Saint Lucia
National Climate Change Policy and Adaptation Plan

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FOREWORD BY THE MINISTER

I am indeed pleased to present Saint Lucia's National Climate Change Adaptation Policy and Strategy. This is the culmination of an involved, participatory process undertaken under Component Four of the Caribbean Planning for Adaptation to Climate Change (CPACC) Project.

St. Lucia's Climate Change Adaptation Policy & Strategy is based on an acceptance that climate change is occurring and that it will continue to occur even if immediate steps are taken to reduce global warming. It is also accepted that the effects thereof are likely to have a profound, and in sum, adverse, impact on the economic, social, and environmental aspects of life in St. Lucia and other Small Island Developing States. This Policy and Strategy bears testimony to St. Lucia's commitment to confronting and addressing the challenges posed by the climate change phenomenon. Although a country of limited economic, financial and technological resources, we are prepared to adopt an integrated and coordinated approach to planning for, and ameliorating the effects of, climate change.

On behalf of the Government of St. Lucia, I extend sincere thanks to the Organisation of American States, and the Regional Project Implementation Unit of the CPACC Project for the funding and support provided during the process which culminated in the preparation of this report. I also extend thanks to the National Climate Change Committee, the many stakeholders who found the time to make an input and the consultants who assisted us. Finally, I must express thanks to the staff of the Ministry of Physical Development, Environment and Housing who coordinated and spearheaded the process and ensured its successful completion.

Honourable Ignatius Jean
Minister of Physical Development Environment and Housing

BACKGROUND

St. Lucia is a small-island developing state (SIDS) located in the Eastern Caribbean. It lies between 13°43' and 14° 07' North and 60° 05' West. It is situated 34 km south of Martinique and 39 km north of St. Vincent. Saint Lucia is part of the volcanically active Lesser Antillean island arc which includes all of the islands from Grenada to Saba. The youngest volcanic rocks are in the Soufriere region in the south of the island. The last major explosive eruption occurred about 40,000 years ago but there is evidence of numerous minor eruptions since then. The most recent of these occurred in 1766 when an explosion in the Sulphur Springs spread a thin layer of ash over the southern half of the island. At the present time, visible activity is confined mainly to the Sulphur Springs which is the most active geothermal area in the West Indies, but there are minor hot springs in several other locations. Earthquakes of both volcanic and non-volcanic origin are fairly common.

The island is 43 km long and 22.5 km wide. It is rugged with steep mountains and deep valleys. The highest peak is Mt. Gimie (950m).

St. Lucia is located within the Trade Wind belt. These winds approach from directions between the east-north-east to east-south-east. Stronger, more northerly, winds are common from December to May. Average temperature is about 78° F (27°C). Relative humidity is 75%, with little variation.

The island's climate is characterised by a dry season which runs from January to May, and a wet season from June to December. The hurricane season extends from late June to the end of November. The island has been hit by a number of storms and hurricanes during the last several decades. During heavy rains, flooding often occurs in low-lying areas.

Despite its small size, St. Lucia possesses a high degree of ecosystem diversity. Approximately 35% of the land surface is covered by natural forest and the rainforest in particular is home to a wide range of flora and fauna. These include one of the rarest birds in the world, the St. Lucia Parrot (*Amazona versicolor).*

The most endangered terrestrial species occupy the coastal and inland habitats. Examples of these are the White-Breasted Thrasher (*Ramphocinclus brachyrus*), a bird species found on the East Coast of St. Lucia and endemic only to St. Lucia and Martinique; the St. Lucia Racer (*Liophis ornatus*), a snake restricted to Maria Island, its last refuge in the entire world; the *Acalypha elizabethae*, a rare endemic plant species found on Petit Piton; and *Beilschmieda pendula*, of which a single specimen found in the rainforest at Des Cartiers is being monitored for fruit production.

The wetlands of St. Lucia are relatively small but are representative of most wetland ecosystems. The total area of St. Lucia's wetlands has been reduced from 320 hectares to 193 hectares, with some areas currently under considerable stress.

Reef systems along the west coast are more diverse than those of the east coast. In general, fringing reefs are located mainly along the south-east (Anse des Sables), central west (off the districts of Anse-la-Raye, Soufriere and Laborie), and north-west coasts (Choc Bay). The healthiest and most diverse reefs are found along the central west coast off Soufriere. The reefs of St. Lucia are under threat from high levels of sedimentation and other land-based pollutants and, therefore, nearshore fisheries are also threatened. Natural disasters such as hurricanes and storms have also taken a toll on the island's reef systems.

Seagrass beds are common along St. Lucia's coast and are composed mainly of turtle grass (*Thalassia testudinum*), manatee grass (*Syringodium filiforme*) and to a lesser extent, shoal grass (*Halodule wrightii*) species. 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 turtle are known to nest in St. Lucia: the hawksbill (*Eretmochelys imbricata*), the green turtle (*Chelonia mydas mydas*) and the leatherback (*Dermochelys coriacea*). The Grande Anse beach is the largest nesting site on the island for leatherback turtles.

St. Lucia's population was estimated at 157,898 in 2001. The population growth rate declined from 1.47 percent in 2000 to approximately 1.24 percent in 2001. Crude birth and death rates stood at 17.3 and 6.2 respectively in 2001. Economically active adults represented 55.02 percent of the population.

