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Acknowledgements

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Photos Courtesy of Terence Lafortune, Jeanette Larue, Raymond Sahuquet/STB, Claude Pavard and Foto Natura.

1 Introduction

The Sustainable Development Strategy of Seychelles is composed of an institutional document (Volume 1) and a detailed action plan (Volume 2). The detailed action plan brings together the thirteen thematic areas identified to implement the strategy. The estimated cost of implementing the action plan is 704 million USD. The figures are based upon estimates which do not take into account inflation or changes in economic growth which may impact on government revenue and global economic trends over the period 2012-2020. It is envisaged, as suggested in the strategy, that the resource forecasts are revised every two years in order to take into consideration these factors.

Programmes	**Estimated Resources Needed**	
	SCR Million	**USD million**
Social and Human Development	50.5	4.2
Land Use, Coastal Zones and Urbanisation	294.3	24.5
Biodiversity and Forestry	275	22.9
Agriculture and Food Security	161	13.4
Fisheries and Marine Resources	1374	114.5
Water, Sanitation and Waste	2154	179.5
Tourism and Aesthetics	13	1.083
Economics of Sustainability	25.8	2.1
Sustainable Consumption and Production	407.5	33.9
Energy and Transport	1154	95.7
Climate Change	2486	207,2
Education for Sustainability	45.4	3.7
Policy, Institutional & Regulatory	13.3	1.1
Operationalisation of the SSDS	8	0.7
TOTAL	**8463**	**704**

2 SOCIAL & HUMAN DEVELOPMENT

2.1 Introduction

A pillar of sustainable development, the social sector involves complex interactions between the population, community structure, health and other societal issues.

The 1992 UN Rio Convention on Environment and Development and the 1995 Copenhagen Declaration of Social Development lay out the principles for sustainable social development. Both conventions recognize that people are at the centre of sustainable development and that they are entitled to a healthy and productive life in harmony with their natural and built-up environments. This right is also guaranteed in the Constitution of the Republic of Seychelles.

According to the National Population Census (August 2010), the population of Seychelles is 88,311, with a gender composition of predominantly male (51.3 %). Seychelles has an aging population, with 77.7 % aged 15 years and above. The fertility rate of the population was 2.38, and life expectancy is 68.4 for men, and 77.9 for women. The number of people in the labour force stands at 50,923 (57.7 % of the population), and the unemployment rate is 5.8%. Abject visible poverty does not exist in Seychelles. Indicators, such as housing, access to sanitation and potable water, are relatively high and comparable to OECD countries. In 2009, some 3.9 % of the population was assisted by the Social Welfare Agency. According to the 2010 census, the current number of households is 24,142 with an average household size of 3.7 persons. Most houses are solidly built and in relatively good state. The overall average monthly expenditure per household is SCR 9, 124[1] (USD 760). Of this, 21% is spent on food and 13% on alcohol. The Gini coefficient which measures the disparity in wealth distribution is around 40%. Salaries and wages account for 76% of the total household income. Dependence on pensions and social security is 14% whilst self-employment is 7%.

Guiding Principles

Four main guiding principles underpin social and human development in Seychelles and are linked to the achievement of the Millennium Development Goals, the Seychelles Strategy 2017 and the National Population Plan.

Health For All - Every effort is made to ensure that the individual is given every opportunity to be healthy in mind and body, and to remain so for the rest of his life. This principle is about access and availability of health services for everyone and that every person has the right and responsibility to take charge of his needs in terms of health.

People-Centred Development – To be sustainable, programmes and projects must be able to focus on people as primary subjects, rather than just monetary gains and economic growth. Economic development should be linked to the well-being of the population, their environment, their dignity as human beings, integrating population issues, such as size,demographics, gender and other socio-cultural specificities and needs

[1]Household Budget survey 2006 – 2007; National Bureau of Statistics

Main Challenges

- Inconsistent approach to public education, awareness and attitudes to wards conservation and sustainable development. Require sustained efforts towards changing existing behaviour and consumption patterns and addressing resistance to change.

- Lack of an effective urban planning policy and concrete land use plans that take into account the limited availability of land. Increasing costs of construction, growth in individual forms of transport and management of wastes, including wastewater.

- Ensuring quality of life of the population faced with increasing inflation and pressure to work longer hours at the cost of family cohesion and individual leisure time and well-being.

- Lack of career choice in social development, community health and environment management. There is also significant brain drain in these sectors.

- Insufficient enforcement of existing laws and regulations related to environmental health and public health.

The reported (unadjusted) mean income per household was SCR 8251 (USD 687) which is 9% below the estimated average monthly expenditure. The median income was estimated at SCR 7113 (USD 592). It is quite likely that there would be very few persons, statistically negligible, living below the set absolute poverty line, as defined by the World Bank. The minimum salary is set at SCR 19.50 (USD 1.50) per hour for casual work or SCR 22.50 (USD 1.75) per hour for a full day's work. The Seychellois also tend to supplement their income through informal employment.

There is equal access to education for all children. Schools are often within walking distance from homes, and subsidized transports are provided for those living within 3 kilometers of a school. Net enrolment of students in primary school is over 99% and more than 95% of those proceed to secondary education. The ratio of boys to girls in education is about 1:1, however this changes marginally in favour of girls at post-secondary and tertiary education levels. The population of Seychelles is highly educated with a literacy rate of nearly 100%, as a result of universal access to primary education and to long-standing literacy classes in all districts since the late 1970's. A limited amount of students have access to overseas tertiary education though a government sponsored scholarship programme. The establishment of Seychelles first University in 2009 (the University of Seychelles) will further enhance this access. The main challenges in education remain the high number of drop-outs from secondary schools and alcohol abuse which is high amongst teenagers. The attrition of the school population, especially of boys, is alarming as it means there are numerous young men who are unskilled, insufficiently trained and who are likely to be unemployed or remain in low-paying employment.

2.2 Thematic Outlook 2012-2020

Generally, the Seychelles demographic picture is characterised by slow growth rate, low birth rate, low death rate, and periodical high rates of emigration and immigration. The total fertility rate has declined rapidly, dropping from around 7 in 1966 to 4.2 in 1980. In 2006, the Total Fertility Rate fell to below replacement level at 2.1, but it has since grown to 2.3 by 2008.

In view of the sensitive nature of the physical and natural environment of the Seychelles, there is enormous pressure placed on ecosystems due to increasing demands for natural resources (such as food, fish, construction materials, etc.), water and energy, growth in solid waste, and intense competition for land use. Water and energy consumption has significantly increased and will continue to increase over the next ten years. Although more than 95% of the population have access to water and electricity, the present infrastructure is not sufficient to meet future demands.

Whilst the population is generally supportive of conservation efforts and the need to take pre-emptive measures, they are of the view that those efforts are for the benefit of 'tourists' only. However, there have been sustained efforts in public education and awareness especially amongst the younger generation. The people also hold the view that government should be the prime mover on issues of social well-being, conservation, disease prevention and environment degradation. The trend is that public consciousness concerning sustainable development will increase through enhanced efforts in social empowerment.

Linked to this consciousness is the increasing trend in consumption of goods with high ecological footprints. Increased population, living standard and expectations over the next 10 years will drive the demand for imported food, clothing, entertainment, and electronic equipment. One important issue is growing generation of wastes arising from such consumptive patterns, which includes packaging, plastic materials and e-waste.

The risk of outbreaks of certain infectious diseases such as Dengue and Chikungunya are expected to increase despite efforts to control entry and the reduction of local prevalence. An outbreak of Chikungunya in 2006 registered more than 2,600 cases with significant impact on the economy and social well-being of the people. Other health risks include diseases such as cardiovascular diseases, diabetes, hypertension and cancers which are likely to increase. Of particular concern are drug abuse and the increase in sexually transmitted diseases, such as hepatitis C, HIV and AIDS and endocarditis.

Despite access to housing, free health services, safe water and low levels of pollution, these trends will dominate the social development landscape over the next ten years. The threat of drugs, alcohol and other social ills constitute a big challenge. The emergence of global pandemics and other globally infectious diseases poses a danger to the small and vulnerable population of Seychelles.

2.3 Policy Framework

The policy framework for social and human development in Seychelles is quite complex, involving a number of organizations at the community, national, regional and international levels. The main policy frameworks are:

Seychelles Health Strategy 2005-2009: This policy sets targets for health outcomes for Seychelles. A new health strategy is required to take into consideration emerging issues, although a number of issues remain relevant.

National Plan of Action on Social Development (NPASD) 2005 – 2015: Outlines the national priorities for social development in particular the need for public participation in social policy development, addressing challenges that undermine the social fabric of the Seychelles, human resource development, human well-being, gender and human-centred development.

The **Seychelles Constitution, the Children Act of 1982**, revised in 2005 and the **Education Act of 2004** make provision for all children in Seychelles to have equal and fair access to schools and education appropriate to their needs.

WHO Country Cooperation Strategy 2008-2013 for Seychelles: This document outlines the level and type of cooperation with the World Health Organisation (WHO) and other partners to reduce the burden of major diseases in Seychelles.

The SADC Regional Indicative Strategic Development Plan (RISDP): This plan was designed to develop harmonised policy and regulatory frameworks to promote regional cooperation on all environmental issues and natural resources management including trans-boundary ecosystems.

International Conference on Population and Development (ICPD) Programme of Action: The ICPD Programme of Action encourages governments to address poverty and serious social and gender inequities, unsustainable consumption and production patterns and calls for sustainable economic development and increase in the population's quality of life.

Barbados Programme of Action for the Sustainable Development of Small Island Developing States/Mauritius Programme of Implementation: These two framework documents outline the special conditions of small island states and the requirements for ensuring sustainable development and addressing issues facing such vulnerable populations.

2.4 Stakeholder Framework

The stakeholder framework for this sector spans the individual to community groups and other organisations, involved either in policy-making, implementation and capacity building. In many ways all of these stakeholders may be described as important change agents in achieving the vision of this sustainable development strategy.

Community-based groups: These exist at district level and work closely with the appropriate government Ministries. Groups such as family and religious groups are important stakeholders operating at the grassroots level. The Elderly Club is also one such group that supports the welfare of the elderly at community level.

Government Agencies: These include the lead Ministry – the Ministry of Health and Social Development. The Health Department has a number of health centres on all the inhabited islands of Seychelles and provides a range of services, including public health and environmental health. A community nursing system is in place. The Social Development Department addresses the broader social issues such as population, reproductive health, gender and social ills. They also work through a network of social workers. The Social Welfare Agency addresses the needs of those disadvantaged in society and acts as the social safety net for the country's poor. Other important government bodies include various Ministries, such as those of Environment, Internal Affairs, Natural Resources, Community Development, Youth and Sports, Health, Education and Employment and Human Resources. Other bodies are also vital partners: on the national level - the National Human Resource Development Council (NHRDC), Disaster and Risk Assessment Department and, on the regional and local levels - the District Disaster Brigades, as well as the Social ills Brigades and the District Councils and Teams.

Non-Governmental Organisations (NGO's): A number of NGO's are active partners in social and human development. These NGO's cover a broad range of issues such as Family Planning, Gender, HIV/AIDS, Human rights, community health, drug and alcohol abuse, sustainable living and social support groups. The most important ones are the Alliance of Solidarity for the Family (ASFF), the Association for the Promotion of Solid and Human Families (APSHF), GemPlus, Centre Mont Royal, the Centre D'Accueil de la Rosière Drug Rehabilitation Centre, Faith and Hope Association (FAHA), HIV and AIDS Support Association (FAHA) and the various thematic commissions established by LUNGOS.

Private Sector: The private sector is represented under the umbrella of the Seychelles Chamber of Commerce and Industry (SCCI) and various other associations such as that of the shop keepers, hotel owners, fishermen, boat owners, medical, nursing and artisans.

Other Groups: Other important stakeholders include members of the public and private media, all religious leaders, political parties, community leaders and community-based organisations, operating at grass-roots levels in the districts.

2.5 Goals and Strategic Objectives

Goal 1 Influence behaviour and consumption patterns so as to improve the quality of life and the sustainable use of natural resources.

The aim is to address human activities and their adverse impact on the environment through improved information, education and communication focusing on behaviour change. It focuses primarily on advocacy and awareness-raising of all key stakeholders in the country.

	Strategic Objectives
1	To increase awareness of the population about the impact of their everyday activities on the environment from a lifecycle approach, and the links to social development and well-being.
2	To engage and sensitise the public on environmental issues.
3	To mainstream environment and social issues into urban development.

Goal 2 Capacity of stakeholders to engage in environmental projects are improved

An effective policy and institutional framework is critical to provide support for empowerment and engagement of the public and stakeholders in this transformation process. The ultimate goal being sustainable living based upon a human centred principle which calls for research based decision-making.

	Strategic Objectives
1	To understand the linkages between population, environment, social development, health and gender and further strengthen the institutional framework and capacity of key stakeholders.
2	To develop and implement incentives that encourage the engagement of all levels of society in addressing the sustainability, social and health challenges.

Goal 3 Threat from infectious and non-communicable diseases are mitigated

The minimisation of health threats requires sustained and focused action by all stakeholders in society. Effective systems need to be established or further strengthened to reduce the vulnerability.

	Strategic Objectives
1	To put in place a preventive and response programme for infectious diseases.
2	To put in place an effective programme for non-communicable diseases.
3	To increase grass-roots participation and gender in the design, implementation and evaluation of environment health programmes.

2.6 Action Plan

Goal 1 Influence behaviour and consumption patterns so as to improve the quality of life and the sustainable use of natural resources

Strategic Objective 1	To increase awareness of the population about the impact of their everyday activities on the environment from a lifecycle approach, and the links to social development and well-being		
Outcomes	• A large majority of the population are aware of the consequences of their day-to-day actions on the environment from a life cycle approach and the inter-linkages with social development and well being. • The population is empowered to make rational and informed choices and as a result promote sustainable consumption patterns.		
Lead Implementing Agency	Department of Environment with the collaboration of the Population Unit of the Social Development Division, and the participation of local NGOs		
Total Estimated Cost	SCR 2,000,000		
Timeline	2012 -2020		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable indicators**
1. Develop and air at least 4 media spots per year on consumption and environmental issues	Awareness of key environmental issues.	MHAETE, Local media, NGOs, Consumer Association	No. of spots and feedback
2. Develop at least 4 documentaries on consumption and environmental issues including life cycle approach	Population sensitized with regard to sustainable consumption	MHAETE, Local media, NGOs, Consumer Association	No. of documentaries and feedback
3. Sensitisation campaigns throughout 2012 & 2013 about consumer choices, alternatives and relationship to sustainable development	People informed about alternative product choices	MHAETE, Local media, NGOs, Consumer Association	Campaign held; Number of people informed / sensitised
Cross-Sectoral Linkages	Sustainable consumption and production; Education for sustainability		
Climate Change Considerations	Changing consumption patterns may influence land affected by desertification, protected forest areas, emissions of greenhouse gases, ozone depleting substances, and imports and exports of hazardous wastes		

Capacity Building (incl. education) requirements	Need to ensure that there is a consistent cohort of environmental education officers to conduct the sensitization campaigns. The products consumed will also need to be understood in terms of their individual component and their life-cycles – this would require further training of environment experts and educators.
Legal & Institutional needs	Laws and policies may be required to ensure that products used for manufacturing and processing for exports and imports are environment-friendly and can be consumed in a sustainable manner.
Relevant applicable policies	Import policies and regulations. Consumer protection. Personal and social education programmes in public schools.
Links to conventions and treaties	International Convention to Combat Desertification. Vienna Convention for the Protection of the Ozone Layer. Convention on Biological Diversity. Climate Change Convention.
Possible sources of funding	UNEP, Seychelles Government

Strategic Objective 2	To engage and sensitise the public on environmental issues		
Outcomes	• Large majority of the population sensitized and engaged in various environment projects in their districts. • Large majority of the population are aware of their individual ecological footprint. • Increase in home food production. • Increased energy efficiency and renewable energy.		
Lead Implementing Agency	MHAETE, DAs and NGOs		
Total Estimated Cost	SCR 8,000,000		
Timeline	2012 -2020		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable indicators**
1. Implement "Green Homes Programmes", with special focus on energy-saving devices, water usage & demand reductions, water collection	Homes that have less impact on the environment	MHAETE MLUH	No. of environmentally friendly homes

2. Develop exhibitions in all districts, focusing on individual ecological footprint and efficient use of natural resources	Understanding of ecological footprint Efficient use of resources	MHAETE Education Dept	No. exhibition held No of people sensitised
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable indicators**
3. Develop district and school heritage gardens and increase awareness and use of medicinal plants	Conservation of endemic and medicinal plants Greater awareness and use of medicinal plant	MHAETE SAA Education Dept	No. of heritage gardens Variety & quality of plants grown
4. Organise annual food and medicinal home garden competitions to encourage the cultivation of endemic plants, including medicinal ones	Increased home food and medicinal plants production	MHAETE SAA	No. of participants No. of plants grown
Cross-Sectoral Linkages	Energy and transport; Agriculture and food security; Education for sustainability		
Climate Change Considerations	More efforts in developing strategies in homes that use renewable and more efficient energy sources, reducing the effects of greenhouse gasses. Reduction of individual ecological footprint through use of products made / grown locally and reduction of imports		
Capacity Building (incl. education) requirements	Need to ensure that there is a consistent cohort of environmental education officers to conduct the sensitization campaigns. The products consumed will also need to be understood in terms of their individual component and their life-cycles – this would require further training of environment experts and educators.		
Legal & Institutional needs	Policies regarding land use management around housing estates, use of flats, purchase and support/subsidies for environment-friendly products.		
Relevant applicable policies	Import policies and regulations. Consumer protection. Personal and social education programmes in public schools.		
Links to conventions and treaties	International Convention to Combat Desertification. Vienna Convention for the Protection of the Ozone Layer. Convention on Biological Diversity. Climate Change Convention.		
Possible sources of funding	UNEP, Seychelles Government.		

Strategic Objective 3	To mainstream environment and social issues into urban development		
Outcomes	• Urban development based on quality of life indicators • Promotion of civic responsibilities and care for the environment		
Lead Implementing Agency	MHAETE, LTD, SCCI, NTA		
Total Estimated Cost	SCR 10,000,000		
Timeline	2012 -2020		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable indicators**
1. Development of an eco-friendly urban development policy	Environment mainstreamed into development policy	MLUH	Policy which takes into account environmental considerations
2. Develop & maintain green spaces	More green spaces for leisure & stress reducing activities	MHAETE, NSC, DAs and NGOs, NATCOF, MoH, CBOs	Number of green spaces present
3. Establish solar powered street lighting	Increase use of renewable energy for lighting	MHAETE, LTD	No. of solar powered street lights Electricity bill
4. Conduct a social impact assessment with every major development project	Social Impact Assessment carried out for major projects	National Assessment Committee (NAC), MHAETE, SDD, MLUH	Social Impact Assessment (SIA) reports
Cross-Sectoral Linkages	Energy and transport; Policy, institutional and regulatory		
Climate Change Considerations	Reduction of greenhouse gasses through the planting of more trees and the creation of more green spaces in more urban or built-up areas		
Capacity Building (incl. education) requirements	Training for landscape management ("paysagistes"), environment education officers, public health and environmental health officers would need further training to be able to propose ad convince the population to change their behaviours.		
Legal & Institutional needs	Review of existing laws to study whether there are impediments to proposed actions		
Relevant applicable policies	Land use management, town and country planning, public health policies and relevant laws		

Links to conventions and treaties	International Convention to Combat Desertification. Vienna Convention for the Protection of the Ozone Layer. Convention on Biological Diversity. Climate Change Convention.
Possible sources of funding	Seychelles Government and external donors

Goal 2 Capacity of stakeholders to engage in environmental projects are improved

Strategic Objective 1	To understand the linkages between population, environment, social development, health and gender and further strengthen the institutional framework and capacity of key stakeholders		
Outcomes	• Clear guidelines from national regulations, laws & policies to ensure that all partners are dedicated to & fully engaged in the cause of environment protection. • Active participation of all key partners (with necessary capacity and other resources) in implementation of SSDS 2012-2020. • A database of scientific information relating to environmental health, social development and gender		
Lead Implementing Agency	MHAETE, AG's Office		
Total Estimated Cost	SCR 7,500,000		
Timeline	2012 -2020		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable indicators**
1. Develop and maintain information on the status of compliance to multi environmental agreements	Status of international obligations in the sector.	MHAETE, MFA & AG's Office	Up-to-date list of conventions & protocols and status of implementation
2. Consolidate research done in the past 10 years on environment, health and social development links	Compiled research & sets of recommendations, with analysis of actions already taken	MHAETE, SDD & MoH	Compiled list of studies

3. Conduct training sessions for local staff in relevant ministries & organisations concerned to be able to carry out social impact assessments	Pool of local trained staff	MHAETE, SDD, MoH, MLUH, International or local group of consultants to train local staff	No. of sessions conducted No. of participants registered & attending sessions
4. Undertake capacity assessments and build further capacity in environmental management (awareness, advocacy & delivery of services)	Capacity in environmental management is enhanced.	MFA, AG's Office, MHAETE, LUNGOS	Capacity assessment reports and implementation of recommendations
Cross-Sectoral Linkages	Policy, institutional and regulatory; Education for sustainability		
Climate Change Considerations	National strategies developed take into account climate change and prepare for its possible effects.		
Capacity Building (incl. education) requirements	Training for CSOs and government representatives to be able to monitor the international commitments due to signature or accession to various environment international treaties. Further personnel available and employed in the Ministry of Foreign Affairs Treaties and Conventions Section.		
Legal & Institutional needs	Adapting national laws to international obligations		
Relevant applicable policies	None		
Links to conventions and treaties	All conventions and treaties		
Possible sources of funding	Seychelles Government and external donors		

Strategic Objective 2	To develop and implement incentives that encourage the engagement of all levels of society in addressing the sustainability, social and health challenges.
Outcomes	• Increased investment and development of green technologies, products and services
Lead Implementing Agency	MoF, MHAETE, SCCI & AG's Office

Total Estimated Cost	SCR 10,000,000		
Timeline	2012 -2020		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable indicators**
1. Develop financial incentives for environmentally friendly projects, technologies and products	Concessionary credit and other incentives is available for eco-friendly projects, technologies and products	MoF, MHAETE, SDD, NAC, NATCOF, SPA, SLA	Presence of incentives
Cross-Sectoral Linkages	Economics of sustainability		
Climate Change Considerations	Reduction of greenhouse gasses emissions and carbon footprint through more careful importation by traders & consumption by the population		
Capacity Building (incl. education) requirements	Qualified personnel in the following units / organisations: SCCI, NATCOF, CPU, MHAETE, SLA.		
Legal & Institutional needs	Need for supportive legal & commercial climate for investment & development of green technologies by locals and foreigners (SIBA, SCCI, SENPA, STB)		
Relevant applicable policies	Small Enterprise Promotion Agency Act Seychelles Investment Board Seychelles Industrial Policy National Tender Board Seychelles Tourism Board Socio-economic Council Memorandum of Economic and Financial Policies (MEFP) for 2009-2012		
Links to conventions and treaties	All conventions and treaties		
Possible sources of funding	Seychelles Government		

Goal 3 Threat from infectious and non-communicable diseases are mitigated

Strategic Objective 1	To put in place a preventive and response programme for infectious diseases

Outcomes	• Effective national and local insect, vermin and pest control programmes, using environmental-friendly methods leading to a significant reduction of these. • Reduction in prevalence and incidence of vector-borne communicable diseases.		
Lead Implementing Agency	Ministry of Health, with SDD, NGOs and DAS		
Total Estimated Cost	SCR 5,000,000		
Timeline	2012 -2020		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable indicators**
1. Undertake risk assessment for infectious diseases forvarious population groups and backgrounds	Risks from infectious diseases are identified and quantified	SDD, MoH, MLUH, SPA, SLA, MEEHRD, SCCI, STB, Trade Associations, NGOs, NATCOF	Risk assessments
2. Improve the level of sanitation within public areas e.g. in public buses, bus stops	Improved sanitation leading to decreased hygiene related diseases	MOH	Amount spent on cleanliness programme
3. Develop and implement aleptospirosis Prevention Campaign	Decreased incidence of Leptospirosis	MOH	No of cases recorded
4. Develop and implement a Conjunctivitis Prevention Campaign)	Decreased incidence of conjunctivitis outbreak.	MOH	No of cases recorded
5. Develop and implement an Anti-Mosquito programmes	Decreased incidence of mosquito borne diseases	MOH	No of cases of mosquito borne diseases
Cross-Sectoral Linkages	Education for sustainability		
Climate Change Considerations	Alteration in the distribution and prevalence of infectious diseases. Sea temperature anomalies lead to loss of reef habitat & species which will affect the diet (mostly fish) of the Seychellois. Some diseases likely to spread and get worse as a result of climate change are bird flu, cholera, Ebola, bubonic plague and tuberculosis.		

