transparency*: the rationale for policies and decision, as well as the modalities of their implementation, should be accessible to all within society;

- ▶ *acceptance of change*: natural and human systems are constantly changing, and this reality must be accepted by all. There is no static condition, and change must be managed and built upon;
- ▶ *use of appropriate time frames*: management systems must recognise that the adoption of new management systems may take time, and that realistic time frames must be used in all interventions;
- ▶ *building of resilience*: there is need to build the capacity of systems and institutions to cope with and adapt to change;
- ▶ *enhancement of diversity*: in both natural and human systems, diversity is considered an asset and a guarantee of resilience and flexibility. It must therefore be maintained and enhanced whenever possible;
- ▶ *optimal sustainable use*: uses of biological resources must be sustainable. They must also be optimised, in order to ensure that they contribute as fully as possible to social and economic development;
- ▶ *increase in productivity*: in many instances, the conservation of biological diversity requires that systems be made more productive, to maximise benefits and reduce undesirable impacts;
- ▶ *respect for and reliance on experience and tradition*: in the design and implementation of new systems, there is need to build on the assets of the past, in a realistic manner;
- ▶ *innovation*: at the same time, there is need for new approaches and tools, and for technological innovation in all aspects of production and management;
- ▶ *flexibility in design and implementation*: management systems must not be rigid, and must be able to adapt to rapidly changing conditions;
- ▶ *provision of alternatives*: in cases where uses and practices are considered undesirable and may not be continued, there is need to offer realistic alternatives which guarantee, to the maximum extent possible, continued access to goods and services;
- ▶ *provision of benefits and incentives*: management must be based on voluntary compliance and self-enforcement, and is therefore helped by the provision of direct social and economic benefits and incentives to people;
- ▶ *initiative and use of forward planning*: management must not be reactive, it must be based on clear objectives and be able to anticipate issues and needs;

- ▶ *multi-disciplinarity and use of cross-sectoral approaches*: human and natural systems are so complex that their management needs to benefit from all skills and sources of knowledge, and should be based on an appreciation and understanding of that complexity;
- ▶ *preference for in situ conservation*: in all conservation activities, preference must be given, whenever possible, to maintaining species and genetic diversity in their natural state, rather than creating artificial conditions;
- ▶ *use of knowledge*: all management systems and activities must be based on the best available information, and appropriate measures must therefore be taken to ensure that such information is generated and made accessible;
- ▶ *precaution*: the management of natural systems must be guided by the precautionary principle, which demands that preference be given for uses and interventions which reduce risk and are least likely to provoke irreversible changes;
- ▶ *national interest, global responsibility*: all management systems must be guided by the national needs, but must also assume the country's responsibility to contribute to regional and international conservation objectives.

6. CONDITIONS AND REQUIREMENTS

The National Biodiversity Strategy and Action Plan must be part of a broader national initiative aimed at achieving environmental and economic sustainability, enhancing the quality of the lives of all St. Lucians, and preserving the nation's natural capital. It is recognised that the objectives outlined in section 4 above will not be met, and that the programmes described below will not be realised, in the absence of a radical shift in attitudes and approaches, and without the definition of a new policy framework for environmental management and sustainable development in the country.

This policy framework must recognise the critical role played by natural resources in supporting social and economic development, and should therefore integrate the conservation imperatives within the broader development agenda. It must accept that the quality and sustainability of all development processes will depend on the proper conservation and management of the country's fragile natural assets.

Effective implementation of the NBSAP will therefore require:

- ▶ the formulation, on the basis of previous studies and plans, notably the National Environmental Action Plan (NEAP), of a national environmental policy;
- ▶ the establishment of a national policy and coordinating body to guide implementation, monitoring and review of that national policy;

- ▶ the formulation, adoption and implementation of a comprehensive land policy to guide spatial development, land use and terrestrial resource allocation.

In addition, the success of the NBSAP will depend on the simultaneous adoption and implementation of suitable policies and programmes in key sectors, notably:

- ▶ *watershed and water resources management*: there is need for a comprehensive national policy to guide the management of watersheds and water resources, and for the formulation and implementation of integrated management plans for critical watershed areas;
- ▶ *agriculture*: there is need for a progressive transformation of the agricultural sector, with the diversification of production, the reduction of negative environmental impacts, and the strengthening of linkages between agriculture and other sectors of the economy, notably tourism;
- ▶ *tourism*: as the fastest growing sector of the economy, tourism needs to be guided by policies which guarantee the integrity of the natural resource base, increase the sustainable use of natural and cultural resources in support of tourism development, create positive linkages with people and their culture, and enhance the relationship between tourism and other sectors;
- ▶ *fisheries*: there is need to manage and develop the sector through the modernisation of fishing techniques, facilities and gear, increased production, the advancement of the social status of fishing families and communities, and the enhancement of linkages with other sectors of the economy.