The economy of St. Lucia is an open one, with the value of trade (the sum of imports and exports) as a percentage of GDP recorded at 0.512 percent in 2001. As a percentage of GDP, Imports of Goods and Non-Factor Services were recorded at 64.35 percent, while Exports of Goods and Non-Factor Services were 54.7 percent. St. Lucia is classified as a lower-middle income country, with a per capita GDP of EC $7010.78 (US$2,580).

St. Lucia's major employer is agriculture, with bananas constituting the island's major export. However, production has declined in recent years and tourism is now the largest earner of foreign exchange. There is also an important manufacturing sector and international financial services is seen as a potential growth area.

The island is located within a tectonically active area. Therefore, the possibility of significant earthquakes is a real one. In recent years several small tremors have been recorded. The island is vulnerable to tropical storms and hurricanes which occur in the Western Atlantic between the months of July and November each year. This vulnerability is increased by the high concentration of infrastructure (hotels, ports, roads, settlements) located along the coast, often in low-lying reclaimed areas.

As previously stated, St. Lucia has an open, developing economy which is heavily dependent on tourism and agriculture. This reality, combined with: (a) geographic location within the hurricane belt; (b) small size; (c)

location of major settlements and infrastructure in low-lying coastal areas prone to flooding and storm damage; and limited human and financial resources; serves to make St. Lucia highly vulnerable to the impacts of climate change.

PREAMBLE

The Government of St. Lucia accepts the conclusions of the Inter-Governmental Panel on Climate Change (IPCC) and other expert scientific bodies that global temperatures are increasing due to the release of so-called Greenhouse Gases (GHGs) into the atmosphere as a result of the burning of fossil fuels and other human activities. Government further accepts the scientific predictions that this trend of global warming is likely to continue for several decades, even if the causative activities were to cease with immediate effect. It is further accepted that global warming will result in climate change which may be manifested, *inter alia*, by:

1. Sea level rise;
2. Changes in local and regional temperature regimes;
3. Changes in rainfall patterns;
4. More frequent and severe weather events such as droughts, rainstorms and hurricanes.

The Government of St. Lucia is of the conviction that as a Small Island Developing States (SIDS) characterised by:

- Limited land space;
- Vulnerability to the effects of changes in marine conditions, due to its "wrap-around" coastline;
- Limited human and economic resources to address adverse impacts;
- The location of the population and the critical infrastructure on low lying coastal lands;
- St. Lucia's location within the hurricane belt;

St. Lucia will be highly vulnerable to the anticipated impacts of climate change. Scientific research has indicated that these impacts are likely to include, among others:

- The flooding and submergence of coral reefs, wetlands and coastal lowlands due to sea level rise;
- Loss of marine and terrestrial biodiversity as a result of changes of temperature and rainfall;
- The depletion of water supplies;
- Reduced agricultural productivity;
- An increase in the occurrence of pests and vectors, contagious diseases and stress-related diseases;
- Increased coastal erosion and infrastructure damage as a result of the increased intensity of cyclonic events and storm surges.

Concern about climate change is heightened by the evidence from around the world which suggests that this phenomenon is already occurring. Such evidence includes:

- The loss of coral reefs in the Seychelles as a result of an increase in coastal water temperatures;
- The submergence of low-lying islands in the Maldives due to sea level rise;
- The melting of the Polar ice caps;
- The increased frequency of cyclonic events in the Caribbean Basin over the last two decades.

The Government of St. Lucia recognises that Climate Change is a major environmental phenomenon with serious ramifications for the country and all nations of the world. Government, however recognises that although St. Lucia and other Small Island Developing States contribute only a minute amount of total global greenhouse gas emissions, they bear an overwhelmingly disproportionate level of risk to the impacts of climate change due to their inherent vulnerability.

In 1993, St. Lucia ratified the ***United Nations Framework Convention on Climate Change*** (UNFCCC). Government remains committed to meeting the goals of the Convention which are essentially to reduce global greenhouse gas emissions and to address the actual and anticipated effects of climate change. Accordingly, Government will take all feasible and desirable action at the national, regional and international levels in order to foster the mitigation of global greenhouse gas emissions. Notwithstanding, Government is of the conviction that St. Lucia, given its limited ability to address the issues of reducing emissions, and, more importantly, its vulnerability to the effects of climate change, must place urgent and major emphasis on adapting to climate change.

It is recognised that not all issues and processes relating to climate change have been fully understood and that further research is required. Notwithstanding, it is concluded that there is already sufficient evidence to merit urgent action and that incomplete knowledge is not an acceptable basis for taking no action.

Accordingly, Government sees the need for a policy to guide national action to address the effects of climate change. Such a policy must create the environment for developing a coordinated holistic approach which addresses the needs and concerns of all sectors of society in a manner which serves to ensure the sustainable development of the country.

POLICY GOALS AND OBJECTIVES

The Aim of this ***National Climate Change Adaptation Policy*** is to foster and guide a national process of addressing the short, medium and long term effects of climate change in a co-ordinated, holistic and participatory manner in order to ensure that, to the greatest extent possible, the quality of life of the people of St. Lucia, and opportunities for sustainable development are not compromised.