Capacity Building (incl. education) requirements	Pre-service & in-service training needed for health professionals and social workers.
Legal & Institutional needs	Capacity of the various agencies and organisations to address threats from infectious and non-communicable diseases
Relevant applicable policies	Seychelles Health Strategy, WHO Country Cooperation Strategy 2008-2013 for Seychelles
Links to conventions and treaties	International Health Regulations (IHR) from WHO
Possible sources of funding	WHO, UNFPA, UNEP

Strategic Objective 2	To put in place an effective programme for non-communicable diseases		
Outcomes	• Reduction in the number of cases of non-communicable diseases • Qualitative and quantitative improvement in all health indicators - incidence and prevalence of diabetes mellitus Type 2, hypertension and other cardiovascular diseases • Qualitative improvement in food and diet, sleep and rest, exercise and leisure activities.		
Lead Implementing Agency	MHAETE, MoH, DOE, Population Unit of SDD, local NGOs & CBOs		
Total Estimated Cost	SCR 4,000,000		
Timeline	2012 -2020		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable indicators**
1. Undertake risk assessment for non-communicable diseases for various population groups and backgrounds	Risks from non-communicable diseases are identified and quantified	SDD, MoH, MLUH, SPA, SLA, MEEHRD, SCCI, STB, Trade Associations, NGOs, NATCOF	Risk assessments
2. Implement healthy eating campaigns on a two-yearly basis	Improved diets of the population and increased consumption of locally grown organic food.	MoH, MHAETE, SCCI, NTA, NATCOF, CPU, CBOs & NGOs	No. of campaigns conducted

3. Implement programme to develop areas for increase physical activity amongst the population	Establishment of areas dedicated for fitness activities. E.g. Gym, trails, bicycle paths	MOH	No. people exercising regularly No. of Gym, fitness trails
4. Implement at least 2 major sleep and rest campaigns	Reduced proportion of patients requiring medication for sleeplessness	MoH, SDD, NGOs	Proportion of insomnia medication prescribed
5. Implement at least 1 annual programme focusing on substance abuse (alcohol and drugs)	Reduction in diseases caused by substance abuse	MoH, SDD, NGOs & CBOs	No. of medical cases relating to substance abuse
Cross-Sectoral Linkages	Education for sustainability		
Climate Change Considerations	Alteration in the distribution and prevalence of infectious diseases. Sea temperature anomalies lead to loss of reef habitat & species which will affect the diet (mostly fish) of the Seychellois. Some diseases likely to spread and get worse as a result of climate change are bird flu, cholera, Ebola, bubonic plague and tuberculosis.		
Capacity Building (incl. education) requirements	Increased capacity in health and non-health sectors to address dietary needs, consumption patterns and habits of the Seychellois.		
Legal & Institutional needs	Importation issues, encouragement of home gardens and its impact on regulations regarding land use in housing estates. Polices on NATCOF, CPU		
Relevant applicable policies	Land Use Management Policy, Seychelles Industrial Policy, Misuse of Drugs Act, National AIDS Council Act, Seychelles National Policy on HIV and AIDS and STIs 2011		
Links to conventions and treaties	Single Convention on Narcotic Drugs, 1961 as amended by the 1972 Protocol Convention on Psychotropic Substances, 1971 Convention against Illicit Trafficking of Narcotic Drugs and Psychotropic Substances, 1988 Convention on Biological Diversity Climate Change Convention		
Possible sources of funding	UNODC, WHO, UNFPA, UNAIDS, Seychelles Government		

Strategic Objective 3	To increase grass-roots participation and gender in the design, implementation and evaluation of environment health programmes		
Outcomes	• Men & women at district level are participants at all stages of development (from conception, design, development, implementation, monitoring & evaluation) of district and national programmes.		
Lead Implementing Agency	MHAETE, Population Unit of the SDD and local NGOs		
Total Estimated Cost	SCR 4,000,000		
Timeline	2012 -2020		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable indicators**
1. Create a national Citizens' Group for representation on key national committees, e.g., Seychelles National Economic Forum & participation in Social Impact Assessments	Grass roots participation can input into decision making process	MHAETE, LUNGOS, SENPA	Nationally recognized group created Inclusion of the group in major national committees
Cross-Sectoral Linkages	None		
Climate Change Considerations	Alteration in the distribution and prevalence of infectious diseases. Sea temperature anomalies lead to loss of reef habitat & species which will affect the diet (mostly fish) of the Seychellois. Some diseases likely to spread and get worse as a result of climate change are bird flu, cholera, Ebola, bubonic plague and tuberculosis.		
Capacity Building (incl. education) requirements	Training for CSOs in engaging their members in national and regional environmental programmes		
Legal & Institutional needs	Support to LUNGOS and its environment commission members to become more engaged in this process		
Relevant applicable policies	National Plan of Action on Social Development (NPASD) 2005 – 2015		
Links to conventions and treaties	Convention on Biological Diversity Climate Change Convention International Covenant on Civil and Political Rights, 1966 International Covenant on Economic, Social and Cultural Rights, 1966		
Possible sources of funding	Seychelles Government, EU EDF Programmes		

2.7 Cross-Sectoral Issues

Human and social development encompasses all aspects of national development. It is systemic in the sense that any movement in any other field of development will have an immediate, mid-term and long term impact on the health, purchasing power, education, consumption patterns, eating habits, leisure and the use of natural resources.

Of particular interest are the following issues: water usage, energy usage, land use management, climate change, waste disposal, agriculture, fisheries, tourism, and training and education.

Water demand is a major concern as it is linked to national development priorities and behaviour patterns of individuals and households. Energy consumption, especially reliance on fossil fuel is not sustainable and Seychelles will need to seek alternative greener sources of energy to power its economy and homes. The choices made will have an impact on the quality of living that the population enjoys.

Improper waste disposal is linked to a number of issues from pollution, vector-borne diseases, flooding and land degradation. Increasing generation of waste also require more land for disposal but on the other hand provide significant opportunities for recycling businesses.

Food production and security are intricately linked to land use management, national economic priorities, ultimately to agriculture and fisheries. Moreover, what we offer on the market for public consumption also influence consumption patterns, eating habits and resultant health indicators, such as the prevalence of obesity on children and adults. The latter is a causal factor in development of non-communicable diseases (NCD) such as diabetes, hypertension and ultimately to heart disease. Data already shows that NCDs are already heavy disease burdens on the Ministry of Health and, finally, on the national, annual budget.

Climate change as an environment and conservation concern is also all-encompassing, with the ability not only to increase the disease burden of communicable diseases, such as influenza, leptospirosis and chikungunya but also affect food security, tourism activities, development of costal zones, agriculture and fisheries.

Education, training and awareness-raising are key to ensuring that the population understands the national choices and priorities made as linked to environment concerns, social development and health issues. Many national development priorities are perceived as unnecessary or as favouring some groups over others, e.g., the tourists versus the fishers, the farmers versus hotel developers and investors.

2.8 Measurement of Progress

The measurements of progress towards the attainment of the set goals and objectives are woven into the operational plan. Key observable indicators have been identified to ensure that actions produce concrete outputs, results and outcomes. Indeed, it is also expected that the activities will have significant impact on the targeted populations and institutions, bringing about permanent changes in the quality of living.

More specifically, the Social and Human Development set goals and targets can be monitored and evaluated in the following ways:

1. Quarterly reports from lead agencies on the progress made from their programmes and activities.

2. Annual reports from lead agencies using the targets as baselines to measure progress. Moreover, all health indicators are already measured on a yearly basis and annual reports are published by the Ministry of Health. These reports can be used to measure the progress in reducing the incidence and prevalence of various NCDs and communicable diseases.

3. An independent Seychellois-led Mid-term Review – the plan calls for a review at the half-way point of its implementation. This activity should be undertaken by a team of national consultants to look pecifically at these issues:

   (a) Number of activities completed

   (b) Meetings with stakeholders and beneficiaries to assess actual and perceived implementation processes, products and results

   (c) Factors (policy, strategies, funding, human resources) influencing progress or the lack of it

   (d) New issues, concerns and trends

   (e) Lessons learnt

   (f) A roadmap to complete the SSDS 2012-2020, from 2016 onwards

4. Development of annual plans based on the SSDS 2012– 2020 are to be encouraged to ensure that the strategic activities are implemented satisfactorily by the lead agencies and their partners.

These four mechanisms should be sufficient to ensure that the Plan is implemented in its entirety in accordance to available resources (human, material and financial).

Thematic Sector: Social and Human Development

Goals:	Estimated cost:	Notes:
1. To influence behaviour and consumption patterns so as to improve the quality of living and to ensure sustainable use of natural resources	SCR 20,000,000	Key activities will be media campaigns which tend to be costlier every year.
2. Develop the necessary structures and policy frame work to integrate social development and sustainable use of resources	SCR 17,500,000	Policy development is key to ensuring legitimacy of proposed actions and measures.
3. Significantly minimise the potential impact of environmental health threats, both from infectious and non-communicable diseases	SCR 13,000,000	These targets are intimately linked to quality of living goals. Activities are expected to reduce various disease burdens.

3 LAND USE, COASTAL ZONES AND URBANIZATION

3.1 Introduction

21 and the Johannesburg Plan of Implementation (JPOI) address a number of development issues including land use, coastal zones and urbanization. Chapter 17 of Agenda 21 specifically provides for the sustainable and an integrated approach to management of the coastal zone. Small island States, like the Seychelles, are entire coastal zones, thus their sustainable management is key to this entire plan. Competing land use is a significant issue for the Seychelles as the same spaces also support unique and especially fragile ecosystems.

The main population centres are on the island of Mahé, Pralin and La Digue. Small working populations inhabit other islands. The most populated district on Mahé is Anse Etoile with 5.3% of the total population currently residing there. The east cost of Mahé is the most urbanised region of the country. The development of major infrastructure is also on the east coast of Mahé, which has also been subject to extensive reclamation to provide more land for housing, industry, business and other services. A total of 372 hectares of new land has been reclaimed around Mahé, Praslin and La Digue which represents a total of 36 km of new coastline. At the moment only three districts have land use plans and efforts to develop more are constrained by lack of capacity and resources.

Guiding Principles

Laws, regulations, plans, stakeholder involvement, monitoring and institutional frameworks should form the basis of **ICZM planning.**

While addressing long-term development, land use and physical plans should still be **flexible** and adaptive to the economic development trends.

Promote **sustainable coastal development** that respects set back lines and carrying capacity, benefits local communities and applies adequate management practices.

Ensure **public participation** through capacity building and the effective utilisation of all means of communication to achieve outcomes that meet the needs and realities of each situation.

The focus of this thematic sector is to address the key challenges in managing urban sprawl and the impacts it has on the coastal zone. By adopting a sustainable development approach, it is the objective of Government to address these challenges from a holistic and integrated perspective.

During the last decade Seychelles has seen a significant increase in Foreign Direct Investment especially in the Tourism industry, with widespread construction of hotels around the country.

3.2 Thematic Outlook 2012-2020

Land tenure in Seychelles has changed dramatically over the last 40 years. In 1975 at least 26% of land in Seychelles belonged to the government with the remainder belonging to a few private land owners. From 1975 until now, government has bought and sold more than 5,000 plots of land mainly for housing purposes. Conservation areas such as Nature Reserves, Special Nature Reserves, Areas of Outstanding Natural Beauty, and National Parks cover about 51% of the total land area of the

Key Terms

Land Use is an understanding of the use of the land and the management practices within a land use category, provides valuable information about the reasons for change in the condition of our natural resources.

Seychelles It is expected that the demand for land for housing and other types of development will continue to grow. The ambitious plan of government is to build further housing estates on the reclaimed land. The rate of urbanization is expected to be centred around Victoria and its suburbs. The largest urban area will be the Perseverance housing estate where government is constructing 1057 houses, for an estimated population of 8,000.

Coastal land is expected to be further dominated by development, in particular housing and tourism. Business developments are also expected to place more pressure on the beaches of Seychelles. Potential conflicts between users are expected to arise, especially with the growing population and tourism. Degradation of fishing grounds and impacts on coral reefs continue to be a growing issue in the coastal zone. The effects of global warming will exacerbate the situation.

Land cover is the physical material at the surface of the earth. Land covers include grass, asphalt, trees, bare ground, water, etc. There are two primary methods for capturing information on land cover: field survey and analysis of remotely sensed imagery.

Urbanisation or **urban drift** is the physical growth of urban areas as a result of global change. Urbanization is also defined by the United Nations as movement of people from rural to urban areas with population growth equating to urban migration.

Seychelles has a very strong political commitment and this has undoubtedly contributed to successful implementation of activities. Government has facilitated the negotiation and implementation of important coastal management projects, and is attempting putting in place an effective land use management approach.

3.3 Policy Framework

The Constitution of the Republic of Seychelles (Article 38 & 40) states that it is the right of every person to live in and enjoy a clean, healthy and ecologically balanced environment. It is a duty of every citizen to protect, preserve and improve the environment.

The Environment Protection Act of 1994 is the main legal framework for the environmental impact assessment process, the establishment of sensitive areas, coastal zone management, waste management standards and makes provision for prevention, control and abatement of environmental pollution

The **Town & Country Planning Act of 1972** has been the most important instrument with regards to physical development and construction. It is also the instrument which is directly linked to land use planning. It deals particularly with building regulations and best practices, which also take into account environmental issues. However, it needs urgent revision to incorporate sustainability principles and also modern tools and approaches to planning and development.

Other instruments related to this thematic sector include the Nairobi Convention, United Nations Framework Convention on Climate Change, the United Nations Convention on the Laws of the Sea, the Ramsar Convention.

3.4 Stakeholder Framework

The majority of big development projects receive community involvement through the environment impact assessment (EIA) process. EIA allows stakeholder involvement into the assessment through public access to EIA reports and public meetings. All development are regulated by a planning authority composed of government and private sector representative.

Community-based groups: Involvement of local communities in land use and coastal zone management is often limited to environment impact assessment activities or the preparation of land use plans. At district level there are district level committees where the involvement and role vary from district to district. Some districts have community-based NGOs which focus on coastal zone management.

Government Agencies: The main government bodies are the Department of Land use, the Department of Environment, the Town & Country Planning Authority, Department of Community Development and the Island Development Company. The Island Development Company is responsible for managing development on the outer islands. The Department of Community Development is responsible for medium to small projects at community level. Other government agencies such as the Seychelles Fishing Authority, the Ports Authority and the Seychelles Tourism Board all have a stake in sustainable development of the coastal areas.

Non-Governmental Organisations (NGOs): NGOs focused on coastal zones are mainly found at community level. Some NGOs focus on coastal conservation initiatives such as turtle protection, coral reef management and coastal fisheries. They also organise campaigns to influence public opinion and government position on certain issues.

Private Sector: Stakeholders from the private sector are particularly important as they are the primary motor for coastal development and, to a certain extent, urbanisation. They contribute towards policy as well as land use planning and standards for development and building. Tourism developers need to be particularly involved.

Other Groups: Other important stakeholders include the media and professional groups such as engineers, architects and surveyors who can contribute to better management and planning of the coastal zones and other urban areas in the Seychelles.

3.5 Goals and Strategic Objectives

Goal 1 Long-term national development and land use management strategy for sustainable land management

There is a need for long-term perspective in land use development in Seychelles in view of its critical importance in supporting human development and also ensuring protection of the natural environment. Linked to that is the management of other resources associated with land use management.

	Strategic Objectives
1	Establish a comprehensive approach to sustainable land management with stakeholder involvement

Goal 2 An effective and integrated national coastal zone management framework

Too often development takes place in isolation, giving rise to all sorts of conflicts and when this occur lot of efforts and resources are used in resolving those conflicts rather than moving forward with development. Therefore it is vital to look at the coastal zone in a more integrated context.

	Strategic Objectives
1	Develop and implement an integrated approach to the management of the coastal zone areas

3.6 Action Plan

Goal 1 Long-term national development and land use management strategy for sustainable land management

Strategic Objective 1	Establish a comprehensive approach to sustainable land management with stakeholder involvement		
Outcomes	• More effective land use management		
Lead Implementing Agency	Ministry of Land Use and Housing and partner Ministries		
Total Estimated Cost	SCR 12,810,000		
Timeline	2012 -2020		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Review and updating of national land use policies and regulations	Up-to-date and effective policies, strategies and laws	MLUH	Updated policy documents
2. To conduct a land carrying capacity assessment	Study on carrying capacity with clear indicators	MLUH	National Carrying Capacity Report
3. To use alternative tools in land use planning	Use appropriate tools like the 50m contour policy	MLUH	GIS framework with all data including the geographical extent of the 50m contour verifiable down to parcel level
4. To develop a comprehensive land cover assessment for all islands	A land cover classification system	MLUH	Land cover assessment report

Activities	Expected Results	Responsibilities	Objectively Verifiable Indicators
5. To finalise the land use plans	Up-to-date land use plans	MLUH	Approved Land Use Plans available.
6. To ensure that disaster and other risks mitigation are mainstreamed in land use planning processes	Disaster and Risk free land use plans	MLUH & DRDM-DOE	Land use Plans incorporates disaster and risk related GIS layers and datasets
7. To build national capacity	More capacity nationally in land use planning	MLUH	Number of people trained and expertise in-house
8. To conduct Risk Assessments and formulate disaster preparedness plans for reclamation area	Better understanding of the risk factors and local and business community preparedness against risks and disasters	DRDM-DOE in collaboration with the MLUH	Assessment Reports and preparedness/ contingency plans in place
Cross-Sectoral Linkages	Climate Change		
Climate Change Considerations	Coastal adaptation strategies in coastal areas		
Capacity Building (incl. education) requirements	Training at different levels for the activities mentioned		
Legal & Institutional needs	Land use regulations		
Relevant applicable policies	Development and National Disaster Management Policy		
Links to conventions and treaties	None identified		
Possible sources of funding	GOS and UN/GEF		

Goal 2 An effective and integrated national coastal zone management framework

Strategic Objective 1	Develop and implement an integrated approach to the management of the coastal zone areas		
Outcomes	• To have a more effective strategy on coastal development in terms of development		
Lead Implementing Agency	Ministry of Home Affairs, Environment, Transport and Energy		
Total Estimated Cost	SCR 281,499,996		
Timeline	2012 -2020		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable indicators**
1. To review and update existing ICZM-related policies, laws and regulations	Up-to-date and effective policies, strategies and laws	MHAETE	ICZM policy & regulations documents
2. Improve communication, networking and stakeholder involvement	Active involvement of stakeholders and local communities in ICZM communication programmes	MHAETE, DCD	Stakeholder involvement in ICZM programmes
3. To develop national ICZM Framework for Seychelles	National Framework that meets regional and international best practice.	MHAETE	Framework policy document
4. Strengthen existing stakeholder network and establish a knowledge platform for coastal zone management	More active involvement of relevant stakeholders	MHAETE	Bigger participation of relevant stakeholders in relevant processes. Key stakeholders are the local community, local community groups /NGOs and associations
5. To improve communication, information dissemination and networking	Feedback mechanism to the Environment Department and Planning Authority on major district and community-based projects Public relations strategy	MHAETE + MLUH	Public relations strategy and policy

Activities	Expected Results	Responsibilities	Objectively Verifiable Indicators
6. Create greater awareness on changes and risks in the coastal zone and impacts on resources and communities	Community outreach programmes and activities Public sensitization activities through media campaigns	MHAETE,DCD + NGOs	No. of Meetings, seminars, consultation workshops, media events for the local community
7. To make the ICZM even more transparent	Information more disposable, accessible to the general public Interpretation of information for the different specific stakeholders	MHAETE	More constructive and positive feedbacks and contributions
8. To increase human and institutional capacity	More institutional capacity in ICZM nationally	DRDM-DOE in collaboration with the MLUH	More human capacity and resources in-house
9. Promote research on coastal change and human behaviour so as to better plan coastal developments and mitigate against natural disasters	Long term research and policy formulated Continuous and updated research documents and data	MHAETE + NGOs	No. of research papers published on coastal change
Cross-Sectoral Linkages	Climate Change		
Climate Change Considerations	Coastal adaptation to climatic risks such sea level rise, flooding and storm surges		
Capacity Building (incl. education) requirements	Across all areas and activities at varying degrees of expertise and qualifications		
Legal & Institutional needs	EIA regulations		
Relevant applicable policies	Development and ICZM Policy		
Links to conventions and treaties	Nairobi Convention, UNFCCC		
Possible sources of funding	GOS, EU,GEF and UN		

3.7 Cross-Sectoral Issues

Disaster Management and Climate Change

A very important aspect of disaster risk reduction is proper land use planning. In Land Use Planning it is imperative that risk areas are identified and developments are not implemented in such areas. In Land Use Planning it is important also to ensure that vital infrastructures are placed at strategic and safe areas in reference to disaster risk reduction.