The Objectives of this policy are to:

1. Foster the development of processes, plans, strategies and approaches to:

    - Avoid, minimise or adapt to the negative impacts of climate change on St. Lucia's natural environment including ecosystems, species, genetic resources, ecological processes, lands and water;
    - Avoid, minimise or respond to the negative impacts of Climate Change on economic activities;
    - Reduce or avoid damage to human settlements and infrastructure caused by Climate Change;
    - Avoid or minimise the negative impact of climate change on human health;
    - Improve knowledge and understanding of climate change issues in order to obtain broad-based support for, and participation in climate change activities;
    - Conduct systematic research and observation on Climate Change related factors in order to improve forecasting and to supply the neccessary planning and response measures

2. Foster the development and application of appropriate legal and institutional systems and management mechanisms for planning for and responding to climate change;

3. Foster the development of appropriate economic incentives to encourage public and private sector adaptation measures.

POLICY PRINCIPLES

The Government of St. Lucia, in collaboration with other relevant entities, will:

- Fulfil to the extent possible, its commitments under the *United Nations Framework Convention on Climate Change*, to which St. Lucia is party;

- Participate to the fullest extent possible in negotiations on various aspects of the Convention, its protocols, and articles. insofar as these will meaningfully impact on the ability of St. Lucia to address issues relating to climate change or on its development in general;

- Collaborate as appropriate and feasible, with other regional and international states and organisations which pursue confluent agendas in climate change;

- Endeavour to ensure that society, at all levels and in all sectors is adequately informed on climate change and its implications for the nation and the role that it must play in this respect;

- Endeavour to obtain, to the extent feasible, the involvement and participation of all stakeholders at the national level in addressing issues related to climate change;

- Endeavour to ensure that such involvement and participation occurs on an appropriately coordinated basis which minimises duplication of effort and conflict and which ensures efficient use of resources and the creation of positive synergies;

- Endeavour to foster or create an institutional, administrative and legislative environment which engenders/ supports the effective implementation of climate change adaptation activities;

- Promote and support research and information gathering at the national, regional and international levels on aspects of climate and its impacts as they pertain to St. Lucia;

- Ensure that adequate planning (physical, socio-economic etc.) is undertaken on a continual basis to address the impacts of climate change. Such planning should be undertaken, not in isolation but in the wider context of sustainable development;

- Endeavour, to the extent possible and necessary, to develop national human and institutional capacity in all aspects of climate change research, response, planning, etc;

- Create an enabling environment for the adoption of appropriate technologies and practices that will assist in meeting national and international commitments with respect to the causes and effects of climate change;

- Procure/ allocate financial and other resources, as appropriate and feasible, to ensure that Climate Change is addressed in the manner required;

- Recognizing that the resilience of the natural environment is key to coping with climate change, do all possible to enhance and maintain environmental quality;

- Recognizing that economic resilience is key to coping with climate change, do all possible to promote the development of a strong and diversified economy.

APPLICATION

This policy shall guide the work of all Governmental, statutory, Non-governmental and Civic entities which are involved in, or which may seek to become involved in addressing Climate Change issues as they affect St. Lucia.

POLICY DIRECTIVES

Coastal and Marine Resources

The Government of St. Lucia recognises that coastal and marine resources are at greatest risk from the effects of climate change due in large measure to the fact that: a) Coastal ecosystems such as coral reefs are very sensitive to changes in temperature; and b) sea level rise, which is one of the primary anticipated results of climate change, will affect numerous ecosystems as well as the coastline itself. Impacts are expected to include:

- Inundation of coral reefs, seagrass beds and mangrove swamps as a result of sea level rise;
- Erosion of beaches and coastal lands due to sea level rise and changing coastal processes;
- Loss of fishery production due to increased sea temperatures and sea level rise;
- Fish kills and coral die-off due to increased sea water temperatures

In order to address impacts of climate change on coastal and marine resources, the Government of St. Lucia, in collaboration with other relevant entities, will:

1. Ensure the continuation, expansion and strengthening of coastal monitoring and data collection activities in order to improve decision making;

2. Promote and facilitate the undertaking of a national assessment of coastal areas and resources at risk;

3. Adopt short medium and long-term measures to protect coastal lands and to increase the resilience of coastal ecosystems and resources. (Such measures may include construction of coastal defence structures, enforcement of setbacks and restoration of coastal wetlands);

4. Promote and enable the restoration of damaged or destroyed coastal resources and coastal ecosystems where possible and technically feasible;

5. Develop a comprehensive national land use and management plan, which *inter alia*, incorporates climate change concerns and which, based upon such concerns, makes prescriptions regarding the location of coastal developments;

6. Identify and promote alternative fishery and resource use activities (e.g. mariculture) where impacts on ecosystems and natural resources preclude the continuation of traditional activities;

7. Foster increased awareness and knowledge on the part of the general public regarding climate change impacts on the coastal and marine environment.

Terrestrial Resources, Terrestrial Biodiversity and Agriculture

Terrestrial Resources, Terrestrial Biodiversity.

St. Lucia's soils, forests and biodiversity are among the key resources which support human existence on the island. Government accepts the scientific evidence indicating the likelihood of significant impacts on terrestrial resources including soils, forests and biodiversity. These impacts are expected to include, *inter alia*:

- Changes in the composition of natural vegetation due to changing climatic, hydrological and edaphic conditions;

- Increased vulnerability of threatened ecosystems due the same conditions;

- Increased soil fragility and hence, erosion;

- Alterations in plant-plant, animal-animal and plant-animal associations. Government is fully cognizant of the fact that terrestrial resources are essential for the continued existence of human populations.

In addressing the foregoing and related issues, the Government of St. Lucia, in collaboration with other relevant entities, will:

1. Develop or improve the basis for sound decision making by promoting and fostering the developing of capacity to undertake research into and analysis of the relevant climate change processes (including forecasting and data collection);

2. Undertake measures in the short medium and long term to increase the resilience of terrestrial resources. Measures shall include soil conservation, agro-forestry and the establishment of special conservation/ management areas;

3. Develop a comprehensive national land use and management plan, which, *inter alia*, incorporates climate change concerns and which based upon such concerns, makes prescriptions regarding the location of future settlements and urban development without compromising water supply and other such requisites for the sustainability of settlements;

4. Develop or strengthen a national adaptation strategy for the forestry sector to address impacts over the short, medium and long term;

5. Ensure the inclusion of Climate Change considerations during the implementation of strategies and plans including the National Biodiversity Strategy and Action Plan; the National Action Plan for the Desertification Convention, the National Land Policy and the National Forest Action Plan;

6. Ensure the effective operation of the National Land Conservation Board and other relevant bodies.

Agriculture

Agricultural production is important for national food security as well as for the generation of employment and foreign exchange. It is recognised that Climate Change may seriously impact agricultural production and threaten food security. Risks to agriculture are likely to include:

- Increased water demand and reduced water supply due to increased temperatures;
- Increased occurrence of agricultural pests;
- Reduced production due to modified and agro-climatic regimes;
- Accelerated soil erosion and increased salinisation.

In order to address such impacts and to promote the implementation of appropriate adaptation measures, the Government of St. Lucia, in collaboration with other relevant entities, will:

1. Develop a sound basis for decision-making, by conducting further and more detailed research to assess, *inter alia*:

- The risks posed by climate change to the productivity of agricultural crops, and to food security. Specific attention will be placed on research to determine impacts on banana, cocoa and other commercially important crops;

- The impact on water availability for agriculture. Special emphasis will be placed on irrigation;

- The impact of climate change on soil productivity and soil management. Consideration will be given, *inter alia*, to such issues as salinisation and erosion;

- The impact of climate change on pest-crop interactions;

2. Develop a national adaptation strategy for the agricultural sector to address impacts over the short, medium and long term;

3. Incorporate the national adaptation strategy for the agricultural sector into the national physical and spatial planning process;

4. Include adaptation policies into the national policy formulation process.

5. The adoption of appropriate adaptation measures to address areas of immediate need where this does not jeopardise or contradict the development of long-term, sustainable strategies for the agricultural sector. Such measures may include soil conservation measures and construction of water storage and irrigation facilities for crop production.

6. Formulate and implement any other such strategies and measures which may help to ensure food security sustainable food production and sustainability of forest resources.

Human Settlements

Over the years, significant investment has been made by Government and Civil Society in the development of human settlements around the island. It is recognised that Climate Change is likely to impact negatively on human settlements, especially as most major settlements are situated in low-lying coastal areas. Possible impacts include:

- Damage to coastal property utilities and infrastructure due to storm surges;
- Damage to houses, businesses and other properties due to increased intensity and frequency of cyclonic events.

In order to address such impacts and to promote the implementation of appropriate adaptation measures, the Government of St. Lucia, in collaboration with other relevant entities, will:

1. Develop or improve the basis for sound decision making by promoting and fostering the development of capacity to undertake research into and analysis of the relevant climate change processes which may affect coastal settlements. These may include, *inter alia*, sea level rise;

2. Undertake a comprehensive assessment of human settlements and related infrastructure at risk from the effects of climate change. The results thereof will be incorporated into national land use and disaster management plans;

3. Develop a comprehensive national land use and management plan, which *inter alia*, incorporates climate change concerns and which based upon such concerns, makes prescriptions regarding the location of future settlements and urban development without compromising water supply and other such requisites for the sustainability of settlements;

4. Develop and implement a plan for the relocation or protection of settlement utilities and infrastructure at risk from the effects of climate change;

5. Ensure the incorporation of climate change considerations into existing or proposed national emergency plans;

6. Promote the development and enforcement of a building code which addresses climate change considerations including hurricane resistance; energy/heat efficiency and flood resistance;

7. Ensure that national infrastructure standards (jetties, roads, bridges. etc.) are adequate to withstand the impacts of climate change.

8. Integrate Climate Change considerations into the physical planning process including the implementation of Environmental Impact Assessment requirements;

9. Implement fiscal measures where appropriate to encourage the adoption of building codes and other relevant measures;

10. Foster increased public awareness of climate change and its effects on human settlements;

11. Encourage the financial sector to develop mechanisms aimed at assisting human settlements affected by climate change.

Water Resources

Water is a vital resource which is the basis of all life, and as such, the protection of St. Lucia's freshwater resources is of key importance. Scientific research strongly suggests that water resources worldwide will be affected by climate change. Likely impacts include:

- Changes in temporal and spatial distribution due to increased climate variability and occurrence of severe events such as cyclones and droughts;
- Contamination of ground water due to salt-water intrusion arising from sea level rise;
- Sedimentation of dams and reservoirs due to increased soil erosion arising from the greater frequency of

extreme rainfall events;
- Water shortages due to increased drought.