Integrated Coastal Zone Management (ICZM) is a framework for stakeholder involvement and consultation which in turn assists in proper usage and development of the coastal zones. Effective management of the coastal zones is very important in disaster risk reduction. Natural ecosystems play a vital role in disaster risk reduction as ecosystems such as beaches, wetlands and the coral reefs are natural protection systems against natural hazards such as storm surge, flooding and erosion.

Land use planning is a useful tool in adaptation to climate change in reference to sea level rise, coastal erosion, tsunami risk, storm surges and flooding. Risk management at all levels against all natural hazards has become even more important with the emergence of climate change as a major political issue.
Adaptation measures to climate change impacts will involve increasing our ability to cope with a changing climate and building community resilience based on analysis of risk assessment and vulnerability.

ICZM is increasingly being accepted as an effective framework to address coastal and marine environmental problems, conflicts and management needs. One of the main objectives of ICZM is to achieve sustainable use of coastal resources and to ensure that coastal communities plan for and minimize, or mitigate, the impacts of development and natural hazards.

Tourism

Tourism development needs to be implemented in accordance with established land use plans in order to ensure orderly development and also aesthetically pleasing and sustainable and environmentally friendly policies.

Tourism development also needs to be implemented in such a way that they are able to adapt to future climate change risks such as storm surge and sea level rise.

It is important also that tourism practices take place in accordance with existing land use policies to ensure sustainable development and eco-friendly development to avoid environmental degradation and other negative environmental impacts.

Agriculture

Land use planning also ensures the effective development of the agricultural lands and sector by providing the right land resources and also at the correct location which in turn ensures maximum production and the sustainable development of the sector.

Development of the agricultural sector can have adverse effects on the natural environment if not practiced correctly. The usage of nutrients in agriculture if not used and controlled properly can have adverse effects on the coastal and marine environment through euthrophication. It is therefore important that integrated development of the coastal areas is undertaken in close and active consultation and participation with the agricultural sector.

Effective land preparation for agriculture is also crucial in ensuring that there is no degradation of lands and ecosystems in the process. Correct terracing practices is required to ensure stability of coastal slopes as ineffective terracing or practices on coastal slopes can lead to sedimentation to marine ecosystems such as coral reefs, beaches and seagrass areas. Agricultural development should avoid as much as possible wetland or saturated areas. Reclamation of wetlands will eventually lead to flooding in those areas and it is therefore important that there is active involvement and consultation of all relevant stakeholders to ensure that such practices are avoided or take place in a sustainable manner.

3.8 Measurement of Progress

Have a bi-annual review of progress as follows;

- Convene stakeholders' meetings/ workshop to review activities as proposed for feedback and reporting.
- Internal ministerial committee to drive the activities internally through meetings/ discussions. The working groups (MLUH/ Environment) will each have a Chairperson who will guide other members on the activities. The Chairmanship will be appointed on post title and responsibility basis. At the time of reporting the two chairpersons will meet and compile a joint report which will be handed over to the SSDSC Chairperson.
- Ensure mainstreaming of activities in line with national strategies and plans for example Vision 2020, as well as the National Medium Term Development Plan 2013 - 2017.
- SSDS Steering Committee will ensure the setting up of a mechanism to obtain data/information from the sector.

Thematic Sector: Land Use, Coastal Zones & Urbanisation

Goals:	Estimated cost:	Notes:
1. Long-term national development and land use management strategy for sustainable land managements	SCR 12,810,000	
2. An effective and integrated national coastal zone management framework	SCR 281,499,996	

4 BIODIVERSITY AND FORESTRY

4.1 Introduction

Seychelles' most important natural asset is its unique and fragile biodiversity. Central to the sustainable development strategy is the management and conservation of this natural asset. Seychelles is party to the Convention on Biological Diversity and signatory to many of the world's major conservation treaties. The country has made remarkable progress in biodiversity conservation over the last 30 years being the first country in the Western Indian Ocean region to designate marine protected areas and today 51% of its land territory is under legal protection. Government, NGOs and the private sector are responsible for the management of protected areas. The protection of biodiversity and the implementation of conservation measures remain a priority to the country.

Guiding Principles

The sustainability principle: the conservation and sustainable use of biodiversity, agriculture and forest resources to meet the needs of the present generation without jeopardizing the needs of future generations.

The efficiency principle: the conservation and utilization of biological resources in an efficient and sustainable manner to produce the desired objective.

Principles for the prevention and mitigation of impacts of alien species on threatened ecosystems and their functions: the adoption of appropriate measures to prevent introduction, spread, and impact of invasive alien species.

The Seychelles archipelago consists of 115 granitic and coral islands spread over 1.3 million square kilometers of oceans, are endowed with a rich diversity of terrestrial and marine flora and fauna which is the result of evolutionary changes shaped by land separation, geographical isolation and island emergence. The natural processes have given rise to a rich diversity of unique, terrestrial and marine plants and animals some of which are endemic being found nowhere else in the world. Endemism is higher amongst terrestrial species of the granitics. The Seychelles flora is characterized by 1000 species of plants of which 250 are indigenous (with 85% being located in the national parks) and 750 introduced plant species. The endemic fauna is characaterised by 12 globally threatened endemic birds, 5 endemic bat species, 7 endemic caecilians, 5 endemic frog species, 2 freshwater fish, 2 sub species of terrapins with more than 20 lizards of which 14 species and subspecies are endemics. The arthropods are equally diverse represented by a diversity of insects, scorpions, spiders and fruits flies, many of which are endemic. Equally, the marine environment is diverse with over 1000 species of fish of which 400 are confined to reef, 55 species of sea anemones, 300 scleractinian corals, 150 species of echinoderms and 350 species of sponges.

Guiding Principles (cont.)

The ecosystem approach: constitutes the integrated management of land, water and living resources to promote conservation and sustainable use in an equitable way.

The principle of translocation: the practical relocation of biodiversity from an area where it is threatened to an area

The Seychelles is covered with 40,600 ha of forest which represents 90% of the total land area. Forested areas include natural forests and plantations established for commercial purposes. About 90% of the forests are natural with plantations covering about 4,800 ha. Although the forest ecosystem is largely secondary with significant levels of invasive species, it still offers a wealth of biological diversity and protects inland water ecosystems and important watersheds. Apart from these natural functions, forests provide timber and non-timber products such as palm leaves, raffia and bamboo to the traditional craft industry. More than 45% of the forested areas are located within the terrestrial protected areas.

where it can be conserved and will have minimum impact on their survival.

The principle of ecosystem restoration and rehabilitation: the restoration of ecosystems to their original state, where practicable, and the implementation of measures for the recovery of threatened species ex, inter, and in situ.

The biodiversity and ecosystems of the Seychelles islands are fragile and continue to be threatened by human actions and interventions such as the introduction and spread of alien invasive species, housing and infrastructure development, forest fires, overexploitation (e.g. coco de mer) and climate change. Within the marine realm, general 'Open Access' policies are being replaced with regulatory processes as near-shore diversity and abundance decreases with increased levels of exploitation. The sustainable development strategy will provide active support and guidance in preventing further biodiversity loss and ecosystem degradation for the future of the Seychelles Nation.

4.2 Thematic Outlook 2012-2020

Given the challenges on managing biodiversity in Seychelles through population growth and increasing development, the impact on biodiversity will persist. The costs associated with biodiversity loss will have a detrimental impact on livelihood and economic returns to Seychelles. This impact will not affect all habitats and species evenly, and it will vary spatially (within and between islands) and temporally (short and long-term effects). Nevertheless, biodiversity loss is likely to affect many aspects of Seychelles' economy and well-being.

The rate of habitat destruction is expected to continue, especially with pressure from development. This will be restricted mainly to lower altitudes and the coastal marine environment as most high-altitude areas are currently under protection. Coastal land reclamation may increase in the future, which will further the impact of human activities on many sensitive species such as certain species of threatened birds, bats and turtles.

Many of the terrestrial species have restricted range as a result of alteration to the original habitats. Further spread of invasive species and threats of climate change will likely further restrict those specific habitats. Increased pesticides and chemical use for agricultural production have been shown to negatively affect biodiversity and alter ecosystem functions. Threat of disease is likely to increase in the future, especially due to changing climatic patterns and introductions of alien species.

Direct exploitation of biodiversity is predicted to increase in forest ecosystems. Trees will continue to

Main Challenges

- Lack of a biodiversity policy and outdated legislation for the protection of biodiversity with poor institutional support for implementation.
- Lack of institutional capacity to enforce biodiversity laws and to control the spread of alien invasive species.
- Limited capacity to manage timber plantations, as well as lack of collaboration and effective partnerships between stakeholders. Brain drain and high employee turnover is an important consideration (given that it puts immense pressure on the management capacity at the institutional level.
- Lack of sustained financing for biodiversity conservation as many initiatives are project-based and time-bound. Most organisations are dependent on mostly tourism with no other sources of sustainable income.
- Lack of effective tools and measures to address emerging threats to biodiversity such as the increase in alien invasive species and climate change.

be harvested for timber and to provide resources for the local craft industry and pressure is mounting for tourism development within these areas. Furthermore, on some islands the risk of natural forest fires is expected to increase due to climate change. These factors coupled with over-collection or unsustainable harvest may result in the degradation of the forest ecosystem which may in turn affect the watershed and impact on the water supply. Similarly, abandoned and disturbed forestry land will foster Alien Invasive Species (AIS) establishment and spread, and exacerbate pressures on adjacent natural ecosystems.

As a result of these negative trends, it is expected that the population range and size of some native species will decrease. Endemic frogs and coral reefs, among other species, will be severely affected by the projected changes in climate. A few positive trends, however, are also expected mainly due to the expansion of terrestrial and marine protected areas, assuming that sufficient resources are made available for their efficient implementation. Whilst there are still many constraints in protected area management, successful efforts by Government, NGOs and the private sector have resulted in the conservation of a number of endemic bird species and the restoration of severely degraded habitats, especially on small islands. Subsequently, the private sector has also contributed immensely to nature protection and rehabilitation.

4.3 Policy Framework

Seychelles has a comprehensive framework of environmental policy and legislation to protect marine and terrestrial biodiversity but not all are being enforced to the full extent due to lack of enforcement capacity. Also many of the biodiversity laws are outdated.

The Environment Management Plan of Seychelles (EMPS 2000-2010) provided the overarching policy framework for sustainable development which included a thematic chapter on biodiversity, agriculture and forestry.

The National Biodiversity Strategy and Action Plan (NBSAP, 1998), identifies the country's vision and action plan for biodiversity conservation.

The National Strategy for Plant Conservation, (2005-2010) provides a framework for the conservation of plants and their habitats in Seychelles whilst the **National Research Agenda 2008-2013** identifies priority research avenues to enhance our understanding of plants and their associated environment.

National Plan for Conservation of Sharks (NPOA) and T**he Seychelles Wetland Conservation and Management Policy, 2005)** are frameworks targeting specific species and habitats which attempt to involve broad stakeholder participation; unfortunately neither are currently being implemented effectively.

The National Climate Change Strategy (2009) addresses the priorities for addressing climate change impacts in Seychelles, including biodiversity and forestry sectors.

Biodiversity conservation and ecosystem protection are regulated under different legislation, notably the National Parks and Nature Conservancy Act (1969, as amended), the Fisheries Act (1987), the Wild Animals and Birds Protection Act (1961)and the Wild Birds Protection (Nature Reserves) Regulations (1966) Other Acts supporting keystone species protection (marine turtles, certain sea bird species, whale sharks and marine mammals) and their habitats include: The Wild Animals (Whale

Shark) Protection Regulations (2003); the Environmental Protection Act (1994); the Forest Reserves Act (1955, as amended); and the Fisheries Act (1987). A forest policy dated 1993 exists and aims to establish the basic principles, broad objectives, main forest function and priorities and strategies for the forestry development in the Seychelles.

4.4 Stakeholder Framework

To successfully implement the priorities highlighted in this strategy, stakeholders need to embrace the overall vision and goal of improving conservation management in Seychelles. Government must enable their effective involvement in decision-making and policy development. This includes effective coordination of activities, sharing of expertise and information as well as efforts to establish long-term sustainable approaches to conservation management. A broad range of stakeholders – ranging from community groups, the private sector, non-governmental organizations and other bodies in government- will need to work together to achieve the goals of this sustainable development strategy.

Table 2: Roles of the different stakeholders involved in biodiversity conservation

Stakeholder Group	Roles	Example of Institutions or Bodies
Decision makers	Approval of policies and legislations	National Assembly, Cabinet of Ministers, Ministries and Government Departments
Government Ministries or Departments	Management of environment, biodiversity, natural resources such as land and fish and development of policies and legislation. Also have regulatory functions.	Ministry of Home Affairs, Environment, Transport and Energy (MHAETE), Department of Environment (DOE), Ministry of Investment, Natural Resources and Industry (MINRI), Ministry of Foreign Affairs (MFA), Ministry of Land Use and Housing (MLUH), Ministry of Finance (MoF), Attorney General (AG)
Parastatal Organizations	Government appointed Authorities, Agencies or bodies responsible for the management of marine and terrestrial resources. They are also responsible for the implementation and enforcement of regulation. Some authorities/bodies have responsibility for the management of biodiversity in protected areas	Seychelles Fishing Authority (SFA), Seychelles National Park Authority (SNPA), Island Development Corporation (IDC), Seychelles Agricultural Agency (SAA), National Botanical Garden Foundation (NBGF), Seychelles Islands Foundation (SIF), Public Utilities Corporation (PUC)

Non Governmental Organizations (NGOs)	Civil Society organizations active in the domain of marine and terrestrial species conservation, biodiversity research, public education and awareness. Some are also responsible for the management of islands and their ecosystems.	Green Islands Foundation (GIF), Island Conservation Society (ICS), Marine Conservation Society of Seychelles (MCSS), Nature Protection Trust of Seychelles (NPTS), Nature Seychelles (NS), Plant Conservation Action group (PCA), Sustainability for Seychelles (S4S), The Ecotourism Society of Seychelles (TESS), Terrestrial Restoration Action Society of Seychelles (TRASS), Seychelles Farmers Association, Wildlife Club of Seychelles (WCS)
Private Sector	Businesses involved in biodiversity conservation	North Island, Cousine Island, Ephelia Resort, Denis Island, Bird Island, Aride Island, Fregate Island, Banyan Tree Resort Seychelles, Lemuria Resort, Chalets Anse Forbans.
Community Based Organizations	Biodiversity conservation at Community level	Roche Caiman District Group

4.5 Goals and Strategic Objectives

Goal 1 Conserve and manage terrestrial and aquatic biodiversity to ensure sustainable use and equitable benefits to the people

This goal aims to ensure that the management of biodiversity in Seychelles is undertaken in a manner that preserves ecological integrity and meets human needs. This includes the preservation of biodiversity for intrinsic and bequest values. It is also important that such benefits are shared in a fair and equitable manner.

	Strategic Objectives
1	To develop strategies to conserve, restore and sustainably manage important biodiversity areas which are outside the protected area network
2	To establish a network of protected areas that conserves a representative sample of biodiversity and maintains key ecological processes across the landscape and seascape
3	To identify and strengthen the management, access and sustainable financing mechanism of new and existing protected areas
4	To improve collection and sharing of biodiversity data and related information within a collaborative multi-stakeholder knowledge platform

Goal 2 Improve our understanding of biological diversity and ecosystem functioning in a changing environment

This goal aims to ensure that we increase our understanding of the flora, fauna and ecosystem function through research and address the loss of biodiversity and ecosystem functions within the context of global change. The gain in knowledge will ultimately result in the development and implementation of adaptive management strategies to address the consequences of global change upon Seychelles' biodiversity.

	Strategic Objectives
1	To strengthen research and improve our understanding of changes in biodiversity and its implications for ecosystem function (especially within the context of global change and ongoing restoration/mitigation processes)
2	To develop a framework for adaptive management based on our improved understanding of ecosystem change
3	To adopt and implement ecosystem-based approaches to halt biodiversity loss and limit or prevent ecosystem degradation

Goal 3 Achieve sustainable forest management using an ecosystem approach which further strengthens ecosystem services

This goal aims to ensure that sustainable forest management practices are used to ensure effective management of our forest resources. It also provides for the protection of key ecosystem functions such as the protection of watershed.

	Strategic Objectives
1	Review and integrate existing forestry management practices within an overall sustainable forest management framework
2	Develop and implement forest rehabilitation and restoration programmes

4.6 Action Plan

Goal 1 Conserve and manage terrestrial and aquatic biodiversity to ensure sustainable use and equitable benefits to the people.

Strategic Objective 1	To develop strategies to conserve, restore and sustainably manage important biodiversity areas which are outside the protected area network.
Outcomes	• Areas with sensitive biodiversity (critical habitats, endangered or endemic species) identified with appropriate strategies developed. • Efficient use and management of sensitive biodiversity areas. • Restoration of small islands and other areas potentially suitable for threatened endemic wildlife.

Lead Implementing Agency	Department of Environment, Seychelles National Parks Authority		
Total Estimated Cost	SCR 30,000,000		
Timeline	2012 -2020		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable indicators**
1. To identify critical habitats and ranges of endangered or endemic species	Enhancing our understanding on the biological diversity	DOE, SNPA, NGO's	Reports and publication
2. To develop and efficiently implement appropriate management for sensitive biodiversity areas including designation of legal protection of particularly biodiversity rich areas	Efficient management of sensitive biodiversity	DOE, SNPA, NGO's	Sensitive area management records, reports and publications
3. To strengthen biological and ecological research on local biodiversity with emphasis on research and monitoring of keystone species	Enhancing our understanding on the biological diversity	DOE, SNPA, NGOs	Reports and publication
4. Designate biological hotspot such as Important bird areas, important plant areas , critical life-stage habitats	Designated areas of high biological importance	DOE, SNPA, NGOs	Establishment of recognized biodiversity hotspots or critical life-stage-habitats
5. Control and manage Alien Invasive Species in areas/islands rich in biodiversity or potentially sites for development of natural sanctuaries.	Eradication of AIS	SNPA, NGOs	Number and species of AIS eradicated or effectively controlled
6. Develop a Bio-Security Act	Enforcement of bio-security regulations	DOE, DNR, SAA	Bio-security Act approved by the National Assembly
7. Develop and enact a Biodiversity Act	Revision of existing legislation Updated legislation Better enforcement	AGs, DOE, (All partners)	Biodiversity Act approved by the National Assembly

8. Develop environmental management plans for granitic and coralline islands	Improved management of islands	NGOs	Environmental management plans developed and implemented.
9. Update the National Biodiversity Strategy and Action Plan and the National Strategy for Plant Conservation	Updated Biodiversity Strategy and action plan	DOE, SFA, NGOs	2nd National Biodiversity and Action Plan. 2nd National Strategy for Plant Conservation.
10. Develop a strategic education and awareness program for the public on sensitive biodiversity areas	Education and awareness program in place	DOE, SNPA, NGOs	NGOs/Public actively contributing to the management of protected areas.
Cross-Sectoral Linkages	Land Use, Coastal Zones and urbanization, Regulatory Policy and institutional mechanisms.		
Climate Change Considerations	Refer to Goal (specific goal in the climate change chapter). Indicators to be established. Important plant areas established.		
Capacity Building (incl. education) requirements	Inclusion of environmental education in secondary and tertiary education. Vocational training needs for rangers, conservationists, researchers, etc		
Legal & Institutional needs	Development of new legislation.		
Relevant applicable policies	National Biodiversity Strategy and Action Plan, National Strategy for Plant conservation. National Plan of Action for Shark 2007.		
Links to conventions and treaties	The strategic objective is relevant to CBD and CMS (Migratory Sharks).		
Possible sources of funding	GEF, UNDP, CI, WWF, EU, etc.		

Strategic Objective 2	To establish a network of protected areas that conserves a representative sample of biodiversity and maintains key ecological processes across the landscape and seascape
Outcomes	• Biodiversity priority areas identified and network of protected areas established. • Modern legal framework for the management of protected areas in Seychelles.

Lead Implementing Agency	Department of Environment and Seychelles National Parks Authority in collaboration with NGOs.		
Total Estimated Cost	SCR 30,000,000		
Timeline	2012 -2020		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable indicators**
1. Establish Network of Protected Areas on the Outer islands	Key representative ecosystems under protection Improved conservation of biodiversity on the outer islands	DOE, SNPA, IDC, SIF, NGOs	Protected Areas Schedule & Proclamation Designation of outer Islands as Protected Areas
2. Establish habitat corridors in terrestrial and marine habitats	Connectivity between areas established	SNPA, NGOs	Establishment of corridors Increased geographical distribution and range of species
3. Patch habitat restorations to promote genetic and ecological connectivity	Local areas restored with native species. Restoration of coral reefs.	SNPA, NGOs	Increased relative abundance of native plants. Restoration of coral reefs.
4. Establish temporal areas for migratory species	Temporal protected areas established for turtles, whale shark and other migratory threatened species	DOE, SNPA, NGOs	Protected Areas Schedule
5. Establish protected area status for islands with high sea bird colonies	Habitat of the bird colonies identified and protected. Designation of other islands as protected areas.	DOE, SNPA, NGOs	Protected area schedule and designation
6. Identify IBAs at sea for marine sea birds	Key foraging and aggregation areas established. Protection of areas from fisheries.	DOE, AG, SFA, NS	Identification of key foraging areas. Protection of IBAs

7. Designation of islands as key terrestrial birds areas	Protected area status of islands	DOE, AG, Private islands	Protected area schedule and proclamation
8. Establish protected area status for sites of high biodiversity areas including small islands	Glacis ecosystem under protection. Improved conservation for inselberg vegetation Protection of island ecosystem.	DOE, SNPA, NGOs	Protected Areas schedule & proclamation. Regulation protecting small islands. Private island included under the Protected Area Network.
9. Revise protected area legislation and align with international standards	Modern legislation with international standardised criteria	DOE, SNPA, AG, NGOs	New protected area legislation approved by National Assembly.
10. Develop a flexible tool to provide temporally and spatially protection status to areas of high biodiversity importance	Tools in place to guide temporal protection and designation of area	DOE, SNPA, NGOs	Approved policy governing temporal and spatial protection status.
11. Develop a national policy for protected areas of Seychelles	New policy for protected areas	DOE, SNPA, NGOs	Policy approved by Cabinet of Ministers. Implementation of the Policy.
12. Develop legislation to address benefit sharing (Nagoya Protocol)	Implementation of the Nagoya protocol on ABS New ABS legislation	DOE, AG, SNPA	ABS legislation approved by the National Assembly.
Cross-Sectoral Linkages	Land Use, Coastal Zones and Urbanisation, Regulatory, Policy and Institutional Mechanism, Education and Awareness.		
Climate Change Considerations	Refer to Goal (specific goal in the climate change chapter). Resilient ecosystems and its associated assemblages to be identified. Appropriate ecological corridors considered in protected area system.		
Capacity Building (incl. education) requirements	Training needs includes rangers, conservationists, environmental lawyers and economists. Refer to Education for Sustainability sector chapter		
Legal & Institutional needs	Conservation centres established on the outer islands and other islands with high biodiversity conservation focus. Centres equipped with monitoring and enforcement resources. Development of legislations/regulatory framework.		
Relevant applicable policies	Protected Area Legislation. Protected Area Policy.		

Links to conventions and treaties	This strategic objective is linked to various decisions under the CBD, more specifically to the Programme of Work on Protected Areas. It will also assist with implementation of certain decisions under CITES.
Possible sources of funding	GEF, CI, WWF, WB, GoS, etc.

Strategic Objective 3	To identify and strengthen the management, access and sustainable financing mechanism of new and existing protected areas		
Outcomes	• Effective management of protected areas • Sustainable financing for protected areas		
Lead Implementing Agency	Seychelles National Parks Authority in collaboration with the Ministry of Environment and partner NGOs		
Total Estimated Cost	SCR 15,000,000		
Timeline	2012 -2020		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable indicators**
1. Assess the efficiency of the management of the protected area network	Gaps in management plans identified Effectiveness of protected area management greatly improved	SNPA, SIF, NGOs	Reports produced Improvement in the management of protected areas
2. Develop or revise management plans for protected areas	Updated management plan for protected areas. Implementation of annual work plan.	SNPA, PDF, SIF, NGOs	Updated management plans of PAs. Updated reports on PA management.
3. Establish a working group between PA stakeholders	A forum for debating issues pertaining to protected area management. Improved communication and collaboration between stakeholders.	DOE, SIF, SNPA, IDC, NGOs	Reports and minutes of meetings. Increased partnership in project implementation.
4. Develop sustainable financing mechanism for PAs.	Increased revenue for protected areas. Alternative funding sources to operate PA Systems.	DOE, SIF, SNPA, NGOs	Increased funding for management of protected areas

5. Develop and improve the existing network of trails.	Increased visits to the protected areas.	SNPA, NGOs, private sector.	Well maintained nature trail. Increase in number of connected trails.
6. Develop information materials for all protected areas.	New information materials available for all protected areas	SNPA, NGOs	Information boards, guides, leaflets and pamphlets
7. Demarcation of all marine protected areas	Demarcation of marine Protected areas Installation and use of mooring buoys	SNPA, NGOs	Number of buoys Demarcation and mooring buoys in MPAs
8. Undertake coral surveys and habitat assessment works	Habitats and species identified. Distribution of coral assemblages in Pas.	SNPA, NGOs	Habitat maps and reports produced. Production of a species identification guide.
9. Enhance capacity in management of protected areas	Skilled and knowledgeable staffs in protected area	SNPA, University of Seychelles, NGOs	Number of trained personnel. Implementation of activities under PA Management plans.
Cross-Sectoral Linkages	Environmental economics, Mainstreaming and sustainable financing Education and awareness, Regulatory, policy and institutional mechanisms		
Climate Change Considerations	Refer to Goal (specific goal in the climate change chapter) Measures for climate change adaptation		
Capacity Building (incl. education) requirements	Training for managers, wardens and rangers. High level education (Master of Science)		
Legal & Institutional needs	Increase the ability to enforce regulations within park boundaries		
Relevant applicable policies	NBSAP, EMPS 2000-2010, NSPC, Forest Policy, Climate change Strategy		
Links to conventions and treaties	This strategic objective and activities will help fulfil our obligations under the CBD, more specifically to the Programme of work on Protected Areas under the CBD, and certain provision to protect the habitats of migratory species under the CMS		
Possible sources of funding	GEF, EU, UNDP, WWF, WIOMSA		

Strategic Objective 4	To improve collection and sharing of biodiversity data and related information within a collaborative multi-stakeholder knowledge platform		
Outcomes	Protocols for data collection developed with local stakeholders A national database on biodiversity and ecosystem functioning developed		
Lead Implementing Agency	Department of Environment, NGOs		
Total Estimated Cost	SCR 10,000,000		
Timeline	2012 -2020		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable indicators**
1. Establish a platform to promote collaboration and exchange	A forum consisting of all partners in place Guidelines on data collection established	DOE, UNDP, SFA, NGOs	Committee constituting of all stakeholders Clear guidelines endorsed by all partners
2. Develop MOUs between stakeholders	Collaboration enhanced for data collection and sharing	DOE, NGOs, international partners	Signed MOU with all partners Minutes of meetings
3. Appoint institutions responsible for documenting, safekeeping and maintaining records and data	Staff responsible for data management Database	DOE, NGOs	Institution responsible for documentation Server in place
4. Conduct inventory to determine data availability	Identify gaps in available data Address the identified gaps	DOE, NGOs	Reports Meta Database
5. Build capacity in data collection, data management and using online platform	Skilful Staff trained in data collection and management Standardised method for data collection developed and adopted	DOE, UNDP, NGOs	Number of people trained, Course materials Number of data collection slip
6. Map biodiversity rich areas	High biodiversity hotspots identified Use of map in policy and decision making processes	DOE, SNPA, NGOs	Maps of biodiversity rich areas Atlas of biodiversity hotspot

7. Create a national species database	National database on species, habitats, ecosystems and the ecology of biodiversity	DOE, SNPA, NGOs	National Species database available (online) and usable
8. Cataloguing and monitoring of biological diversity	Understanding species ability to adapt to changing environment, Enhance our understanding on species and ecosystem processes	DOE, SNPA, NGOs	Publications User friendly manuals for local context
Cross-Sectoral Linkages	Regulatory, Policy and Institutional mechanism,		
Climate Change Considerations	Refer to Goal (Specific goal in climate change chapter)		
Capacity Building (incl. education) requirements	Improve capacity of rangers and others in data collection, data analysis		
Legal & Institutional needs	Build capacity in the institution		
Links to conventions and treaties	This objective and activities will help in the implementation of various articles under the CBD.		
Possible sources of funding	UNDP, GEF, WWF, GoS, ETF		

Goal 2 Improve our understanding of biological diversity and ecosystem functioning in a changing environment

Strategic Objective 1	To strengthen research and improve our understanding of changes in biodiversity and its implications for ecosystem function (especially within the context of global change and ongoing restoration/mitigation processes)
Outcomes	• Improve local research capacity • Develop collaborations with local and international research partners
Lead Implementing Agency	DOE, SNPA, NGOs
Total Estimated Cost	SCR 25,000,000
Timeline	2012 -2020

Activities	Expected Results	Responsibilities	Objectively Verifiable indicators
1. Develop a research policy and supporting legislation	Policy and legislation guiding research	DOE, SFA, SBS	Regulations Policy document endorsed by stakeholders
2. Strengthen existing research unit or institute to conduct independent research	Research unit established Unit/Institution conducts research	SNPA, University of Seychelles, SIF, SFA, NGOs	Established research unit/Institution Research in progress External funding sourced
3. Develop secondary and tertiary education modules and vocational training programmes for various research areas and skills	Produce quality research More Seychellois involved in research	MHAETE, NGOs, SFA, SIF	Secondary & tertiary educational modules; vocational training course records; research training records
4. Train 3 botanists, 2 zoologists, 4 ecologists, and 2 environmental economists	Qualified zoologist, botanist , ecologist and environmental economist	University of Seychelles, NHDRC	2 botanists, 4 ecologists, 2 environmentalists, 2 environmental economists
5. Develop collaborations with national and international organisations /universities	Increased local and international collaborative research	SNPA, NGOs, SFA, SIF	MOUs signed with international Partners; Increased number of researchers /institutions affiliated to national research institute; Number of SBS research applications
6. Applied research on ecosystem changes in marine and terrestrial environment	Enhanced understanding on different types of habitat	SNPA, SFA, NGOS	Increase in reports, publications
7. Develop a Biodiversity research strategy	Strategy guiding marine and terrestrial research	SNPA, SFA, NGOs	Approved Research Strategy
8. Undertake research on keystone species	Improved understanding of keystone species Better understanding on evolutionary and ecological processes	All	Increased number of scientific publications Increased number of scientific report

9. Undertake biological assessment of wetlands	Biological and ecological importance of wetlands recognised	DOE (Wetland Unit) SNPA, SIF, NGOs	Reports produced Listing of more RAMSAR site
10. Identify indicators and mechanisms for adaptations in biodiversity	To monitor ecosystem changes	SNPA, SFA, SIF, NGOs	Indicator report, monitoring programme
11. Record and monitor ecosystem changes; climate change monitoring schemes and additional monitoring points to improve temporal and spatial resolutions	To understand changes to the ecosystem	SNPA, SFA, SIF, NGOs	Monitoring point locations Publication of research findings
Cross-Sectoral Linkages	Regulatory, Policy and Institutional mechanism		
Climate Change Considerations	Refer to goal in climate change Resilient ecosystems to be identified Appropriate ecological corridors considered in protected area system		
Capacity Building (incl. education) requirements	Training needs include rangers, conservationists etc Promote career path to attract best people		
Legal & Institutional needs	Centre for research established		
Relevant applicable policies	NCSA		
Links to conventions and treaties	The strategic objective and activities will assist with fulfilling various articles under the CBD, implementation of articles under RAMSAR, and CMS		
Possible sources of funding	GEF, CI, WWF, GOS, etc.		

Strategic Objective 2	To develop a framework for adaptive management based on our improved understanding of ecosystem change
Outcomes	• Facilitate research • Develop capacity

Lead Implementing Agency	SNPA, NGOs		
Total Estimated Cost	SCR 20,000,000		
Timeline	2012 -2020		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable indicators**
1. Assess the efficiency of the management of the protected area network	Gaps in management plans identified Effectiveness of protected area management greatly improved	SNPA, SIF, NGOs	Reports produced Improvement in the management of protected areas
2. Develop or revise management plans for protected areas	Updated management plan for protected areas Implementation of annual work plan	SNPA, PDF, SIF, NGOs	Updated management plans of PAs Updated reports on PA management
3. Establish a working group between PA stakeholders	A forum for debating issues pertaining to protected area management Improved communication and collaboration between stakeholders	DOE, SIF, SNPA, IDC, NGOs	Reports and minutes of meetings Increased partnership in project implementation
4. Develop sustainable financing mechanism for PAs	Increased revenue for protected areas Alternative funding sources to operate PA Systems	DOE, SIF, SNPA, NGOs	Increased funding for management of protected areas
5. Develop and improve the existing network of trails	Increased visits to the protected areas	SNPA, NGOs, private sector	Well maintained nature trail Increase in number of connected trails
6. Develop information materials for all protected areas	New information materials available for all pro-tected areas	SNPA, NGOs	Information boards, guides, leaflets and pamphlets
7. Demarcation of all marine protected areas	Demarcation of marine Protected areas Installation and use of mooring buoys	SNPA, NGOs	Number of buoys Demarcation and mooring buoys in MPAs

8. Undertake coral surveys and habitat assessment works	Habitats and species identified Distribution of coral assemblages in Pas	SNPA, NGOs	Habitat maps and reports produced Production of a species identification guide
9. Enhance capacity in management of protected areas	Skilled and knowledgeable staffs in protected area	SNPA, University of Seychelles, NGOs	Number of trained personnel Implementation of activities under PA Management plans
Cross-Sectoral Linkages	Environmental economics, Mainstreaming and sustainable financing Education and awareness, Regulatory, policy and institutional mechanisms		
Climate Change Considerations	Refer to Goal (specific goal in the climate change chapter) Measures for climate change adaptation		
Capacity Building (incl. education) requirements	Training for managers, wardens and rangers. High level education (Master of Science)		
Legal & Institutional needs	Increase the ability to enforce regulations within park boundaries		
Relevant applicable policies	NBSAP, EMPS 2000-2010, NSPC, Forest Policy, Climate change Strategy		
Links to conventions and treaties	This strategic objective and activities will help fulfil our obligations under the CBD, more specifically to the Programme of work on Protected Areas under the CBD, and certain provision to protect the habitats of migratory species under the CMS		
Possible sources of funding	GEF, EU, UNDP, WWF, WIOMSA		

Strategic Objective 3	To adopt and implement ecosystem-based approaches to halt biodiversity loss and limit or prevent ecosystem degradation
Outcomes	• Employ a variety of ecosystem-based management strategies • Maintain current levels of diversity of species, habitat and interactions • Preserve diversity of ecosystem functions under different management scenarios • Ensure self-sustaining and balanced, complex ecosystems
Lead Implementing Agency	DOE, SNPA, NGOs
Total Estimated Cost	SCR 55,000,000
Timeline	2012 -2020

Activities	Expected Results	Responsibilities	Objectively Verifiable indicators
1. Improve awareness of ecosystem based approaches	Improved understanding on ecosystem-based management practices Applications of ecosystem based management in biodiversity conservation	University of Seychelles, SFA, SNPA, NGOs	Increased number of articles, reports, workshops
2. Training in ecosystem-based management tools	Applications of ecosystem based management in biodiversity conservation Enhance knowledge in ecosystem-based management tools	University of Seychelles, NGOs	Number of people trained
3. Application of ecosystem-based strategies and conservation goals in site management	Increased application of conservation approaches	DOE, SFA, SNPA, Private Sector	Number of organisation applying ecosystem based activities
4. Monitor ecosystem changes	Assessment of ecosystem integrity Changes in biodiversity and habitats	DOE, SFA, SNPA, NGOs, Private Sector	Empirical data on biodiversity Reports
5. Ex- situ conservation programmes	Establishment of nurseries Development of Biodiversity Centre	NBGF, Private Sector, NGOs	Number of onsite nurseries Number and type of species produced Number of plants replanted
6. Rehabilitate mangrove ecosystems	Restore the resilience of mangroves Restore Carbon sinks	DOE, MFF, NGOs	Degraded areas planted with mangroves
7. Restoration of terrestrial ecosystems of high biological importance particularly inter-mediate forest but also, where appropriate, beach fringes, inselbergs, lowland and mist forests.	Ecological functions of high biological importance restored Establishment of native species	SNPA, NGOs, International Partners (University)	10 hectares Techniques for successful restoration developed Number of sites restored

8. Rehabilitate freshwater marshes and connect through a network of waterways	Improved watershed management Increase species diversity in freshwater marshes	DOE, PUC, NGOs	Rehabilitation of Mare Aux Cochons marsh Number of freshwater marshes
9. Restoration of degraded reefs, sea grass areas	Increased coral reef survival Natural regeneration of corals and seagrasses	SFA, SNPA, NGOs, Partners	Increase in area restored Number of corals used Successful establishment of corals Techniques developed
10. Develop practical and feasible tools for ecosystem restoration	Application of tools in ecosystem restoration	PCA, TRASS, SNPA	Tools developed Manual produced
11. Design novel ecosystem in abandoned mid-altitude cinnamon plantations	Established self-sustained ecosystem with native and non native species	SNPA, NGOs, public	Area of restoration
Cross-Sectoral Linkages	Regulatory, Policy and Institutional mechanism, Capacity Building		
Climate Change Considerations	Refer to goal in climate change Ecosystem based adaptation projects		
Capacity Building (incl. education) requirements	Training for managers, conservationist etc		
Legal & Institutional needs	Review of appropriate legislation		
Relevant applicable policies	NCSA, NBSAP, NSPC		
Links to conventions and treaties	The activities under this strategic objective are part of the national initiatives under international conventions.		
Possible sources of funding	GEF, CI, WWF, MFF, GOS		

Goal 3 Achieve sustainable forest management using an ecosystem approach which further strengthens ecosystem services

Strategic Objective 1	Review and integrate existing forestry management practices within an overall sustainable forest management framework

Outcomes	• Sustainable forest management programmes in place and under implementation • Protection of forest resources		
Lead Implementing Agency	SNPA		
Total Estimated Cost	SCR 15,000,000		
Timeline	2012 -2020		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable indicators**
1. Map out timber plantations	Forested map produced	SNPA, MLUH	Map of forest plantations
2. Develop guidelines for sustainable forest management.	Practical guidelines for forest management practices	SNPA, DOE	Guidelines for sustainable forest management Implementation of guidelines
3. Develop a policy for the forestry sector	National Forest Policy produced	DOE, SNPA,	Approved national Forest policy Implementation of the forest Policy
4. Establish sustainable forest plantations with sustainable forestry practices	New plantations of timber and non- timber forests produce Sustainable management practices	SNPA, PDF, Private Sector	Plantations planted and mapped.
5. Protect, manage and improve watershed management	Enhanced management of water shed	SNPA	Water use management plan
6. To develop appropriate legislation to guide the sustainable use and protection of the forests	New legislation produced to prevent unsustainable forest practices	DOE, SNPA, AG	Updated Forest Reserve Act
7. Control of invasive species within plantation forests	Better management of plantations	SNPA, District Communities	Forest plantations with invasive species under control Reduced alien invasive species in forest plantations

8. Support the crafts, saw milling and other industries using wood and non-wood raw materials.	Establishment of new areas for mixed production Increased plant production	SNPA, Private Sector	Nursery established Sustainable production and use of planted materials
Cross-Sectoral Linkages	Water, Sanitation and waste; Policy, institutional and regulatory		
Climate Change Considerations	Roles of climate on forest growth and on watershed management practices		
Capacity Building (incl. education) requirements	Training of foresters in sustainable management and forestry practices, forest management		
Legal & Institutional needs	None identified		
Relevant applicable policies	Forest Policy		
Links to conventions and treaties	These activities will help with the implementation of the programmes of work on Forest Biodiversity under the Convention on Biological Diversity		
Possible sources of funding	GEF, UNDP, FAO		

Strategic Objective 1	Develop and implement forest rehabilitation and restoration programme		
Outcomes	• Degraded forest areas restored and managed sustainably • Protection of watershed		
Lead Implementing Agency	SNPA		
Total Estimated Cost	SCR 75,000,000		
Timeline	2012 -2020		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable indicators**
1. To build capacity to undertake restorations work	Skilled workers Successful restorations work	SNPA, TRASS	Number of trained and skilful workers No. of people involved in restoration works

2. To restore degraded land	Forests restored and new plantations established	TRASS, SNPA, DOE	20 hectares of degraded land restored
3. To remove Alien Invasive Species	Habitats dominated by native species	SNPA, TRASS, PCA	Reduced number of alien invasive species in forest plantation
4. To restore and rehabilitate areas destroyed by forest fires	Plants growing on burnt areas	TRASS, SNPA, Private Sector	30 hectares restored Number of species used in restoration Decreased in AIS in selected forest areas
5. To develop cost effective techniques for forest restoration.	Techniques developed Application of techniques Restoration of degraded forest	TRASS, SNPA	Reports of best practices produced Used of techniques in forest restoration works. Increased forest restoration works
6. To protect and manage watersheds	Removal of Alien Invasive Species along catchment areas Reduction in development in catchment areas Improved water quality	SNPA,	Improved water quality Improved water flow
7. Update and implement forest fire contingency plan	New plan in place	SNPA, DOE	Improved coordination in fighting a forest fire
8. Develop a forest fire prevention and control strategy	New strategy for preventing and fighting forest fire.	SNPA, Fire and rescue Services Agency	Approved and implementation of the strategy
Cross-Sectoral Linkages	Water, Sanitation and waste		
Climate Change Considerations	Refer to Goal (specific goal in the climate change chapter) Impact of climate change on forest		
Capacity Building (incl. education) requirements	Training for field workers, rangers…		
Legal & Institutional needs	Revision of Lighting of Fires Act, revision of emergency response plan		

Relevant applicable policies	Forest Policy
Links to conventions and treaties	The activities under this objective enable the implementation of various articles under the CBD, UNCCD and UNFCCC. There are also activities under FAO
Possible sources of funding	GoS, GEF, FAO, ETF

4.7 Cross-Sectoral Issues

Biodiversity and forestry are linked economically with different sectors under the sustainable development strategy. Sectors such as tourism and fisheries are mutually dependent on this sector. Therefore, the different stakeholders should be consulted when such developments are undertaken.

The Seychelles environment is fragile and at the same time complex. Alteration to the environment by anthropogenic action may result in the destruction of habitats and consequently to biodiversity loss. It is imperative that, where appropriate, biodiversity conservation programs be mainstreamed into development.

The country aims to fulfill its obligations under international conventions. Consequently, national laws require amendments to account for international norms and regulations. Strengthening of law enforcement is a priority.

Development of local capacity remains a key challenge. Various national agencies and institutions must take responsibility in developing and retaining local capacity.

4.8 Measurement of Progress

Progress towards achieving the goals of the Biodiversity and Forestry sector is measured by activities and projects implemented under this plan guided by Objectively Verifiable Indicators (OVI). The OVI will be used to show whether or not objectives have been achieved. Some of the OVIs are directly linked to decisions under International Conventions. The SSDS Secretariat shall relate information to the units responsible for international conventions so that national progress can be reported. Relevant stakeholders are invited to contribute towards the achievement of these aims.

Progress made in implementing shall be communicated to the SSDS secretariat on a regular basis. It is important that all relevant stakeholders participate in the process. In addition, periodic reviews determine progress and setbacks during the implementation process.

The unit that is driving the implementation of the SSDS should establish a platform to facilitate information exchange. A reporting mechanism shall be established and shared with all relevant stakeholders. Furthermore, information from relevant committees, should also feed into the reporting mechanism.