In addressing these and other related issues, the Government of St. Lucia, in collaboration with other relevant entities, will:

1. Develop or improve the basis for sound decision making by promoting and fostering the developing of capacity to undertake research into and analysis of the relevant climate change processes (including forecasting and data collection);

2. Undertake a comprehensive inventory of all water resources including surface and ground water;

3. Promote the strengthening of national water management agencies to ensure the sound management of the island's water resources;

4. Develop a long-term national water management plan which incorporates and addresses Climate Change concerns including catchment and watershed protection and saltwater intrusion;

5. Undertake reforestation and other measures to increase the resilience of watersheds and catchments to maximise water availability and to reduce soil erosion and sedimentation;

6. Assess and address needs for water storage and distribution infrastructure to ensure water availability during drought periods;

7. Promote initiatives to identify and, where necessary, exploit non-traditional water sources such as groundwater.

Tourism

Tourism is one of the key economic sectors in St. Lucia and its share of GDP has grown rapidly over the last several years. Government recognises that climate change is likely to impact negatively on the tourism industry. Impacts are expected to include:

- Damage to and destruction of hotels and other tourism infrastructure located in coastal areas susceptible to storm surges, erosion and sea-level rise;

- Loss of economic returns due to the possible changes in, or loss of, coral reefs, beaches, natural

forests and other natural resources and attractions;

- Reduced visitor arrivals as a result of a higher frequency of extreme weather events such as hurricanes, as well as reduced inducement for travel as a result of higher temperatures in traditional tourism centres;

Negative changes in water and food arising from changes in precipitation levels and distribution, loss of forest cover and related factors.

In an effort to ensure appropriate approaches to adaptation in the tourism sector, the Government of St. Lucia, in collaboration with other relevant entities, will:

- Conduct the necessary research and information gathering in order to strengthen the basis for sound decision-making;

- Ensure that appropriate physical planning guideline such as coastal setbacks are enforced for new tourism developments;

- Work with stakeholders in the tourism sector to develop a strategic plan which incorporates climate change considerations and appropriate measures such as water conservation programmes as well as general sustainability concerns.

Financial Sector

The Government of St. Lucia recognises the potential effects of climate change on the financial sector including:

- The effects of catastrophic events such as severe hurricane damage on lending institutions, insurers, reinsurers and property owners;

- The diversion of financial resources from productive investment to restorative activities.

In an effort to ensure appropriate approaches to adaptation in the financial sector, the Government of St. Lucia, in collaboration with other relevant entities, will, where feasible:

1. Implement fiscal and financial measures in order to achieve equitable distribution of the economic burden between stakeholders;

2. Ensure the adoption and implementation of building codes and other standards in order to minimise risk from climate change;

3. Sensitise stakeholders about the effects and implications of climate change;

4. Collaborate with the financial sector to develop appropriate risk management measures and regimes to address the impacts of Climate Change.

Human Health

The Government of St. Lucia recognises the fact that Climate Change is likely to have direct implications for human health in St. Lucia. Climate change is expected to result in, *inter alia*:

- The increased incidence of mosquito and other vector-borne diseases (such as dengue fever) as higher temperatures favour the proliferation of mosquitoes and other disease carriers;

- A higher occurrence of heat and stress-related illnesses and conditions;

- An increase in water-related diseases, especially water borne diseases, particularly following extreme rainfall events.

It is further recognised that the impacts of climate change on coastal and terrestrial resources, food supply, water production and the various economic sectors are likely to have indirect and significant effects on human health.

Recognising that a healthy population is fundamental to sustainable development; and in an effort to promote appropriate and adequate adaptation to the health implications of climate change, the Government of St. Lucia, in collaboration with other relevant entities, will:

1. Conduct the necessary health-related research and information gathering in order to strengthen the basis for sound decision-making;

2. Ensure that appropriate short, medium and long-term measures to address health related climate change issues are incorporated into National Health Plans;

3. Sensitise and educate health personnel and the public about climate-change related health matters;

4. Ensure that to the extent possible preventive measures and curative resources such as vaccines and medications are available as needed.

PLANNING AND MANAGEMENT MECHANISMS

The Government of St. Lucia will ensure that the following steps are taken in order to achieve the fulfilment of the goals, objectives, principles and directives of this policy:

1. Establishment of an effective legal and institutional framework for the maintenance and enhancement of the natural environment;

2. Establishment of a national Climate Change database and information system to be used by all relevant agencies;

3. Development and enforcement of building codes which incorporate climate change concerns;

4. Development and application of appropriate engineering standards for roads, jetties and other such structures which include climate change considerations;

5. Incorporation of Climate Change considerations into Government's budgetary process;

6. Establish or strengthen the Coastal Zone Unit or similar body to undertake appropriate monitoring and risk assessment and to formulate appropriate response adaptation measures;

7. Collaboration between the Ministries of Planning and Education, and other stakeholders, in order to formulate and implement a comprehensive national public awareness and education programme on Climate Change;

8. Development and implementation of joint programmes for the monitoring and conservation of coastal ecosystems and resources through collaboration between the Department of Fisheries and communities and resource users;

9. Development and use by the Public Health Department, of appropriate monitoring methods and indicators to determine the impacts of Climate Change on human health;

10. Development of an Agriculture Land Use and Management Plan by the Ministry of Agriculture which embraces Climate Change concerns and which will be integrated in a comprehensive National Land Policy;

11. Incorporation of Climate Change concerns by the National Emergency Management Office into the national disaster planning and response process;

12. Strengthening of the Meteorology Unit in order to improve data collection, management and analysis;

13. Development of mechanisms to ensure that the information generated through research and monitoring is incorporated into the decision-making process.