Thematic Sector: Biodiversity and Forestry

Goals:	Estimated cost:	Notes:
1. Conserve and manage terrestrial and aquatic biodiversity to ensure sustainable use and equitable benefits to the people.	SCR 85,000,000	Cost of Implementation will depend on contribution made by the various stakeholders
2. To Improve our understanding of biological diversity and ecosystem functioning in a changing environment	SCR 100,000,000	Cost of Implementation will depend of contribution made by the various stakeholders
3. Achieve sustainable forest management ecosystem approach which further strengthens its multiple ecosystem services	SCR 90,000,000	Cost of Implementation will depend on contribution made by the various stakeholders

5 AGRICULTURE AND FOOD SECURITY

5.1 Introduction

Universal Declaration of Human Rights established in article 11 of the International Covenant on economic, social and cultural rights, promote the fundamental right of everyone to be free from hunger. Yet, over 900 million people experience the hardship that hunger imposes, a figure which continues to rise even during periods of strong economic growth.

Food security remains one of the most important pillars to sustainable economic and social progress and Seychelles is no exception. About half of the World's food is sourced from 400 million small farms of less than 2 hectares planting for a mix of household subsistence with surplus for market. One bench mark for measuring hunger is the minimum dietary energy requirement as stipulated by the UN- Food and Agriculture Organization (FAO) and based on an average of 2000 KCals per day for light activity. The 2006/2007 household expenditure survey for Seychelles show that 18% of Seychellois households are not able to meet basic caloric requirements on average and that 21% of household income is spent on food as compared to 10.8% in USA and 11.5% in Canada.

Guiding Principles

The Agricultural Development Strategy should only focus on the exploitation of agricultural production areas in which Seychelles had comparative advantages

The private food producing entrepreneurs should be vested with the responsibility for cultivating the soil and performing national agricultural production. The State would provide a facilitating or conducive environment for national agricultural production.

Need to understand clearly what hindrances and issues currently, and in the near future, will limit national agricultural production.

Clear production targets have to be set with a view to guide the strategies.

Local agricultural production has been steadily increasing to meet local demands and that of the tourism sector. The level of technology adopted by local farmers has also improved over the past decade and, today, the latest global technologies in crop and livestock production is known to local producers although adoption may be limited due to cost. Seychelles produces between 50% and 60% of the national demand of fruits and vegetables. 80% of the national demand for broiler poultry meat and around 23 million eggs annually which represents total demand. Pork production catered for 60% of national demand (668 tons) for the year 2005 and cattle production only about 3 % of national demand.

While the agricultural sector's contribution to GDP remains small (<4%) the agricultural sector employs an estimated 3800 people. The retail value for agricultural products for 2010 is estimated at SCR 110 million (USD 9.16 million). The 545 farmers registered with the Seychelles Agricultural Agency (SAA) are farming on both private and state land. The registered farmers benefit from a range of services and concessions offered by government. Some 8641 (34.8%) of all households are involved in some form of small-scale agricultural practices such as backyard farming according to the 2010 National Population Census. The present estimated area under agricultural production is 95-100 hectares although it is estimated that about 500 hectares are available for production of which 200 Ha is privately owned and 300 Ha is government owned.

About SCR 266 million (USD 22.22 million) was spent between 1990-2005 to enhance facilities such as farm access roads, the construction of reservoirs, the laying of pipes for the distribution of irrigation water, the provision of infrastructure for agricultural inputs storage and distribution, spending on agricultural research centres, training of personnel and other capacity development including the provision of low-interest agricultural credit.

5.2 Thematic Outlook 2012-2020

The unprecedented loss of agricultural land is expected to continue especially in light of the increased demand from other socio-economic sectors. Demand for agricultural land is envisaged to increase as the country faces greater food security challenges. Agricultural production will be forced to become more intensive, adopting the most efficient systems of technology to keep abreast of increased competition from impored goods and increased demand for locally grown produce from both public and the tourist sector. The legislation of state agricultural land is essential for the protection of the agricultural sector and will become increasingly important as demand for farm land increases.

There are increasing concerns about the implication of WTO accession on the agricultural sector in Seychelles. The intention of the Government of Seychelles is to bind final agricultural products at levels which will allow the country to raise its tariff in the event that imports are seen to be having a negative impact on domestic production and livelihoods.

The outlook will be influenced by the WTO accession by Seychelles. In particular on the three pillars of agriculture being 1) market access 2) domestic support and 3) export subsidies. The major issue for Seychelles being the domestic support provided to our farmers. The main objective is to reduce domestic support while at the same time leaving scope for government to design domestic agricultural policies in response to the wide variety of specific circumstances in the agricultural sector.

One of the ways in which the agreement sought to maintain member states sovereignty on agricultural policies was the green box support measures which constitute allowable intervention areas by governments that would not be contravening the WTO rules. Such areas include research, training, extensions, infrastructure, public stockholding and are essentially the facilities provided to local farmers by the Government of Seychelles. The Agreements also contains a provision for Special Safeguard Measure (SSG) which allows a country to increase tariffs above the legally set bound rates for a temporary period of time in the event that a surge in imports is causing damage to the local industry. Furthermore, the WTO Agreements also allow countries including Seychelles to impose antidumping and countervailing duties to counteract dumping and illegal subsidy practices being applied by the exporting party, thus WTO accession does not impinge on the countries' ability to safeguard its domestic production but rather enhancing its ability to combat imports that unfairly affect domestic production.

Main Challenges

- Land scarcity driven by competing uses threatens productive agricultural land
- Limited opportunity range within the sector for those activities with comparable advantage
- Infertile nature of soils, extreme climatic factors, pests, diseases and natural disasters hamper productivity
- Inconsistent and relatively unproductive labour available for hire, coupled with increased praedial larceny.
- Limited opportunities for human resource development and training.
- Limited access to support for investment such as access to low-interest loans and insurance.
- The lack of adequate infrastructure including farm access, irrigation water and its distribution system, access to agricultural input supplies.
- Lack of sustained institutional support in terms of research and extension and marketing of local agricultural produce
- Lack of facilitated access to specific technologies aimed at minimizing environmental pollution through certain activities such as livestock rearing and water harvesting.

At present, government is the main supplier of seeds, fertilizers, and pesticides through the regional agricultural requisite stores. It is envisaged that government will eventually release the supplies of inputs to the private sector but already there is a trend for large farm enterprises to engage in imports from regional suppliers. With government's divestment from the production of livestock feed, a trend is developing for large livestock farms to import livestock feed from the region and supply smaller livestock farms as well.

Government has transferred national agricultural infrastructure, like the National Feed Mill, National Abattoir and National hatchery to the Seychelles Farmer's Marketing Co-operative (SFMC) made up of a grouping of private farmers. The trend is that large private farmers are now investing in cold storage facilities and will in future, most probably invest in small abattoir facilities for a sole individual farmer or a group of farmers. Already there is the emergence of branding with at least three brands of locally produced broilers on the market.

Government will still need to invest in testing laboratories and other related infrastructure for the benefit of facilitating the sector and safeguarding the interest of the general public, particularly in the areas of Biosecurity and food safety. With the recent emergence of global and national scare related to escalating food prices and other food security issues, government has had to re-look at present agricultural policies through a wider consensus process with partners and stakeholders including regional and international funding partners. This trend will also be extended to the promotion of relevant new legislation, standards and codes of practice. Decision-making within the sector will have to be based on reliable statistical data and as the sector continues to adopt more sophisticated technologies, human capacity at the professional, technical and production levels must keep abreast of these technologies.

5.3 Policy Framework

Agricultural productivity is hindered by grossly unsuitable policy measures as more than 80% of state agricultural land of the 1960's and 1970's has been diverted to other sectors. With the collapse of the plantation economy, agriculture has been stigmatized as a job for the uneducated and the poor. The vast majority of parents would not encourage their children to take up agriculture as a career. More recent government policy has supported the agricultural sector with development of a Seychelles Agricultural Agency and incentive measures for farmers. In line with this has been policy on the liberalization of imports for meat and meat products which have affected the livestock sector.

In its role as facilitator, Government establishes an enabling environment for national agricultural production. It provides a wide range of technical and administrativesupport services, some basic communal agricultural infrastructure such as reservoirs, irrigation systems and also farm access roads. It provides farm credit at reasonable terms through the Development Bank ofSeychelles as well as ensures adequate formal and informal sector interests through the Extension services and the Agricultural and Horticultural Training Centre.

The important international frameworks for the agricultural sector includes:

The International Plant Protection Convention (IPPC). which guides the trade in plants and plant products through sanitary and phytosanitary guidelines.

FAO's International Treaty on Plant Genetic Resources for Food and Agriculture (IT-PGRFA) which provides for access and benefit sharing in the use of Plant genetic resources for food and agriculture through a multi-lateral system.

World Organisation for Animal Health (OiE) that addresses issues of biosecurity and biosafety as concerns the production and trade of meat and meat products.

United Nations Convention to Combat Desertification (UNCCD) which establishes measures to prevent further loss of agricultural land through factors that encourage desertification.

At the regional level, Seychelles is actively supporting the following programmes: **COMESA's Comprehensive Africa Agricultural Development Programme (CAADP)** process driven by NEPAD and AU.

The Regional Agricultural Policy /RAP initiated by SADC

Elargissement et Pérennisation du Réseau de Protection des Végétaux administered by The Indian Ocean Commission (IOC)

The more important sectoral policies include:
The Agricultural Development strategy (2007-2011) launched in November 2007.

The Food Security Strategy 2008-2011 launched May 2008 and was developed in response to the global food and economic crisis coupled with the IMF imposed economic restructuring programme for Seychelles.

The Seychelles Biosecurity policy (draft) is being developed through an international project on Biosecurity with the UNDP/GEF. The project aims to establish a biosecurity service for Seychelles as one of the outcomes of the complete project.

The National Medium Term priority Framework was developed in collaboration with FAO to identify priority areas where FAO can support the Seychelles Agricultural sector.

5.4 Stakeholder Framework

Stakeholders in the agriculture and food security thematic area is summarised in the table below.

Stakeholder Group	Roles	Example of Institutions or Bodies
Policy Makers	Approval of policies and legislations	National Assembly, Cabinet of Minister, SSDS Committee
Government Ministries or Departments	Holds the ultimate responsibility for national food security either through imports or in providing support to the agricultural sector, awareness and outreach	Ministry of Investment, Natural Resources and Industry, Ministry of Home Affairs, Environment, Transport and Energy (MHAETE), Ministry of Finance (MoF), Department of Local Government

Parastatal	Execute the programmes outlined in the national agricultural policies. Seychelles Trading Company imports, stocks and distribution of basic food items.	Seychelles Agricultural Agency, Seychelles Fishing Authority, Island Development Company (IDC), Public Utilities Corporation (PUC), Seychelles Trading Company
Non Governmental Organisations (NGOs)	They are responsible for advocacy, bringing together farmers and other operators, research, monitoring, conservation and propagation	Seychelles Farmer Association (SeyFa), Seychelles Farmers marketing cooperative, Green Islands Foundation (GIF), Island Conservation Society (ICS), Marine Conservation Society of Seychelles (MCSS), Nature Protection Trust of Seychelles (NPTS), Nature Seychelles (NS), Plant Conservation Action group (PCA), Sustainability for Seychelles (S4S).
Private Sector	Provides entrepreneurial and marketing support to the farming community	Seychelles Farmers marketing cooperative
Community based Organisations	Biodiversity conservation at community level	Roche Caiman District Group, Wildlife Club of Seychelles (WCS)

5.5 Goals and Strategic Objectives

Goal 1 To ensure national food security through efficient and effective agricultural production

The aim of this goal is to co-opt all relevant stakeholders to produce safe and wholesome food using sustainable, affordable and appropriate technology and to ensure optimal use of scarce natural resources with minimal negative impact on human health and the environment.

	Strategic Objectives
1	To strengthen the Seychelles Agricultural Agency in order to provide higher calibre goods and services to the agricultural sector
2	To improve the scientific, technical and financial support to the agricultural sector
3	To encourage the substitution of imported foods with locally grown produce

5.6 Action Plan

Goal 1 To ensure national food security through efficient and effective agricultural production

Strategic Objective 1	To strengthen the Seychelles Agricultural Agency in order to provide higher calibre goods and services to the agricultural sector		
Outcomes	• An increase in the production of locally grown food		
Lead Implementing Agency	SAA		
Total Estimated Cost	SCR 144,000,000		
Timeline	2012-2017		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Identify, revalorize, maintain and legally protect agricultural land	State agricultural land legally protected and optimally utilized for agriculture	SAA, MLUH AG Office SeyFa	Legislated agricultural land Increased Acreage of agricultural land under production
2. Increase crop and livestock production	Stable production all year round for both crops and livestock	SAA, STC, MLUH	Increased Number of farmers Increase in % land allocated to agriculture and livestock production
3. Promote organic farming	More organically grown produce	SAA, SeyFa MLUH	Increase in no. of organic farms Increase in the amount of organic products sold
4. Achieve self-sufficiency in poultry products	100% table eggs and 100% poultry meat Liberalized sale of poultry meat	SAA, SeyFa MoF	Decrease in the amount of poultry products imported Increase in the proportion of the poultry market to local producers
5. Private sector development of abattoir for white and red meat	Increased slaughter capacity for white meat	SAA, SeyFa Dept. Public Health	Presence of efficient and functional white and red meat abattoir

6. Increase pork and pork related food production	Achieve self-sufficiency in pork and pork products	SAA, SeyFa MoF	Decrease in the amount of pork meat imported.
7. Increase production of other meat products such as goats, rabbits and other small ruminants	Increased choice of meat on the local market.	SAA, SeyFa MoF	Widespread availability of alternative meat on the local market
8. Maintain genetic biodiversity to obtain the objectives of the food security strategy	Poultry parent stock able to provide hatching layer and broiler eggs. New and modern Pig Genetic Centre.	SAA, MoF, SeyFa FAO	Poultry Parent stock farm established Presence of Pig Genetic centre Presence of an ex-situ field collection of major food crops
9. Amend the Agricultural and Fisheries (Incentives) Act, 2005 (AFIA)	Better concessions for the farming community	SAA, MoF	Incentives available to producers and being accessed by producers
10. Provide favorable credit facilities.	Credit facilities put in place.	SAA, DBS, MoF	Credit schemes with favourable conditions in place for agro-businessmen
11. Review all existing legislation, standards, codes of practice in agriculture	Enhanced legislation, to better manage agricultural development in a sustainable manner	SAA, AG office, SBS	All legislation, standards and codes of practice are reviewed and applicable in the current period
12. Periodic review of the Food Security Strategies	Better implementation of the Food Security Strategy	SAA, FAO, MFA	Those strategies are applicable in the current period

13. Provide enhanced agricultural infrastructure to obtain the objectives of the food security strategy	Poultry Parent Stock in place to provide hatching layer and broiler eggs. Output of day-old chicks increased. Better management of water for irrigation New and modern Pig Genetic Centre	SAA, MoF, SeyFa, FAO	Poultry Parent stock farm established. Hatchery equipped to provide day old chicks. New systems of irrigation established Genetic centre can supply the sector with sufficient genetic material to upkeep the pork industry
14. Establish a central wholesale market	Increased sale of locally produced products	SAA, MoF, SeyFa	Presence of wholesale market
15. Maintain and retain adequate technological infrastructure for research and development	Relevant infrastructural support facilities in place for service to farming community	SAA, FAO, SBS, MoF	Presence of laboratories and other support to research established and functional.
16. Review regulations for construction of farm infrastructure on state agricultural land	Improved agricultural infrastructure on farm	SAA	A set of guidelines in the form of a manual is established and promoted
17. Participation of local strategic partners in management and ownership of livestock production facilities	Local strategic partners identified Local ownership of production facilities	SAA, SeyFa, MoF	Private individuals and NGO's are involved in the functioning of the national abattoir, feed mill, hatchery and other facilities required in the livestock industry
18. Train and build capacity of professionals/ technicians/promoters on appropriate technology for crops and livestock	Well trained technicians and larger proportion of knowledgeable food producers More graduates in agricultural related fields.	SAA, SAHTC SeyFa, Min.Education, MoF, NHRDC	Increased numbers of better trained personnel in the industry

19. Improve the global perception of agriculture as a career	Better informed population Attract professionals and businesses in the agricultural sector	SAA, Media MoF, Career guidance	Agriculture is perceived as a worthy and noble profession.
Cross-Sectoral Linkages	All thematic		
Climate Change Considerations	Climate change will affect agricultural production through variability in rainfall and possible increase in drought		
Capacity Building (incl. education) requirements	The Ministry of Education manages the vocational institution that trains and re-trains agricultural producers		
Legal & Institutional needs	The Attorney General's office is key in developing, reviewing and harmonising legislation that affects the agricultural sector		
Relevant applicable policies	Agriculture is a broad based sector with policy implications in a number of other sectors e.g. Ministry of Finance and Trade; Department of Environment ; Department of Community Development; Financing Institutions including commercial banks; hotels, restaurants and takaways in the use of local food products...but to name a few		
Links to conventions and treaties	The CBD is one conventions that is very relevant to agriculture, conventions on climate change, on the sustainable use and conservation of genetic resources; treaties related to culture		
Possible sources of funding	To date the major funding Partners have been, UNDP/GEF ; IFAD, EU ; AFDB ; UN Technical Coopération projects with FAO and IAEA		

Strategic Objective 2	To improve the scientific, technical and financial support to the agricultural sector
Outcomes	• To have policies, strategies and programmes for the agricultural sector that is modern, state of the art and internationally acceptable
Lead Implementing Agency	SAA
Total Estimated Cost	SCR 10,000,000
Timeline	2012-2017

Activities	Expected Results	Responsibilities	Objectively Verifiable Indicators
1 Partnering with regional and international organizations	Enhanced collaboration for production, marketing and trade	SAA, MOF	Agreements in force
2. Implement the CAADP process in Seychelles	Increased foreign investment to agricultural sector through the compact and roundtable process that signifies CAADP	SAA, COMESA, MFA, SFA, ED, MoF	The investment programme is prepared and round table meeting with donors held
3. To seek increased partnership with UN Agencies	More collaborative projects developed	SAA, AG's office SBS	Increase in the number of projects /partnerships
4. Increases bi-lateral agreements with foreign country partners	Increased international assistance	SAA, MFA, Foreign embassies	Bi-lateral agreements signed and being implemented
5. Seek further assistance from FAO	Enhanced technical cooperation with FAO	SAA, FAO, MFA MoF	TCP projects approved for Seychelles and being implemented
6. Provide favourable credit facilities	Credit facilities put in place	SAA, DBS, MoF	Credit Schemes with favourable conditions in place for agro-businessmen
7. Ensure that Agricultural Policies are WTO compliant	Agricultural Policies WTO compliant	SAA, MFA MoF	WTO compliant policies
8. To participate in the various regional programmes that offer advantage to the Seychelles agricultural sector	To benefit from regional initiatives	SAA, MFA, COMESA, MoF	COMESA programmes in place and being implemented from which the agricultural sector benefits
Cross-Sectoral Linkages	All thematic		

Climate Change Considerations	Interaction and technical assistance with foreign partners will be essential for research and the development of mitigation measures to sustain agricultural production in the face of climate change.
Capacity Building (incl. education) requirements	In light of the rapid change in the sector and introduction of hi-tech production systems, scientific, technical and financial support to the sector for training and re-training of producers, service providers and supporting institutions are vital.
Legal & Institutional needs	Any method or system of production adopted by the local farming community must fall within the legal and institutional framework within the country.
Relevant applicable policies	Any method or system of production adopted by the local farming community must comply to national policies
Links to conventions and treaties	National frameworks are usually developed from international and regional obligations through treaties and conventions
Possible sources of funding	International financing Partners willing to invest through the Seychelles National Agricultural Investment Programme being developed in collaboration with the African Union within the framework of COMESA's CAADP (Comprehensive Africa Agricultural development programme)

Strategic Objective 3	To encourage the substitution of imported foods with locally grown produce		
Outcomes	• Better utilisation of local food products and savings in foreign exchange through import substitution		
Lead Implementing Agency	SAA		
Total Estimated Cost	SCR 7,000,000		
Timeline	2012-2017		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1 Develop and maintain home food production campaign	Increased production at household level	SAA, Local Government Dept, MoF	Increased no. of home gardens.
2. Valorise local food through educational campaigns	Better exploitation of local food especially for tourism market	SAA, MT, MED, SAHTC	Increased quantity of local products used in tourism industry.

3. Provide better marketing facilities for locally produced food	Locally produced food is more accessible and affordable	SAA, MoF, SeyFa	Increased variety and competitive price of locally produced food
4. Agro processing projects are implemented	More locally produced value added products are available	SAA SENPA, MoF, DBS, Local Government	Increased no. of projects implemented
5. Consistent supply models for agricultural produce are implemented	Locally produced food is available on a consistent basis on the local market	SAA, SeyFa, SCCI	Increased availability of locally produced food
6. Efficient collection and distribution systems established to minimise wastage of agricultural produce	Minimal wastage of agricultural produce	SAA, SeyFa, MoF SCCI	% wastage of total production is decreased.
Cross-Sectoral Linkages	All thematic		
Climate Change Considerations	Research has shown that varieties and breeds that are most adapted to climate change are those that are indigenous to a region or an agro-ecological zone. Conserving and utilising locally grown produce may become one of many food security strategies		
Capacity Building (incl. education) requirements	Value addition in the seychelles agricultural sector is still in its infancy and will require substantial capacity building for both producers and service providers in the future		
Legal & Institutional needs	Legislation regarding food safety and food standards among others will support value addition in the agricultural sector		
Relevant applicable policies	National policies must provide for the promotion of locally grown foods and substitution of imported products		
Links to conventions and treaties	Conventions related to culture for example protect and promote the use of local food		
Possible sources of funding	GOS National recurrent budget ; international financing partners		

5.7 Cross-Sectoral Issues

• The Seychelles Agricultural Agency relies upon the services of the Ministry of Land Use and Habitat (MLUH) for land allocation and lease of agricultural state land to existing and potential farmers.

• The Ministry of Finance provides the annual budget and capital investment financing for the agricultural sector through the Seychelles Agricultural Agency.

• The Ministry of Foreign Affairs mediates the relationship between the International community as well as with bilateral and multi-lateral partners.

• The Ministry of Health is a key partner in defining the nutritional security of the nation in defining the overall definition of food security. The Ministry of Health also manages and administer the Pesticide Act which targets primarily, the registered, commercial farmers.

• The Seychelles Bureau of Standards (SBS) for standard setting and codes of practice including, but not limited to, the areas of food safety and quality control of agricultural inputs.

• The Attorney General's Office for legislative support in the enactment of national legislation in response to international, regional or national obligations.

• Planning Authority permission is required for the construction for all farm infrastructures. Farmers are therefore obliged to meet the standards set by the authority and in some cases may require guidance in related issues.

5.8 Measurement of Progress

• The necessary infrastructure is in place to support local food production. These include laboratories, abattoir facilities, animal feed production facilities, hatchery facilities, irrigation facilities/reservoirs, access roads.

• The policy environment is conducive to sustained and optimal local food production with due regards to protection of human health, plant and animal health and the environment.

• The legislative environment is conducive to sustained and optimal food production with necessary protection of the investment, in particular security of tenure of agricultural land.

• The human element operating in the sector has the relevant skills, knowledge and attitude to utilise the scarce natural resources in optimising local food production.

Thematic Sector: Agriculture and Food Security

Goal 1 An agriculture sector which is sustainable and meets the need of the population

Objectives:	Estimated Cost:	Notes:
To strengthen the Seychelles Agricultural Agency in order to provide higher calibre goods and services to the agricultural sector	SCR 144,000,000	The NR Department is presently working on a fully cost investment programme for the agricultural sector under its commitment with the African Union (AU) and NEPAD to participate in the CAADP/ Comprehensive Africa Agriculture Development programme
To improve the scientific, technical and financial support to the agricultural sector	SCR 10,000,000	Main development partners are: Food and Agriculture Organization of the UN/FAO International Atomic Energy Agency (IAEA); COMESA; SADC; Indian Ocean Commission (IOC). The CAADP programme may attract financing and development partners in the agricultural sector.
To encourage the substitution of imported foods with locally grown produce	SCR 7,000,000	The Proposed investment programme with COMESA includes the formulation of a National Food Security contingency plan and establishment of agro processing facilities for training as well as commercial production by the private sector.

6 FISHERIES & MARINE RESOURCES

6.1 Introduction

Seychelles is a maritime nation, with an Exclusive Economic Zone (EEZ) of 1.44 million km2, and the fishing industry plays an important role in the lives of every Seychellois. The economic importance of the fisheries sector is underscored from its role as a source of employment, food security, trade, foreign exchange and most importantly as a major source of animal protein. Seychelles has one of the highest per capita consumption of fish with most recent figures standing at about 65 kg per annum. The local supply of fish comes mainly from the artisanal sector with annual fish landings averaging around 5000 tones. In 2011, there were about 1,700 full time and part time fishers involved in this fishery, targeting mostly demersal (bottom dwelling) species.

The other two fisheries sub-sectors are the Seychellois operated semi-industrial long line fishery targeting fresh tuna and billfish, and the foreign-owned industrial purse seine fishery, targeting tuna for the canning industry. The industrial tuna fishery, exploited mainly by European Union flagged vessels, landed a total catch of 389,256 metric tons in 2006, a yearly increase of around 16% on the 1996 catch of 265,658 metric tons. With the emergence of Port Victoria as the principal tuna transhipment port (in the mid 1980s)and, the tuna canning factory (IOT) as the largest national employer (in the late 1990s), the fisheries sector has established itself as one of the key sectors in the Seychelles economy. It is estimated that the fishing sector including ancillary activities generates both directly and indirectly around 6,000 jobs, amounting to about 17% of total formal employment. Other marine sector fisheries related activities, namely aquaculture has however, failed to keep pace with developments in the fishing industry.

Exploitation of other forms of marine resources in Seychelles is still relatively undeveloped. Although there have been numerous prospection ventures for hydrocarbons and other seabed minerals, they have yet to prove to be commercially viable ventures. A prospe cting agreement has recently been signed with two foreign companies for the acquisition, processing, imaging and interpretation of seismic data. All the data acquired will be made available for license to oil and gas companies who are keen to continue the exploration of hydrocarbons in the Seychelles EEZ.

Guiding Principles

The main sustainability principles guiding fisheries and marine resources in Seychelles are linked to globally adopted principles, including those promoted by the UN, FAO and the Marine Stewardship Council.

Precautionary Principle-States that in the absence of concrete scientific evidence, all management measures must be based on a precautionary approach.

Co-management, Integration and Coordination - Fisheries management efforts will be integrated acrosssectors and society (Government, NGOs, private sector and the general public) and programmes that strengthen co-management of resources and stakeholders' involvement in decision making will be developed.

Ecosystem approach - Fishing operations should allow for the maintenance of the structure, productivity, function and diversity of the ecosystem (including habitat and associated dependent and ecologically related species) on which the fishery depends.

Sound fisheries management - Any fishery is subject to an effective management plan that respects local, national and international laws and standards and incorporates institutional and operational frameworks that require that the exploitation of the resource is carried out in a responsible and sustainable manner.

6.2 Thematic Outlook 2012-2020

In the next 10 years increasing local demand for fresh fish as a result of growth in the tourism industry may lead to localized over-fishing with stocks of certain fish species approaching maximum sustainable yield. It is also expected that exports of fish and processed fish products will increase. There is a trend

Guiding Principles (cont.)

Reduce impacts on non-target species - A priority for the semi-industrial fishery is to reduce predation on the catch by marine mammals, by intervening in a non-interventionist wa through modifications in the fishing gear and fishing techniques.

Mariculture / aquaculture developments in this field must becarried out with the main objective of reducing dependency on wild caught fish; also any project must be socially and environmentally responsible and be integrated in the country's economic development.

however, for local consumers to switch from fish to meat mainly due to higher fish prices, changing lifestyles and scarcity of fish on the market.

An increase in value-added and product diversification in the fishing industry is expected, although it is envisaged that fishermen will target lesser value, semi-pelagic and pelagic species such as mackerel, bonito, saw-tooth barracuda, trevally, and skipjack tuna to meet this demand.

As government reduces its share of equity from the fisheries sector, it is expected that private investment in that sector will increase. The operating cost of a fishing venture will also increase, even with the introduction of certain government subsidies. Moreover, due to the low purchase price of local fish paid to local fishermen, the artisanal fishing sector could be facing serious economic constraints in the next 5 to 10 years. Growth in the industrial and semi-industrial fisheries sector should encourage an increase in Seychellois participation in this sub-sector, in particular in land based fish processing activities.

There is an increase in IUU Fishing and piracy activities in both the artisanal and the industrial fisheries sector. This trend needs to be mitigated if the fishing industry is to remain economically sustainable in the future.

The effect of climate change, such as coral bleaching and changes in oceanographic conditions (in particular winds, and currents patterns) will have an increasingly significant bearing on marine resources and the fishing industry.

Any new development in hydrocarbon, gas exploration/exploitation must be promoted with a view to minimizing environmental impacts, such as marine pollution.

6.3 Policy Framework

The policy framework for this thematic sector covers fisheries in particular. Relevant policies which govern exploitation of the marine resources are also presented.

The Maritime Zone Act (1977) came into force on the 1st of August 1977, and was implemented on the 27th February 1978 by the Exclusive Economic Zone Order, 1978. The Maritime Zone Act of 1977 not only gave Seychelles sovereign rights over its EEZ, but it also places responsibility on the state to protect its marine environment and prevent such acts as illegal fishing and pollution of its waters by foreign vessels.

The Seychelles fishing Authority (SFA) Establishment Act of 1984 establishes the main functions of SFA. The Act enables the institution to manage fisheries and fishing areas – including to promote, organize and develop fishing industries and fishing resources in Seychelles; assist in the formulation of this

policy with respect to fishing development and fisheries resources; conduct negotiations, engage in meetings, seminars, or discussions with regard to fishing or fisheries and the establishment or operation of fishing industries, whether at a national or international level on behalf of the Republic; to identify the manpower training requirements of Seychelles with respect to fishing and fishing industries.

The Fisheries Act (1986), and the Fisheries Regulation (1987), amended in 2001 are the principal legal instruments for the control of fishing in Seychelles. The policy reflected government's priority to promote the development and conservationof marine resources as well as optimizing the benefits from fisheries. The policy encouraged the expansion of fisheries into processing, created employment for Seychellois and at the same time provided a framework for the protection and sustainable management of the marine environment and the natural resources of Seychelles.

National Fisheries Policy 2005 aims at promoting sustainable and responsible fisheries development and optimizing the benefits from this sector for present and future generation. The policy was developed to provide the broad guidelines for all future fisheries policy in Seychelles. It focuses primarily on the promotion of sustainable management in fisheries practices and a degree of responsibility for all fishing activities. The policy aims at enhancing food supply and food security, maximizing employment and foreign exchange earnings and provides effective protection of the marine ecosystem. The main outcome of the policy was to provide guidelines for the improved management and overall development of the fishing industry.

The Fisheries Development Plan 2007-2011 (unpublished) has as its main term of reference to draft a Fisheries Strategy for Seychelles.

The Fisheries Strategy of Seychelles will also address other important issues as enshrined in the National Fisheries policy of Seychelles (2005). These include amongst others: Research and Development; Resource Management; Monitoring, Control and Surveillance; International Agreements and Co-operation; Legislative and Institutional Framework; Investment, Trade and Commerce; Infrastructure Development; Employment and Human Resource Development.

Main Challenges

- Lack of updated and viable management plans in the domestic fishery to ensure ustainable management of the marine resources. The priority is to implement management plans based on a "bottom-up" approach (ecosystem approach) involving all relevant stakeholders.

- The difficulty in imposing MCS (Monitoring, Control and Surveillance) programs in the fisheries sector due to lack of trained personnel, of equipments (boats, engines etc) and of financial support.

- Involvement of stakeholders in the management and MCS of the fisheries resources.

- Lack of capacity (trained personnel) both at the intuitional (SFA, MTC) and grass root level (Fishers Associations) as the number of qualified and motivated personnel in the fisheries/marine sector has decreased in recent years.

- Expansion of the fisheries sector into processing and aquaculture will require significant land resources, labour, energy and water.

- Increasingly higher operating costs for the artisanal fishing fleet with poor returns on investments appear likely to continue to grow in the future causing the local domestic fishery to face serious economic constraints.

- Existing port infrastructure for the industrial tuna fleet need improvements as well as carrying out certain improvements in the port infrastructure for the artisanal fishing fleet, in particular at the district level (Anse Royale, Anse a la Mouche).

- The effects of climate change have an important bearing on the fish landings. Necessary measures need to be taken to minimize this impact.

Mineral exploration in Seychelles is governed in general terms by the Environmental Protection Act 1994. This Act provides for the coordination, implementation and enforcement of policies pursuant to the national objectives on environment protection. It prohibits the discharge of any effluent, or throwing, deposit or placing of any polluting, or hazardous substance or waste in any watercourse or in the territorial waters without authorization.

Mineral exploration and exploitation is specifically controlled by the following Acts: Minerals Act, 1991; Petroleum Mining Act, 1976 & Petroleum Mining (Petroleum Drilling) Regulations, 1980; Petroleum Mining (Pollution and Control) Act, 1980. These legislations control exploration and exploitation of petroleum products in the Seychelles EEZ and require that an effective system for combating oil pollution be maintained.

6.4 Stakeholder Framework

Artisanal fishers are the most important stakeholders in the fishing sector as they are the main producers (accounting for 70% of fish consumed locally). The involvement of fishers in decision-making and fisheries management is therefore paramount for the implementation of sustainable fisheries. Key issues include subsidies, access to technology and infrastructure support.

Stakeholders in the tourism sector are also important for two reasons – as main consumers of fish and fish products, and as joint users of marine resources. Tourism stakeholders influence the fish market in terms of demand and price. Competing uses such as diving and pleasure fishing can create conflicts with fishers.

Stakeholders in marine protected areas or fisheries protected areas are at frequent discussions with fishers and will increasingly play an important role in achieving a sustainable level of fisheries. Use of such areas for tourism purposes increases the complexity of stakeholder interaction.

Stakeholders from the aquaculture industry are few, but are likely to grow over the next ten years. Conflicts between fishers and aquaculture companies may arise and may need to be addressed during initial planning stages.

Government is an important stakeholder in the fisheries industry. It sets policies that stimulate or regulates the industry. Institutions such as the Seychelles Fishing Authority are the executive arm of government in all fisheries-related matters and sets policies and guidelines for the fishing industry to follow.

NGOs are also important stakeholders in that they play an important role in educating and raising public awareness of the importance of environmental conservation, sustainable consumption and product labeling. Moreover, because they have access to international funding they can implement important research projects pertaining to marine biodiversity and conservation. They also group fishers together to discuss common issues and also organize initiatives in support of the industry.

Regional organizations such as the Indian Ocean Commission (IOC), COMESA (Common Market for Eastern and Southern Africa), SWIOFC (South West Indian Ocean Fisheries Commission) are important partners as they provide technical assistance and funding for important regional projects on marine resource management and fisheries development. Moreover, as a rule, they set the example of good governance and accountability for regional countries to follow.

Mineral Resources in Seychelles

This concerns principally the prospecting for oil and gas in the Seychelles EEZ which has been pursued over the last 25 years with various foreign companies having obtained exploratory rights. An agreement has recently been signed with two foreign companies for the acquisition, processing, imaging and interpretation of seismic data.

All the data acquired will be made available for license to oil and gas companies who are keen to continue the exploration of hydrocarbons in the Seychelles EEZ.

In 2005, SEYPEC was given full responsibility for petroleumexploration in Seychelles and the later is now responsible for all developments in this field.

International organizations such as FAO, UNDP, UNEP, etc, play a leading role in providing technical expertise and financing important projects on biodiversity conservation and fisheries development.

The main stakeholders in the oil and mineral resources industry include the Seychelles government (SEYPEC), the people of Seychelles and the International oil exploration companies. It is in the interest of all concerned stakeholders involved in oil and gas exploration/exploitation to ensure that any environmental impacts on the ecosystem are minimised, while bringing the maximum benefitto the people of Seychelles.

6.5 Goals and Strategic Objectives

Goal 1 Manage demersal, semi-pelagic and pelagic resources in the Seychelles EEZ sustainably.

Managing all forms of fisheries is a complex endeavour involving a wide range of stakeholders. The aim of this goal is to ensure long-term sustainability of the fisheries through research, development, capacity building, resource management, appropriate transfer of technology and wise investments.

	Strategic Objectives
1	To develop and implement a wide range of policies which would ensure long-term sustainability of the fishing industry, such as long-term access to affordable finance, MCS, so as to reduce over-fishing and ensure stock sustainability
2	To implement integrated management plans based upon available scientific data for demersal resources
3	To implement integrated management plans based upon available scientific data for semi-pelagic resources
4	To implement an integrated management strategy for pelagic resources based upon available scientific data

Goal 2 Develop a sustainable mariculture industry in Seychelles

The aquaculture (mariculture) sub-sector is fairly new and is quite small in terms of importance compared to the fisheries sector. There are presently only two operators involved in small scale mariculture projects and a previous, large prawn farm has now closed down. Investments in mariculture present a potential area of economic development for Seychelles, both as a contributor to food security but also for future economic development. It is therefore important that mariculture projects are environmentally and socially responsible and that projects are effectively integrated into the country's economic development.

	Strategic Objectives
1	To assess the mariculture potential and its economic feasibility in the Seychelles EEZ taking into consideration the requirements of each specie to be farmed.
2	To evaluate the impacts of various forms of mariculture activities and develop policies and guidelines to address those impacts.
3	To develop opportunities for foreign investors and eventually Seychellois entrepreneurs to invest in mariculture activities

Goal 3 Promote safe mineral exploitation in Seychelles waters

Ongoing surveys indicate the potential for hydrocarbons and other seabed minerals (including sand) within the EEZ of the Seychelles. Extraction of those resources can lead to significant environmental impacts, especially in remote and sensitive habitats. This goal aims to ensure that such activities have the minimum impact on the environment and also the maximum benefit to the local population.

	Strategic Objectives
1	Develop and implement appropriate environment safeguard policies and actions to minimise the environmental impacts of seabed activities and also compensate in any event of accidents.
2	Develop habitat maps of the sea bottom, with particular attention to sea mounts and other important seabed ecosystems
3	Develop sensitivity maps for all the islands of the Seychelles.
4	Establish appropriate fund mechanisms for the management and protection of the marine environment from proceeds of mineral exploitation in Seychelles

6.6 Action Plans

Goal 1 Manage demersal, semi-pelagic and pelagic resources in the Seychelles EEZ sustainably

Strategic Objective 1	To develop and implement a wide range of policies which would ensure long-term sustainability of the fishing industry, such as long-term access to affordable finance, MCS, so as to reduce over-fishing and ensure stock sustainability		
Outcomes	• Sustainability of demersal, semi-pelagic and pelagic fish stocks in Seychelles waters enhanced		
Lead Implementing Agency	Ministry of Natural Resources, Seychelles Fishing Authority		
Total Estimated Cost	SCR 360,000,000		
Timeline	2012-2017		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Review existing policies & available data base	Improved knowledge of existing potential for resource management	MNR, SFA	New fisheries development strategy

2. Set up a fisheries advisory body	Draw new Mgt plans based on "bottom up approach"(Ecosystem approach)	SFA, MNR, FAO, Fisheries Associations	Policy documents
3. Draw new fisheries policy	Long-term sustainability of resource	MNR, SFA, Coast Guard, Police	Improved catch rates and total fish landings
4. The adoption of a co-management approach in fisheries involving more stakeholders	Improved data collection and enforcement	SFA, Fishers Association and NGOs	New strategy and plans
5. New MCS Programme set up	Reduce over-fishing	SFA, Coast Guard, Police	Improved enforcement with better control of fish landings
6. Efficient collection and distribution systems established to minimise wastage of agricultural produce	Minimal wastage of agricultural produce	SAA, SeyFa, MoF SCCI	% wastage of total production
Cross-Sectoral Linkages	Tourism and Aesthetics; Education for sustainability		
Climate Change Considerations	Climate change has a direct bearing on fish catches as such phenomena as coral reef bleaching and alterations of oceanographic conditions(current and wind patterns) have a direct impact on fish landings		
Capacity Building (incl. education) requirements	The following organizations have volunteered and/or are in a position to assist the fishery UNDP under the volunteer program FAO will be providing technical training workshops and statistics ASCLME will provide training on good governance and policy issues EU will provide training under new fisheries IOC programmes and fishing agreements		
Legal & Institutional needs	The local legislation will have to be updated in order to reflect International standards and best practices so as to promote transparency and strengthen consumer confidence.		
Relevant applicable policies	New fisheries development strategy		
Links to conventions and treaties	UNCLOS FAO Code of Conduct for Responsible Fishing Convention on Biodiversity (CBD) SOLAS Convention		
Possible sources of funding	Government of Seychelles (SFA), FAO, EU		

Strategic Objective 2	To implement integrated management plans based upon available scientific data, for demersal resources		
Outcomes	• Improved catch rates and total landings		
Lead Implementing Agency	Ministry of Natural Resources, Seychelles Fishing Authority		
Total Estimated Cost	SCR 42,000,000		
Timeline	2012-2020		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Carry out biological assessment of actual Mgt Plans	Comprehensive knowledge of actual fisheries Mgt requirements	MNR, SFA, FAO, Fishers Association	New scientific reports based on new data
2. Drawing up new and updated integrated Mgt Plans based on new data and scientific evidence	Improved cooperation from all stakeholders	MNR, SFA, Fishers Association	Updated Mgmt plans
3. Implementation of Mgt plans	Improved fish stocks sustainability and hence livelihood of fishermen	MNR, SFA	Improvement of inshore and offshore demersal fish stocks
4. Improved extension, education and enforcement	Reduction in the cost of Monitoring, Control and Enforcement and inshore and offshore over-fishing	SFA, Coast Guard, fishers	Number of infractions and cases actually brought to court for prosecution
Cross-Sectoral Linkages	Education for sustainability		
Climate Change Considerations	Measures taken will mitigate climate change effects on the fisheries		
Capacity Building (incl. education) requirements	Improved capacity building and overall training		
Legal & Institutional needs	SFA and MTC will have to build up capacity with recruitment of qualified personnel		
Relevant applicable policies	Fisheries regulations protected and enforced		
Links to conventions and treaties	Sustainable exploitation of demersal resources with maxim protection of natural biodiversity		
Possible sources of funding	Government of Seychelles, (SFA), FAO, EU		

Strategic Objective 3	To implement integrated management plans based upon available scientific data for semi-pelagic resources		
Outcomes	• Improved catch rates and landings of semi-pelagic species(carangues, becune, job fish)		
Lead Implementing Agency	MNR, SFA		
Total Estimated Cost	SCR 60,000,000		
Timeline	2012-2020		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Review existing programs and research activities that have been carried out so far	Collection of catch data including fishing effort and economic data.	SFA, IFREMER, IRD, IOTC, ASCLME	New statistical method and data base
2. Write new and integrated management measures for more effective management of semi-pelagic species	Improved knowledge of stock biomass	MNR, SFA, EU	New scientific reports and database including economic data to evaluate costs and earnings
3. Implementation of integrated management measures	Stability/sustainability of fish stocks and improved catch rates and fish landings	SFA, EU, IRD, IFREMER	Improvement in fish stock sustainability
4. Continued monitoring of the fishery	Involvement of more concerned stakeholders	MNR, SFA, IFREMER	Improvement in economic returns for local fishermen
Cross-Sectoral Linkages	Education for sustainability; Policy, institutional and regulatory		
Climate Change Considerations	Modify fishing strategy and pattern to mitigate effects of climate change such as wind and ocean current patterns		
Capacity Building (incl. education) requirements	Improved training of seamen at MTC EU &ASCLME will provide training on good governance and policy issues		
Legal & Institutional needs	Both SFA and MTC will have to build up capacity and recruit qualified staff so as to carry out their mandate Legal and binding fishing agreement signed between SFA and the EU Cooperation agreement signed with French government, SFA and MTC		

Relevant applicable policies	Maintain Port Victoria and the new fishing port at Providence as the main port for the semi-industrial fleet Promotion of the domestic tuna and swordfish long lining industry Increase in value addition for the sector semi-industrial sector Promote, organize and develop the semi-industrial fisheries in Seychelles
Links to conventions and treaties	UN Convention on Conservation and management of straddling stocks and highly migratory species, e.g. tuna.
Possible sources of funding	Government of Seychelles (SFA), FAO, EU, IRD, IFREMER, JICA