ACCOUNTABILITY

The Ministry of Physical Development shall have administrative oversight and responsibility for Climate Change initiatives. All Ministries or agencies shall have responsibility for implementing specific activities or programmes to address Climate Change and shall report as required to report to the National Climate Change Committee or to the Ministry of Physical Development.

Adaptation to Climate Change is a responsibility of all and as such, Civil Society is encouraged to collaborate with Government in the development of appropriate measures for accountability.

MONITORING AND REVIEW

The implementation of this *Climate Change Adaptation Policy* shall be monitored by the broad-based National Climate Change Committee or its successor body. Government shall review the Mandate, Terms of Reference and composition of this entity with a view to better equipping it to fulfil its mandate. The Committee shall report to the Cabinet of Ministers through the Minister of Planning, Development, Environment and Housing on a semi-annual basis, as well as at any other time deemed necessary. The National Climate Change Committee shall keep this policy under regular review, and shall monitor implementation of the directives of this policy. The National Climate Change Committee shall present to Cabinet an annual report on measures that have been undertaken to implement this policy. On the fifth anniversary of the date of this policy, the National Climate Change Committee shall conduct a public review of this policy to determine its effectiveness in achieving its goals and objectives.

REFERENCES

Implementation of the CCAP will be undertaken with due cognisance of, and consideration to, the following and other relevant legal and policy instruments:

- Saint Lucia's Initial National Communication on Climate Change
- The Fisheries Act
- The Forest & Wildlife Act
- The Physical Planning Act
- National Land Policy
- St. Lucia Tourism Strategy
- Watershed Management Project Report
- Biodiversity Country Study Report of St. Lucia
- National Biodiversity Strategy & Action Plan
- Land Conservation & Improvement Act
- St. Lucia Health Sector Plan
- Fisheries Management Plan
- Environmental Health Plan
- Northwest Coastal Conservation Project Reports
- Public Sector Improvement Plan
- Climate Change Issues Paper
- St. Georges Declaration of Principles for Environmental Sustainability in the OECS
- The SIDS Programme of Action

THE NATIONAL CLIMATE CHANGE STRATEGY

The following matrices summarise the National Strategy for Adaptation to Climate Change. The Strategy is divided into a number of sub-components, each of which corresponds to a subject area under the policy directives provided in the Climate Change Policy. As such, the Strategy is a direct derivative of the Climate Change Policy, and it is intended to serve as a blueprint for implementation of the Policy.

Levels of priority are assigned to the various strategies and actions. Many of these are considered to be of high priority. Some sources of funding are also identified, in particular, the:

1. (Proposed) Mainstreaming for Adaptation to Climate Change (MACC) Project;
2. Canadian Climate Change Development Fund (CCCDF).

Given the fact that so many strategies and actions are of high priority and in need of early attention, the financial resources allocated under MACC and CCCDF may be inadequate, especially if all 12 Caribbean countries to benefit thereunder identify similar needs.

Coastal and Marine Resources

Strategy & Actions	Rationale	Priority	Time Frame	Resource Needs	Other/Remarks	Scope
Undertake review of existing coastal monitoring and data collection systems.	To determine the strengths and weaknesses of current systems.	High	Short Term with periodic review	Financial, Human	Some monitoring activities (e.g. beaches) already underway, will require expansion.	DOF*;Dept. of Forestry; MCWT&PU; MET; OECS-NRMU; MACC/CCCDF
Establish a Unit to co-ordinate and implement research and monitoring activities.	To generate relevant information to guide decision-making.	High	Short Term	Financial, Human, Technical, Training	No dedicated agency exists. Currently little coordination of activities.	DOF*; MOP; WRMU; WASCO; MOA; CEHI; MACC/CCCDF
Establish a mechanism to ensure that research is incorporated into decision-making.	To ensure that appropriate and timely decisions are taken regarding coastal resource management and CC issues.	High	Short Term	Consultants	Institutional networking through MOU, directive, etc.	DOF*; MOP; WRMU; WASCO; MOA; CEHI.
Review existing institutional and legislative frameworks relating to marine and coastal resource management.	To identify and address gaps and overlaps in existing institutional and legal frameworks.	Intermediate	Short	Human, Financial	Some work undertaken with institutional and legal framework for environmental management.	AGC*; All stakeholders.MACC/CCCDF
Development and Implementation of integrated, sustained and coordinated Public education and Awareness Programmes regarding coastal and marine resource management and CC	To sensitize the general public as to the impacts of CC with regard to marine and coastal resources.	High	Long Term	Human, Technical, Financial, Training	Some ad hoc activities undertaken. Should be done in the context of large national Env. Education programme.	DOF*; DOE; MACC/CCCDF

Human Settlements

Strategy & Actions	Rationale	Priority	Time Frame	Resource Needs	Other/ Remarks	Scope
Conduct vulnerability assessment of settlements prone to CC	Need to determine appropriate strategies for adaptation by settlements	High	Long Term	Financial, Technical, Human.	Some work already done by NEMO	MOP*; NEMO; MOCD; MCWT&PU; MET; Dept. of Statistics; MACC/CCCDF
Implement adaptive strategies for critical settlements	Foster adaptation of human settlements to Climate Change	High	Long Term	Financial, Technical, Human.		MOP*;MOCD; MCWT&PU; Dept. of Statistics
Development and Implementation of integrated, sustained and coordinated Public Education and Awareness Programmes regarding coastal issues	To sensitize the general public as to the impacts of Climate Change.	High	Long Term	Human, Technical, Financial, Training	Some ad hoc activities undertaken. Should be done in the context of large national Environmental Education programme.	MOP*; DOE, NEMO; MACC/CCCDF