Strategic Objective 4	To implement an integrated management strategy for pelagic resources based upon available scientific data		
Outcomes	Improved catch rates and total landings for pelagic species (mainly tuna and tuna-like species)		
Lead Implementing Agency	SFA, IRD, EU		
Total Estimated Cost	SCR 180,000,000		
Timeline	2012-2020		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Review scientific reports, available data and research programmes for pelagic resources-namely tuna and tuna-like species. This would include: - IOTC Tuna tagging Project - IUU fishing activities - MCS Programmes - VMS Programmes	Improved scientific knowledge and awareness of present situation concerning pelagic stocks	MNR, SFA, IRD, IOTC, EU	New pelagic fisheries development strategy
2. Set quota on the amount of tuna fished per species	Reduction in the total catch, in particular for more vulnerable tuna species	MNR, SFA, IRD, IOTC, EU	Reduction in the catch rates and landings of target species that are facing depletion
3. Limit fishing capacity by species including the number of licenses granted to foreign purse seiners and long liners	Reduction in fishing effort	MNR, SFA, IRD, IOTC, EU	Improved stock sustainability for specific species

4. For the semi-industrial fishery reduce predation by marine mammals on the catch. Also reduce by-catch by intervening in a non-interventionist manner through modifications in the fishing gear and fishing techniques.	Increase in catch rates for the locally-based semi-industrial long line fishing fleet	SFA, IFREMER, IRD	Improved revenue for Seychellois investors in the semi-industrial long line industry. New promoters enter the fishery
5. Improved training and capacity building for skippers, fishermen and mechanics involved in both the semi-industrial and industrial fishery	Increased in the number of trained Seychellois personnel working on the semi-industrial and industrial fleet	SFA, MTC, foreign training institutions (La Reunion, Spain, Portugal)	Increase in employment of Seychellois on foreign fishing vessels
6. Improved MCS (Monitoring Control Surveillance) for the foreign fishing fleet (purse seiners and long liners)	Increase in the number of detected violation and verifiable infractions with subsequent reduction in IUU fishing activities	SFA ,Coast Guards, Licensed local and foreign fishermen	Increase in the number of prosecution and court cases for perpetrators
Cross-Sectoral Linkages	Education for sustainability		
Climate Change Considerations	Mitigate effect of climate change by modifying fishing strategy and patterns.		
Capacity Building (incl. education) requirements	Skippers (and mechanics for semi-industrial fleet) seamen/fishermen for industrial fleet.		
Legal & Institutional needs	Legal and binding fishing agreement signed between SFA and the EU Cooperation agreement signed with French government, SFA and MTC		
Relevant applicable policies	Maintain Port Victoria as the major tuna landing/transhipment Port in the W.I.O. Promotion of the domestic tuna and swordfish long lining industry Increase in value addition for the sector Applied research supporting /informing policy and management decision Human resource development and institutional strengthening		
Links to conventions and treaties	UN Convention on Conservation and management of straddling stocks and highly migratory species.		
Possible sources of funding	Government of Seychelles (SFA), FAO, EU, IRD, AFDB, JICA		

Goal 2 Develop a sustainable mariculture industry in Seychelles

Strategic Objective 1	To assess the mariculture potential and its economic feasibility in the Seychelles EEZ, taking into consideration the requirements of the species that will be farmed.		
Outcomes	Biodiversity priority areas identified and network of protected areas established		
Lead Implementing Agency	MNR, SFA		
Total Estimated Cost	SCR 60,000,000		
Timeline	2012-2016		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1.Carry out an in-depth scoping study on potential for mariculture projects including potential for each specie that will be farmed	Improved knowledge of mariculture potential	MNR, SFA	Number of documents and proposed projects in the past No. of trained personnel
2 Carry out an aquaculture Master Plan of the sector.	Local and foreign investors are provided with the necessary incentives	Foreign consultants (with SFA)	New strategy and plan
3. Set criteria for identifying mariculture sites and projects	New mariculture sites earmarked for development	MNR, SFA	Promoters (foreign) invest in new projects
Cross-Sectoral Linkages	Tourism and Aesthetics; Water, sanitation and waste		
Climate Change Considerations	Climate change consideration such as changes in temperature and salinity must be taken into consideration		
Capacity Building (incl. education) requirements	Training/capacity building for local personnel		
Legal & Institutional needs	Present Fisheries Legislation must be amended to facilitate investments in Mariculture		
Relevant applicable policies	Fisheries Policy of 2005 is supportive of mariculture development		
Links to conventions and treaties	Convention on Biodiversity (CBD). The CBD covers all aspects of fishery and aquaculture practices.		
Possible sources of funding	Government of Seychelles, foreign investors		

Strategic Objectives 2	To evaluate the impacts of various forms of mariculture activities and develop policies and guidelines to address those impacts.		
Outcomes	Be in a position to assess the opportunities presented by mariculture so that the sector can develop in an orderly and responsible manner with minimum impact on the environment		
Lead Implementing Agency	SFA		
Total Estimated Cost	SCR 84,000,000		
Timeline	2012-2014		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Carry out an in depth scooping study including the impact of pollution, natural resource requirements (electricity, fresh water ,labour requirements)	Better understanding of the impacts of pollution, utilities, labour and conflicts with coastal zone stakeholders	SFA	Improved knowledge of the effects of mariculture on water pollution and the demand for fresh water, electricity and labour
2.Carry out a Master Plan to study the mariculture potential with emphasis on the potential impacts of the various types of mariculture project on pond and cage culture	Improved knowledge of the criteria for mariculture sites that will not impact on the environment	DOE, SFA	No. of "safe" potential mariculture sites identified
3. Develop guidelines and policies for the safe implementation of projects	Foreign promoters are attracted to invest in mariculture projects	MNR, SFA, DOE	Policy document and guidelines published
Cross-Sectoral Linkages	Tourism and aesthetics; Water, sanitation and waste		
Climate Change Considerations	Not applicable		
Capacity Building (incl. education) requirements	Included in activity 01		
Legal & Institutional needs	Legislation amended and modified to ensure new requirements		
Relevant applicable policies	Links to fisheries policy 2005		
Links to conventions and treaties	Not applicable		
Possible sources of funding	Government of Seychelles		

Strategic Objectives 3	To develop opportunities for foreign investors and eventually Seychellois entrepreneurs to invest in mariculture activities		
Outcomes	Mariculture projects firmly implemented in Seychelles		
Lead Implementing Agency	Ministry of Natural Resources, Seychelles Fishing Authority		
Total Estimated Cost	SCR 240,000,000 (per project)		
Timeline	2012-2016		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Identification of potential mariculture sites	Investors, including both foreigners and Seychellois, invest in mariculture projects	MNR, SFA, DOE	No. of project memorandum submitted to SIBA
2. Projects proposal approved and sites selected	Funds and technical expertise for the project are disbursed	SFA, MNR, investors, other stakeholders	Foreign expertise with mariculture know-how recruited and working on the project
3 EIA undertaken for verifying environmental impacts and project feasibility	EIA and project memorandum approved	SIBA, SFA, DOE,	Project implementation begins
4. Training provided for Seychellois counterpart and personnel.	Advanced training for senior staff in countries with similar climatic conditions as Seychelles On the job training by non-managerial staff.	MNR, SFA	No. of trained Seychellois personnel
5. Monitoring and assessment of project	Seychellois entrepreneurs attracted to successful projects	MNR, SFA	Seychellois entrepreneurs invest in Mariculture projects
Cross-Sectoral Linkages	Energy and transport costs will be determining factors in the project's economic viability, in particular if the project is located offshore.		
Climate Change Considerations	Changes in oceanographic conditions linked to climate change must be taken into consideration, in particular changes in water temperature, in current and wind patterns, in particular if the site is offshore and/or not well protected		
Capacity Building (incl. education) requirements	- On the job training could be acquired by non-managerial staff - Training requirement overseas for senior Seychellois technicians at appropriate institutions		
Legal & Institutional needs	Legislation will have to be revised/ updated in order to minimize bureaucracy and improve timeliness and effectiveness of applications.		

Relevant applicable policies	The Fisheries policy of 2005 is supportive of aquaculture development and is in line with the Seychelles government policy to optimize its fisheries potential and ensure that both local food security and fish exports are maximized and incentives are given to encourage maximum Seychellois participation
Links to conventions and treaties	Has links to the Convention on Biodiversity (CBD)
Possible sources of funding	Government of Seychelles, Private investors (foreign+ local)

Goal 3 Promote safe mineral exploitation in Seychelles waters

Strategic Objective 1	Develop and implement appropriate environment safeguard policies and actions to minimise the environmental impacts of seabed activities and also compensate in any event of accidents.		
Outcomes	Risks of environmental accidents related to resource mineral exploration reduced		
Lead Implementing Agency	Ministry of Natural Resources, Seychelles Fishing Authority		
Total Estimated Cost	SCR 120,000,000		
Timeline	2012-2016		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Review existing policies, and actual exploration plans	Environmentally sensitive areas known	SEYPEC	Existing mechanism updated
2. Environmentally sensitive areas known	Policies and guidelines to minimize environmental damage	SEYPEC	Guidelines and policies developed
3. Environmental guidelines and policies implemented	Risks of accidents reduced	SEYPEC	Increased monitoring of water quality, BOD, COD levels etc
4. Guidelines incorporated in all new petroleum agreements	Harmonization of agreements and development of a Model Petroleum Agreement	SEYPEC, foreign oil exploration companies	Increased control on oil and gas exploration in the Seychelles EEZ and minimized potential impact on the ecosystem
Cross-Sectoral Linkages	Biodiversity and forestry, Energy and transport		
Climate Change Considerations	None		

Capacity Building (incl. education) requirements	Need to increase the number of trained staff
Legal & Institutional needs	The Environmental Protection Act makes provision for the protection of the marine environment.
Relevant applicable policies	Seychelles Strategy 2017, National Biodiversity Strategy, UNCLOS
Links to conventions and treaties	Convention on Biodiversity, MARPOL Convention International Convention for the Prevention of Pollution of the Sea, (OILPOL)
Possible sources of funding	Government of Seychelles, SEYPEC , Oil exploration companies

Strategic Objectives 2	Develop habitat maps of the sea bottom, with particular attention to sea mounts and other important seabed ecosystems		
Outcomes	Reduce the possibility of environmental impacts on important marine ecosystems		
Lead Implementing Agency	Ministry of Natural Resources, Seychelles Fishing Authority		
Total Estimated Cost	SCR 108,000,000		
Timeline	2012-2017		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Review all environmentally sensitive areas of sea bottom including seamounts and important ecosystems	Sensitive areas known	SEYPEC, oil exploration companies	New data obtained on sensitive areas
2. Sensitive areas of sea bottom mapped	Sensitive areas atlas	SEYPEC, foreign oil exploration companies	Risks of accidents reduced
3. Implement sensitive areas in Agreements and codes of practice	Increased control	SEYPEC	Increased monitoring of BOD,COD, water quality, suspended solids, HEAVY METALS
Cross-Sectoral Linkages	Biodiversity and forestry		
Climate Change Considerations	None identified		
Capacity Building (incl. education) requirements	Staff trained in remote sensing		

Legal & Institutional needs	Environmental Protection ACT
Relevant applicable policies	National Biodiversity Strategy
Links to conventions and treaties	Convention on Biodiversity
Possible sources of funding	SEYPEC

Strategic Objectives 3	Develop sensitivity maps for all the islands of the Seychelles.		
Outcomes	Risks of oil pollution on the Seychelles islands reduced		
Lead Implementing Agency	Ministry of Natural Resources, Seychelles Fishing Authority		
Total Estimated Cost	SCR 120,000,000		
Timeline	2012-2017		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Review available literature on environmentally sensitive areas around the islands of the Seychelles according to historical data base	Important sensitive areas around the main islands explored so far known including the granitic group, Coetivy, Platte, and Amirantes islands	SEYPEC, International oil exploratory companies	New information collated
2 Provide training to technicians and other staff	Improved human capacity	SEYPEC	Increase in number of trained staff
3. Map sensitive areas around important islands	Risks of major pollution occurrence on islands of the Seychelles reduced	Government of Seychelles, IDC, SEYPEC	Awareness and advocacy programmes
4.sensitive areas clearly mapped and included in all Petroleum agreements	Model petroleum agreement signed	SEYPEC	Improved environmental control of sensitive areas with monitoring OF water quality, suspended solids, BOD.
Cross-Sectoral Linkages	Biodiversity and forestry		
Climate Change Considerations	None identified		

Capacity Building (incl. education) requirements	Training needs for local Seychellois staff
Legal & Institutional needs	Conservation centres established on the outer islands Centres equipped with monitoring and enforcement resources
Relevant applicable policies	National Biodiversity Strategy, UNCLOS
Links to conventions and treaties	CBD
Possible sources of funding	Government of Seychelles, SEYPEC

Strategic Objectives 3	Establish appropriate funding mechanisms for the management and protection of the marine environment from proceeds of mineral exploitation in Seychelles		
Outcomes	Risks of oil pollution on the Seychelles islands reduced		
Lead Implementing Agency	Protection and control of pollution on coastal areas and marine environment in general		
Total Estimated Cost	SCR 180,000,000		
Timeline	2012-2016		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Set up an emergency contingency committee and plans in case of major oil spills	Environmental damage from oil spills are minimized	SEYPEC, Government of Seychelles	Donors express their willingness to assist
2. Prepare a comprehensive contingency document for international donor agencies	Improved human capacity	SEYPEC	Increase in number of trained staff
3. Organize a Workshop to elaborate the plans to set up a contingency plan for funding	Participation of all stakeholders in the industry	SEYPEC	Financial resources secured
4. Government agencies and aid donors sign financial agreement	Financial participation to funding mechanism secured	SEYPEC and foreign donors	Model agreement signed and special equipment purchased to be used in contingency plans

Cross-Sectoral Linkages	Biodiversity and Forestry
Climate Change Considerations	None identified
Capacity Building (incl. education) requirements	Training needs for Seychelles technical staff
Legal & Institutional needs	Environmental protection Act
Relevant applicable policies	National Biodiversity Strategy
Links to conventions and treaties	CBD,UNCLOS
Possible sources of funding	Government, SEYPEC, Foreign donors (UNEP, AFDB, World Bank, etc)

6.7 Cross-Sectoral Issues

In order for the fisheries Sector to continue to play an important role in the country's economic development, there is a need to strengthen human capacity through training and empowerment. This is a key element of the SSDS 2012-2020 programme for the fisheries sector since it is an accepted fact that fisheries management is first and foremost about the management of people. The other important issues include:

• Capacity building with the need for advanced tertiary education for personnel working in fisheries and marine resources. This is essential in order to upgrade both the pre-harvest and post-harvest sector. In this respect there is a need for greater participation of people in particular at the grass root level, to be involved in the decision –making process. This should include greater dialogue with fishers associations and other concerned stakeholders in order to involve the community in a participatory co-manment consultation process.

• Those responsible for the development of the tourism and fisheries sector- two sectors that represent key players in the economy- must not be competing against each other but rather be working together in closer cooperation. This is the case in particular for the coastal zone ma agement, where any new development must be continuously assessed to prevent further degradation of marine habitats (coral reefs, grass flats). This is also necessary for improving waste management practices, energy and water conservation, controlling invasive species and reducing water pollution.

• The legislative and legal framework for the sector must be amended and reinforced to reflect new and emerging fisheries concepts and developments in the sector e.g. mariculture developments and Co-management practices. For the Industrial fisheries sector, Seychelles needs to pursue its commitment to international Conventions, especially UNCLOS, flag state responsibilities, conservation of high seas resources and management of highly migratory species and management of straddling stocks.

• In view that lack of concrete scientific evidence and data is often lacking when drawing any fisheries management plans, such plans must be based on the precautionary principle which is in line with international conventions and practices. This would also underscore the point that the SSDS Programmes, as elaborated in the Action Plans, are sometimes very complex and we do not always have sufficient knowledge to ensure that all our Action plans can indeed be successfully implemented.

• The effects of climate change will be playing an ever increasing important role infisheries development as changing environmental patterns will have to be mitigated both for the coastal demersal fishery and for the open oceanographic pelagic fisheries.

• Enforcement and monitoring of the fisheries legislation will have to be reinforced more consistently and in a more sustainable manner, in order to increase population awareness and demonstrate that the laws are to protect "their" marine environment and that it is in their interest to comply with the regulations.

6.8 Measurement of Progress

The SSDS 2012-2020 document addresses key, long-term issues facing the Seychelles economy in response to socio-economic and environmental concerns. Measurement of success will not only depend on the number of Action Plans or Projects that have been successfully implemented, but also on how these have contributed to shift the trend to environmentally sustainable practices acceptable by the public and other concerned stakeholders.It is nevertheless true that progress can be measured by certain indicators that would evaluate whether the overall strategic objectives and goals of the SSDS have been achieved. These could include the following:

• An increase in the number of stakeholders, in particular from the grass root levels that are actively participating in the decision-making process. At the same time, government would have reduced its share of equity in the fishing industry and operate instead as a facilitator (setting guidelines and policies to allow for Seychellois and private sector investments.

• In view of the constraint in available raw material, there should be an increase in value-addition and shore based industries in the fishing sector. This would also concern ancillary and/or shore based industries in the sector.

• The number of Seychellois technicians who have been trained overseas and who havereceived a tertiary education in the fisheries sector should have increased significantly with a corresponding decrease in the number of expatriates employed in the sector.

• There has been an increase in the number of management plans, in particular for the demersal fishery and most of these have been successfully implemented.

• Shore-based infrastructure, in particular for the semi-industrial and industrial tuna fishery, has expanded significantly including new fishing quays, coldstores, tuna processing plants, etc.

• Investments in mariculture projects have 'taken off' and several projects have been successfully implemented by both Seychellois and foreign promoters.

• Fisheries legislation has been amended and updated to reflect the new developments in the fishing industry.

• There has been a significant improvement in MCS (Monitoring Control Surveillance) activities with an improved cooperation between SFA, the Coast Guard and the Police. At the same time, monitoring and assessment of the various fisheries would have improved with a more satisfactory collection of statistical data.

• Finally, over-fishing has been brought under control and marine resources are being exploited in a more sustainable manner.

In the final analysis it will be the responsibility of the SSDS Steering Committee to monitor the progress of the proposed projects and to decide whether these have been successfully implemented according to the strategic objectives set in the SSDS 2012-2020.

Thematic Sector : Fisheries and Marine Resources

Goal	Estimated Cost	Notes
1. Manage demersal, semi-pelagic and pelagic resources in the Seychelles EEZ sustainably	SCR 642,000,000	The final costs will depend on the involvement of foreign donors in particular the FAO (for the artisanal fishery) and the EU for the industrial tuna fishery.
2. Develop a sustainable mariculture industry in Seychelles	SCR 384,000,000	Successful development of mariculture in Seychelles will depend on the ability of government to attract international and/or private investors who will provide both the required expertise and financial resources.
3. Promote safe mineral exploitation in Seychelles waters	SCR 528,000,000	Safe and successful exploitation of mineral deposit will depend on the discovery of deposits and the creation of necessary incentives and environmental safeguards to exploit these deposits

7 WATER, SANITATION AND WASTE MANAGEMENT

7.1 Introduction

Water, sanitation and waste management represent the basic elements for achieving the Millennium Development Goals (MDGS) and have been the centre of attention of government intervention, since the development of the first national development plans in the early eighties. Although the sector is capital intensive, key areas of institutional and management weaknesses have been identified, which is also given attention in this strategy. This thematic area focuses on all three sub-sectors. Water - although there is sufficient annual rainfall (2,200 mm per year) to provide an adequate water supply to the granitic islands, the capacity to retain or capture this water to meet national demand remains inadequate. Combined with an old distribution network, the challenges of water management, especially during dry periods, are becoming very difficult. Climate change will also significantly affect the country's ability to provide provided adequate treated water, although over 95% of the population is connected to a treated water supply.

Sanitation - during the last decade, public sewerage schemes have been implemented in seychelles for the most densely urbanized areas of Mahé including Victoria and suburbs and north western area. There is as yet no clear strategy for provision of sanitation services although significant investment was made in the sewerage network to cover densely populated areas with sewerage treatment works located at providence (7000kl/day) and at beau vallon (3000kl/day). Sanitation on the island of praslin and la digue relies on decentralized conventional treatment system (septic tanks) which is not sustainable for the rising number of households and businesses these islands are supporting. With such limited coverage, the water quality of most rivers is deteriorating. This predicament is due to insufficient financing for maintenance and extension of the networks as well as low connectivity to the network by householders and businesses.

Waste Management - the Seychelles generate on average 48,000 tons of waste per year. Communal bins sites around the islands are still the mode of waste collection for refused compacted trucks which transfer the wastes to a controlled landfill at Providence (Reclaimed land on the coast of Mahé). Waste management was privatized in 1997, with one operator managing the landfill and undertaking municipal collections, although a number of smaller operators are engaged in the commercial sector. Recycling of biodegradable matter, metal and

Guiding Principles

Several principles guide the management of water sanitation and waste within the context of sustainable development.

Polluter pay principle: states that the cost of disposing of waste must be borne by the holder who has waste handled by a waste collector or by an undertaking and/ or the previous holders or the producer of the product from which the waste came.

Producer responsibility principle: States that economic operator, and particularly manufacturers of products, bear responsibility for their products throughout its useful life including the stage of becoming waste.

Precautionary principle: states that the lack of full scientific certainty should not be used as an excuse for failing to act where there is a credible risk to the environment or human health.

Waste Management Hierarchy: sets the relative priority of methods for managing waste. The top priority is waste reduction, followed by reuse, recycling, and energy recovery with the least desirable option being disposal.

Integrated Water Resource Management: Strategies should involved a participatory planning approach for managing and developing water resources in a way that balances social and economic needs and that ensures the protection of ecosystems for future generations.

Life Cycle Assessment: A systematic compilation and evaluation of the inputs, outputs, and the potential environmental impacts of a production system throughout its life cycle, that is from cradle to grave.

PET plastic contributes significantly to the reduction of waste ending up in the landfill.

7.2 Thematic outlook 2012-2020

Demand for water is set to continually increase and innovative ways will have to be found to ensure adequate provision of water in the face of decreasing land area and increasing demand principally arising from growth in tourism, manufacturing and agricultural sector. Climate change is expected to affect the resources Significantly with the possibility of less rainfall or heavy downpours over a short duration. Significant investment will be required to ensure water security for the seychelles.