Terrestrial Resources, Terrestrial Biodiversity and Agriculture

Strategy & Actions	Rationale	Priority	Time Frame	Resource Needs	Other Remarks	Scope
A. Terrestrial Resources & Terrestrial Biodiversity						
Establish a system for improved monitoring and research of terrestrial processes.	To determine the effects of CC on terrestrial resources.	High	Short Term	Human, Technical, Financial Training	Inter-agency networking	Dept. of Forestry*; DOF; CEHI; OECS-NRMU; WRMU; MOA; WASCO; MACC/CCCDF
Establish conservation and protected areas.	To maintain integrity of terrestrial resources.	High	Short	Human, Financial Training	Enforcement Education	Dept. of Forestry*; DOF; OECS-NRMU; MOA; WASCO
Restore degraded Ecosystems	To restore the integrity of degraded areas and increase resilience	High	Intermediate	Human, Technical, Financial Training	Education Community involvement	Dept. of Forestry;* DOF; OECS-NRMU; MOA; WASCO, MOP
Use consultative and collaborative strategies to manage existing systems.	To obtain support and improve coordination in maintaining the integrity of existing resources	High	Short Term	Human, Financial Training	Stakeholder involvement	CBOs; MOCD*.
Establish stakeholder committees to develop a comprehensive national Land Use Management Plan	Proper use and management of land resources critical to sustainable development and maintaining resilience,	High	Short Term	Human, Financial Technical	Process already started	MOP*; MOA; MOT; DOF; Dept. of Forestry; MCWT&PU
Develop a formal mechanism to allow CC considerations to be included into policies and plans.	To ensure that CC issues are adequately addressed.	High	Short Term	Consultants	Institutional collaboration	MOP*; Public and Private Sectors; MACC/CCCDF
Review the National Land Conservation Board and other similar bodies	To determine strengths and weaknesses and improve the existing system for land management	High	Short Term	Human Consultants		MOP*, MOA, Dept. of Forestry
Incorporate CC concerns and issues into the spatial planning (zoning) and land use process.	To ensure that appropriate policies and measures are adopted at the macro- and micro- levels to address climate change.	High	Short term	Technical, Financial Training	Institutional collaboration and Some initial training conducted under CPACC project in data handling. MACC/CCCDF.	MOP*. DOE, DOF,

Terrestrial Resources, Terrestrial Biodiversity and Agriculture (Cont'd)

Strategy & Actions	Rationale	Priority	Time Frame	Resource Needs	Other Remarks	Scope
B. Agriculture						
Establish a system for improved monitoring and research of relevant agricultural processes.	To determine the effects of CC on agricultural resources.	High	Short Term	Human, Technical Financial	Inter-agency networking	MOA, WRMU, MET; MACC/CCCDF
Develop climate change strategy for agriculture	To respond to likely impacts on agriculture	High	Medium	Human, Technical Financial		MOA; WRMU; MET; MACC;
C. General						
Development and Implementation of integrated, sustained and coordinated Public education and Awareness Programmes.	To sensitize the general public as to the impacts of CC.	High	Long Term	Human Technical Financial Training	Some ad hoc activities undertaken. Should be done in the context of large national Env. Education programme.	DOF*; DOE; MACC/CCCDF

Tourism

Strategy & Actions	Rationale	Priority	Time Frame	Resource Needs	Other Remarks	Scope
Sensitize stakeholders in the Tourism Industry to the effects of CC	To influence the policy making process in order to achieve CC-sensitive decision-making.	Medium	Short & Long-Term	Relevant CC Data; Human Resources.		GIS; MOP*; MACC/CCCDF
Improve and Develop Framework with emphasis on enforcement	Make tourism activities adaptive to CC through enforcement.	High	Long- Term	Human Resources		MOP*; MOLA;MOT.
Development and Implementation of integrated, sustained and coordinated Public education and Awareness Programmes.	To sensitize the general public as to the impacts of CC.	High	Long- Term	Human Technical Financial Training	Some ad hoc activities undertaken. Should be done in the context of large national Env. Education programme.	MOP*; DOE; MOT; MACC/CCCDF

Financial Sector

Strategy & Actions	Rationale	Priority	Time Frame	Resource Needs	Other	Scope
Implementation of Fiscal Incentives by Government to the Financial Sector.	To encourage the Financial Sector to become more responsive to the needs of persons affected by Climate Change	High	Long Term	Human resources		MOF
Government to source concessional financing from MDIs	To secure soft loans for on-lending to the local financial sector	High	Long term	Human resources		MOF
Development and Implementation of integrated, sustained and coordinated Public education and Awareness Programmes.	To sensitize the general public as to the impacts of Climate Change.	High	Long Term	Human Technical Financial Training	Some ad hoc activities undertaken should be done in the context of a larger national Env. Education programme.	MOF; DOE*; MACC/CCCDF

Human Health

Strategy & Actions	Rationale	Priority	Time Frame	Resource Needs	Other	Scope
Conduct appropriate research on the effects of CC on Human Health	To provide a strategic basis for sound decision-making	High	Long Term	Finance; Training;Human; Equipment (Software and Hardware); Public Health Data; A/V Equipment; Labs; Guidelines for Impacts.	CEHI; CAREC; PAHO; MACC; CC Centre; ILO	MOH*; MOL; UWI; SLEF
Review and Implement National Health Plans.	To incorporate CC issues into National Plans and to implement measures to address health -related CC issues.	High	Immediately for Environmental Health; Short Term for other issues.	Finance; Human. Workshops and Consultants; PA Materials; An advocate in Environmental Health Department	Media; Public; Development Partners.	MOH*; SLBS; MOL; WASCO; W&SC; CEHI
Sensitize and educate Health Personnel on impacts of CC.	Enhance capabilities of Health Personnel to address and respond to Health-related CC issues.	Medium - High	Medium Term	Case Studies; Visual Aids; Curriculum Materials; Workshops; Finance; Experts	UWI; SALCC; CEHI; MACC.	MOH*; DOE; MOP; MACC/CCCDF
Development and Implementation of integrated sustained and coordinated Public education and Awareness Programmes.	To sensitize the general public as to the impacts of CC.	High	Long Term	Human Technical Financial Training	Some ad hoc activities undertaken. Should be done in the context of a wider national Env. Education programme.	DOH*; DOE; MACC/CCCDF

Systematic Observation

Strategy & Actions	Rationale	Priority	Time Frame	Resource Needs	Other	Scope
Strengthen capacity of Meteorological office to conduct climate change observations and to analyse climate data	Improve basis for Climate Change modelling, impact assessment and decision making	H	Short term	Human Financial Technical Training	GCOS; CIMH; MACC	MET*; MACC
Harmonise and synergise monitoring activities between agencies	Reduce cost, improve data sharing and analysis	H	Short- Medium Term	Human Financial Technical Training	MACC; GCOS	MET*; WRMU; MOA; DOE; DOF; WASCO

Prioritorization of Activities

ACTIVITY/STRATEGY	RANKING	APPROXIMATE COST $US
Coastal & Marine Resources		
Undertake review of existing coastal monitoring and data collection systems.	1	$60,000
Human Settlements		
Develop adaptation plan for human settlements including zoning, defenses, building codes etc.	1	$70,000
Terrestrial Resources, Terrestrial Biodiversity& Agriculture		
Establish a system for improved monitoring and research of key terrestrial and agricultural processes and resources.	1	$125,000
Freshwater resources		
Undertake inventory of freshwater resources and develop and implement a National Water Resources Management Plan.	1	$150,000
Tourism		
Improve/ develop regulatory framework with emphasis on enforcement.	1	$35,000
Cross-cutting		
Development and implementation of an integrated, coordinated and sustained climate change education and awareness programme targeting all sectors and relevant interest groups.	1	$135,000

LIST OF ABBREVIATIONS

BGS	-	British Geological Survey
CAREC	-	Caribbean Epidemiology Centre
CBO	-	Community-Based Organisation
CBWMP	-	Caribbean Basin Water Management Project
CC	-	Climate Change
CCAP	-	Climate Change Adaptation Policy
CCCDF	-	Canadian Climate Change Development Fund
CCST	-	Caribbean Council on Science and Technology
CDB	-	Caribbean Development Bank
CEHI	-	Caribbean Environmental Health Agency
CIMH	-	Caribbean Institute of Meteorological and Hydrological Studies
CPACC	-	Caribbean Planning for Adaptation to Global Climate Change Project
DOE	-	Department of Environment
DOF	-	Department of Fisheries
EHD	-	Environmental Health Department
EU	-	European Union
GCOS	-	Global Climate Observing System
GDP	-	Gros Domestic Product
GEF	-	Global Environmental Facility
GEF (IW&CM)	-	Project on the Integration of Watershed and Coastal Area Management, funded by GEF
GHGs	-	Greenhouse Gases
GIS	-	Geographic Information Systems and Government Information Service
ILO	-	International Labour Organisation
IPCC	-	Intergovernmental Panel On Climate Change
MACC	-	Mainstreaming Adaptation to Climate Change Project
MCD	-	Ministry of Community Development
MCWT&PU	-	Ministry of Communications, Works, Transport and Public Utilities
MDI	-	Multi-lateral Donor Institution
MET	-	Meteorological Office
MOA	-	Ministry of Agriculture, Forestry and Fisheries
MOE	-	Ministry of Environment
MOH	-	Ministry of Health
MOL	-	Ministry of Labour
MOLA	-	Ministry of Legal Affairs
MOP	-	Ministry of Planning

MOT	-	Ministry of Tourism
NEMO	-	National Emergency Management Organisation
OECS-NRMU	-	Natural Resources Management Unit of the Organisation of Eastern Caribbean States
PAHO	-	Pan-American Health Organisation
SALCC	-	Sir Arthur Lewis Community College
SIDS	-	Small Island Developing State
SLBS	-	St. Lucia Bureau of Standards
SLEF	-	St. Lucia Employers Federation
UNFCCC	-	United Nations Framework Convention on Climate Change
WASCO	-	Water and Sewerage Company
WRMU	-	Water Resources Management Unit of the Ministry of Agriculture, Fisheries and Forestry
W&SC	-	Water and Sewerage Commission