The outlook for sanitation is expansion of the sewerage network to high density areas and phasing out of non- functioning septic tanks. The expansion of the greater victoria sewer network would cover the unsewered areas of mont buxton, foret noire, belvedere, la louise and roche caiman. Expansion of the beau vallon sewer would cover pascal village, canada, danzilles, and glacis. An integrated solution for praslin and la digue will require development in the forthcoming period.

For waste management, the outlook is 40% increase in waste quantities over the next 10 years with a higher amount of packaging and hazardous w aste. Faced with limited land and capacity, the priority is to encourage the development of waste recycling and recovery facilities within an optimised regulatory and institutional framework. The professional development of the sector is seen as fundamental to meeting these challenges.

Main Challenges

- The lack of adequate capacity for capture and storage of potable water. With a per capita consumption of 150l/ day, the storage capacity between them is sufficient for only 2 months consumption on Mahé Island.
- Financing the high cost of water infrastructure – new dams, desalination plants or reservoirs and replacement of ageing distribution network.
- Pollution arising from ageing sewer systems and lack of appropriate sewerage treatment systems for several population centres around Mahé.
- Contractual impediments due to poorly conceived privatization and operation contracts for solid waste management in Seychelles.
- Weak institutional support for the management of wastes.
- Recycling and waste reduction initiatives are not fully integrated.
- Lack of human capacity to manage water, sanitation and waste in Seychelles.

7.3 Policy framework

Historically, the management of the water resources, sanitation and waste were under the Responsibility of one organization namely the public utilities corporation (puc), but with Subsequent government re-organisation and privatization, solid waste management was divorced in 1995 and allocated to a new entity, the solid waste & cleaning agency. The service of waste collection, treatment and disposal was privatized to one economic operator including beach and road cleaning. The main policy and strategy for the sector is incorporated in master plans which set out the roadmap for implementation although references to the sector can be found in Other policy documents. The seychelles strategy 2017 makes reference to the sector as follows:

An integrated potable water distribution network, linking all water sources will be constructed, a new dam will be built and dam-to-dam water transfer infrastructure installed.

Appropriate technology will be made available to the public utilities corporation (puc) to increase efficiency in providing water, sewerage and electricity requirements. Further, energy and water conservation policies will also be promoted nationally.

Benefiting from resultant increased efficiency, puc will pass on savings to its customer base, offering more competitive tariffs.

The government of seychelles will invest in improved waste disposal and treatment and the sustainable management of natural resources.

The following are the main policy drivers for this thematic.

Main Strengths

- High proportion of population has access to potable water supply, sanitation and waste services.
- High annual rainfall means that several rivers and other freshwater sources occur within the granitic islands with no issues of desertification.
- No transboundary water resources shared with other countries.
- Sector Master Plans have been prepared or are in preparation to address specific issues within each sector.

Water master plan (2010-2025) - Provide detailed information on the water situation in the seychelles and various projects aimed at modernizing the water infrastructure in the seychelles. It complements the actions identified in this strategy.

Sanitation master plan (2010-2025) – Provides the main strategy for sanitation services in the republic of seychelles. The strategy complements the actions of the master plan.

Solid waste master plan (2003-2010) – This document sets the main strategy for solid waste management for the republic of seychelles taking into account emerging trends, technology as well as country-specific issues. The swmp 2000-2010 identified 11 areas of interventions with 24 objectives.

A new solid waste master plan 2011-2020 once developed will complement the main objectives and programmes in this document.

Area of intervention for the Solid waste master plan 2000-2010

Area	Objectives
1. Policy & Legislative Framework	1.1 A new national master plan reflects the existing situation on waste management. 1.2 Enforcement of legislation relating to waste management is effective. 1.3 Legislation adequately supports enforcement. 1.4 Penalties for littering and fly-tipping are sufficiently high to be effective.

2. Institutional / Organisational Arrangements	2.1 Institutional / organisational responsibilities for waste management are clearly defined between the various ministries and departments. 2.2 Contractual arrangements for service provision achieve the intended results.
3. Human Resources / Capacity	3.1 Existing human resources in the public sector are able to fulfill their regulatory duties completely. 3.2 Health and Safety issues have been addressed.
4. Financing / Cost Recovery	4.1 The revenue flows from existing waste management charges are sufficient to be able to meet the full costs of providing a sustainable system.
5. Stakeholder Awareness & Communication	5.1 General public have a sufficient awareness of the need to prevent littering. 5.2 A communications campaign has been established to promote waste reduction.
6. Data Availability / Reporting	6.1 Data on certain priority waste streams is available.
7. Waste Avoidance & Reduction	7.1 The potential for waste avoidance and reduction is exploited. 7.2 Attention is given to importing more durable products.
8. Waste Recovery & Recycling	8.1 The potential for further waste recovery and recycling is realised.
9. Waste Segregation, Storage, Collection & Transport	9.1.1 Sufficient number of bin sites. 9.1.2 Sufficient cleaning round bin sites. 9.1.3 Sufficient appropriate collection vehicles / systems used in Mahé and Praslin / La Digue. 9.1.4 Frequency of collection is maintained. 9.2 Separation of recyclables and compostables is taking place.

10. Waste Treatment / Processing	10.1 Existing facilities / practices for the treatment / processing of wastes comply with appropriate environmental standards. 10.2 Appropriate treatment facilities for hazardous wastes exist.
11. Final Disposal	11.1 Existing facilities / practices for the final disposal of wastes comply with appropriate environmental standards. 11.2 Existing facilities for the final disposal of wastes have sufficient capacity to represent a sustainable solution.

The following legislation are the main drivers for this thematic:

Public Utilities Corporation Act, 1960 (Cap 196) - regulates the use of water throughout the country as well as sewage disposal systems both public and private.

Public Utilities (Sewage) Regulations (1987) - regulate specifically the supply, control and management of sewage.

Environment Protection (Standard) Regulations (1995) - prescribes effluent quality standards for discharge to the environment.

P**ublic Health Act, 1960 (Cap 189**) - provides competences to Ministry of Health in respect to chemical examination and bacteriological examination of any supply or source of supply of water which is or may be used for drinking or domestic purposes.

Landscape and Waste Management Agency Regulations (2009) - updates the SWAC regulations (1995) and provide landscaping competences to the designated waste agency.

Pesticides Control Act (1996) - regulate the manufacture, distribution, use, storage and disposal of pesticides.

Environment Protection (Restrictions on Plastic Bags) Regulations, 2008 - prohibit the manufacture, importation, trade and commercial distribution of plastic bags below 30 microns in order to eliminate thin and flimsy plastic bags which cannot be reused or recycled.

PET Plastic Regulations (Trades Tax Imports Regulations) 2005 - amended 2007 - main legislative instrument for the recycling of Poly Ethylene Terephthalate (PET) plastic in the Republic of Seychelles based on economic incentive model - namely a tax of up to 30 per cent on all pre-form PET bottle of plastic and an additional levy of 70 cents per bottle.

7.4 Stakeholder Framework

The main institution involved in water resources management and sanitation in Seychelles is the Public Utilities Corporation (PUC), a public entity and for Waste Management, it is the Landscape & Waste Management Agency (LWMA).

Community-based groups: These exist only in the context of solid waste management, whereby the community is involved in either clean-up activities or in subcontracting the collection of solid wastes.

Government Agencies: At the government level, the Department of Environment is directly responsible for water resources management, sanitation and waste management. Other ministries such as the Ministry of Health, the Ministry of Land Use and Housing.

Non-Governmental Organisations (NGO's): There are not many NGO's involved in the area of water, sanitation and wastes.

Private Sector: The role of the private sector in this sector has significantly grown in the last 10 years, with many operators in the solid waste management business. The water and sanitation are still run by public entities, although some aspects of water supply and treatment of waste water are undertaken by private operators.

Other Groups: Other important stakeholders are those involved in education, especially since issues of water conservation, pollution prevention and recycling are initiatives that can be undertaken in schools and in the work place.

7.5 Goals and Strategic Objectives

Goal 1 Ensure effective and integrated management of water resources

The goal aims to introduce an integrated approach to water resources in Seychelles, where there is emphasis on the conservation and proper management of the water resources, alongside the key investments that are required to achieve water security of the people and economy of Seychelles.

	Strategic Objectives
1	To enhance the capacity for supply and storage of potable water.
2	To promote water conservation measures and to reduce demand.
3	To strengthen Institutional and legal mechanisms for water resources management.
4	To ensure protection of critical watersheds and forest areas.

Goal 2 Integrated management of wastewater for the protection of human health and the environment.

The goal ensures that wastewater is effectively treated and discharged in a manner necessary for the protection of human health and the environment. This goal can only be achieved through an integrated approach taking into consideration future developments, choice of treatment technology, community participation and the functioning institutional and legal framework.

	Strategic Objectives
1	To minimise pollution caused by wastewater
2	To develop and implement appropriate sewerage treatment systems for Praslin and La Digue.
3	To review existing financing and tariff regime to encourage investments, conservation and recycling in wastewater management.

Goal 3 Solid waste is managed in an integrated and environmentally safe manner

The goal is aimed at ensuring that the management of solid waste in Seychelles is continually strengthened in an integrated manner through the right policy, infrastructure, and capacity (financing and human resources) to implement advanced, solid waste management programmes that will respond to the needs of the country for the forthcoming 10 years.

	Strategic Objectives
1	To enhance the legal framework for the management of solid waste.
2	To develop and enhance infrastructures for managing solid waste.
3	To achieve source segregation of solid waste and promote recycling.
4	To ensure safe management of hazardous waste.
5	To strengthen Institutional capacity for the management of solid waste.

7.6 Action Plan

Goal 1 Ensure effective and integrated management of water resources

Strategic Objective 1	To enhance capacity for supply and storage of potable water
Outcomes	Water storage capacity increased
Lead Implementing Agency	PUC
Total Estimated Cost	SCR 776,400,000
Timeline	2012 – 2020

Activities	Expected Results	Responsibilities	Objectively Verifiable Indicators
1. Expand the capacity of existing reservoirs	Capacity for storage of raw water at existing facilities is increased	PUC	Storage capacity of existing facilities (m3)
2. Construct new catchments & reservoirs on Mahé, Praslin & La Digue	New facilities for storage of raw water is developed	PUC	Additional storage capacity (m3)
3. To increase capacity for desalination of sea water on Mahé, Praslin & La Digue	Desalinated water contribution to the water supply is increased	PUC	Production of desalinated water (m3/day)
4. Upgrade water treatment works & pumping station	Enhanced treatment and supply of potable water	PUC	No. of complaints received
5. Raw water transfer schemes	Negative distributions in arising of water supply are mitigated.	PUC	Amount of water transferred (m3)
6. Feasibility for harvesting unused sources of water	New sources are identified	PUC	Number of new sources identified
Cross-Sectoral Linkages	Land use, Coastal zone and urbanization		
Climate Change Considerations	Measures will mitigate against water shortages due to climate change		
Capacity Building (incl. education) requirements	None identified		
Legal & Institutional needs	None identified		
Relevant applicable policies	Development Policy		
Links to conventions and treaties	None identified		
Possible sources of funding	Government, European Investment Bank		

Strategic Objective 2	To promote water conservation measures and to reduce demand		
Outcomes	Demand for water is maintained or reduced in spite of increased economic activity		
Lead Implementing Agency	PUC		
Total Estimated Cost	SCR 12,000,000		
Timeline	2012 – 2017		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Reduction of Non revenue (Unaccounted for) water	Demand due to Unaccounted For Water is reduced	PUC	UFW reduced from 2010 figure
2. Promote rain water harvesting	Demand for water is reduced through rain water harvesting projects	PUC	No. of rainwater harvesting projects
3. Promote the reclamation and re-use of waste water	Demand for potable water for non potable applications is reduced.	PUC	Volume of treated water re-used (m3)
4. Promote water saving devices and technologies	Demand at domestic and commercial establishment is reduced	PUC	Water saving devices mandatory in law
5. Undertake Public participation, educational and awareness programmes	Population are sensitised on the need to conserve water.	PUC	Water use at household
Cross-Sectoral Linkages	None identified		
Climate Change Considerations	None identified		
Capacity Building (incl. education) requirements	For activity 3. Need to educate and sensitise industry and business community to use reclaimed water in their processes		

Legal & Institutional needs	Legislating the use of water-saving devices
Relevant applicable policies	Development Policy
Links to conventions and treaties	None identified
Possible sources of funding	Government, European Investment Bank

Strategic Objective 3	To strengthen Institutional and legal mechanisms for water resources management		
Outcomes	A competent Public Utilities Corporation to undertake water management in the country, staffed by a professional workforce		
Lead Implementing Agency	PUC		
Total Estimated Cost	SCR 6,000,000		
Timeline	2012 – 2017		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Sufficient & competent staff in place at key institution	At least three staff educated at Msc level	PUC, NHRDC	Presence of qualified staff
2. Develop and implement staff retention strategy	Trained staff retained for a minimum of 5 years	PUC, DPA	Service history of qualified staff
3. Institutionalize an independent regulator for the water sector	Public and private water companies are adequately regulated	DOE	Presence of regulator
Cross-Sectoral Linkages	Education for sustainability		
Climate Change Considerations	None identified		

Capacity Building (incl. education) requirements	Included in activity
Legal & Institutional needs	New regulation for development of water regulator
Relevant applicable policies	Human Resources Policy
Links to conventions and treaties	None identified
Possible sources of funding	Government, European Investment Bank

Strategic Objective 4	To ensure protection of critical watersheds and forest areas		
Outcomes	The sources of water remain protected against development		
Lead Implementing Agency	DOE		
Total Estimated Cost	SCR 3,000,000		
Timeline	2012 – 2017		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Protection of watersheds and river reserves	Source of rivers are protected against development and pollution	DOE	No of developments in proximity to sources
2. Develop watershed management plans	Management plans in place for all water shed areas	DOE	State of cleanliness of rivers, marshes
Cross-Sectoral Linkages	Biodiversity and Forestry; Agriculture and Food security		
Climate Change Considerations	None identified		
Capacity Building (incl. education) requirements	None identified		

Legal & Institutional needs	New regulation for development of water regulator
Relevant applicable policies	Land development policy
Links to conventions and treaties	LBSA Protocol- Nairobi Convention
Possible sources of funding	Government, European Investment Bank

Goal 2 Integrated management of wastewater for the protection of human health and the environment

Strategic Objective 1	To minimise pollution caused by wastewatert		
Outcomes	Pollution from leaking sewers and non-functioning septic tanks is eliminated		
Lead Implementing Agency	DOE		
Total Estimated Cost	SCR 120,000,000		
Timeline	2012 – 2020		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Renew existing sewer networks	Decreased pollution arising from the sewer network	PUC	Maintenance logs No. of Complaints received
2. Extend sewerage network to industries and densely populated areas	Pollution arising from industries and densely populated areas is reduced	PUC	% industrial activity & densely populated areas sewered
3. Renew wastewater treatment works (Pointe Larue, Anse Aux Pins)	No pollution arising from aging treatment works	PUC	Water effluent quality of existing treatment works

Cross-Sectoral Linkages	Social and Human development
Climate Change Considerations	None identified
Capacity Building (incl. education) requirements	None identified
Legal & Institutional needs	New regulation for development of water regulator
Relevant applicable policies	Sanitation Master Plan
Links to conventions and treaties	LBSA Protocol- Nairobi Convention
Possible sources of funding	Government, European Investment Bank

Strategic Objective 2	To develop and implement appropriate sewerage treatment systems for Praslin and La Digue		
Outcomes	Reduction of pollution due to waste water on Praslin and La Digue		
Lead Implementing Agency	DOE		
Total Estimated Cost	SCR 300,000,000		
Timeline	2012 – 2020		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Provide treatment services for densely populated areas on Praslin	Wastewater is centrally treated before disposal in the environment of Praslin	PUC	Presence of sewer and treatment plant
2. Provide treatment services for densely populated areas on La Digue	Wastewater is centrally treated before disposal in the environment of La Digue	PUC	Presence of sewer and treatment plant

3. Renew wastewater treatment works (Pointe Larue , Anse Aux Pins)	No pollution arising from aging treatment works	PUC	Water effluent quality of existing treatment works
Cross-Sectoral Linkages	Land use, Coastal Zone and Urbanization		
Climate Change Considerations	Location of the treatment plants must consider climate change and manage risk and disasters		
Capacity Building (incl. education) requirements	None identified		
Legal & Institutional needs	New regulation for development of water regulator		
Relevant applicable policies	Sanitation Master Plan		
Links to conventions and treaties	LBSA Protocol- Nairobi Convention		
Possible sources of funding	Government, European Investment Bank		

Strategic Objective 3	To review existing financing and tariff regime to encourage investments, conservation and recycling in wastewater management		
Outcomes	Funds collected by PUC is sufficient to meet operational expenses and future capital investments		
Lead Implementing Agency	DOE		
Total Estimated Cost	SCR 2,400,000		
Timeline	2012 – 2014		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Increasing connections to existing sewers	100% connections to sewers where it exists	PUC	No. of connections

2. Comprehensive tariff modelling for cost recovery	Funds recovered is sufficient to meet operational cost	PUC	PUC Accounting records
3. Alternative funding strategy e.g. PPP, DBOO are exploited	The funding of large infrastructure projects is diversified	PUC	No. of alternative scheme in place
Cross-Sectoral Linkages	Economics of sustainability		
Climate Change Considerations	None identified		
Capacity Building (incl. education) requirements	Training in sustainable financing mechanisms		
Legal & Institutional needs	For activity 1 PUC act to be amended to make connections to the sewers mandatory		
Relevant applicable policies	Sanitation Master Plan		
Links to conventions and treaties	LBSA Protocol - Nairobi Convention		
Possible sources of funding	PUC Resources, European Investment Bank		

Goal 3 Solid waste is managed in an integrated and environmentally safe manner

Strategic Objective 1	To enhance the legal framework for the management of solid waste
Outcomes	An increased regulation of solid waste management activities
Lead Implementing Agency	DOE & LWMA
Total Estimated Cost	SCR 504,000
Timeline	2012 – 2014

Activities	Expected Results	Responsibilities	Objectively Verifiable Indicators
1. Update main legislation	EPA & LWMA regulation are updated	DOE & LWMA	Updated waste laws
2. Develop new regulation for waste incineration	Reduce adverse effect to human health and environment due to incineration of waste	DOE & LWMA	Waste incineration Regulation
3. Develop new regulation for waste disposal by landfill	Reduce the impacts on human health and environment due to landfilling of waste	DOE & LWMA	Regulation for waste disposal
4. Develop new regulation for special waste (health care etc)	Reduce the impact of special waste to human health and the environment	DOE & LWMA	Special waste regulation
5. Develop Technical standards & licensing requirements for waste management	Solid waste is managed according to BATNEEC and internationally accepted standards	DOE & LWMA	Presence of technical standards and requirements
Cross-Sectoral Linkages	Social and Human development		
Climate Change Considerations	Activities 2 & 3 will act to reduce the amount of methane being released in the atmosphere		
Capacity Building (incl. education) requirements	Training required for drafting and implementation of waste legislation		
Legal & Institutional needs	Staff recruitment		
Relevant applicable policies	None identified		
Links to conventions and treaties	LBSA Protocol- Nairobi Convention		
Possible sources of funding	Environment Trust Fund, Waste Management Trust Fund, Government PUC Resources		

Strategic Objective 2	To develop and enhance infrastructures for managing solid waste		
Outcomes	Modern infrastructures are in place for treatment of waste, coupled where possible with energy recovery		
Lead Implementing Agency	DOE		
Total Estimated Cost	SCR 893,040,000		
Timeline	2012 - 2020		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Construction of sanitary landfills	Capacity for safe final disposal of waste is available	DOE	Presence of sanitary landfills
2. Construction of Energy from waste (Efw) incinerator	The volume of waste to be disposed is significantly reduced and is coupled with the generation of energy	DOE	Presence of Efw Incinerator
3. Construction of Anaerobic Digestion (AD) plant for Mahe I	Bio waste is diverted from landfill & used for production of energy	DOE / Energy Commission	Presence of AD plant
4. Rehabilitation of Providence I landfill	The environmental impact of Providence I is reduced.	DOE	Landfill fully lined and rehabilitated
Cross-Sectoral Linkages	Energy and Transport; Sustainable Consumption and Production		
Climate Change Considerations	Solid waste incineration and bio waste treatment will reduce the amount of greenhouse gas (GHG) in the form of methane being emitted by Seychelles		
Capacity Building (incl. education) requirements	Contracting strategy, negotiation and technical assessment of tenders		
Legal & Institutional needs	Link to the development and adoption of regulation on waste incineration		

Relevant applicable policies	Solid Waste Master Plan
Links to conventions and treaties	UNFCCC
Possible sources of funding	Private Public Partnerships, Private funding, Government subvention

Strategic Objective 3	To achieve source segregation of solid waste and promote recycling		
Outcomes	Amount of waste being landfilled is reduced and recycling increased		
Lead Implementing Agency	DOE		
Total Estimated Cost	SCR 12,000,000		
Timeline	2012-2015		
Activities	Expected Results	Responsibilities	Objectively Verifiable Indicators
1. Develop strategy for packaging materials and waste	Amount of packaging materials being landfilled is reduced.	DOE & LWMA	% packaging waste landfilled
2. Develop strategy for collection and treatment of waste electronic electrical equipment (WEEE)	Environmental impact due to WEEE are minimized or eliminated	DOE & LWMA	Presence of bio-waste treatment facilities
3. Develop strategy for diversion of bio-waste from landfill	Bio-waste is separately collected and treated instead of land filling.	DOE / Energy Com-mission	Presence of AD plant
4. Develop strategy for management of End of Life Vehicle (ELV)	Environmental impacts of ELV are reduced or eliminated.	DOE & LWMA	Presence of take back schemes
Cross-Sectoral Linkages	Economics of sustainability		
Climate Change Considerations	Need to offset vehicular emission arising out of collection, processing and disposal of packaging waste		

Capacity Building (incl. education) requirements	Development and implementation of Packaging waste regulation
Legal & Institutional needs	New regulation for Packaging Materials & Waste New regulation for WEEE New regulation for End of Life Vehicles
Relevant applicable policies	Solid Waste Master Plan
Links to conventions and treaties	Nairobi Convention - LBSA Protocol
Possible sources of funding	Government Subvention, European Development Fund

Strategic Objective 4	To ensure safe management of Hazardous waste		
Outcomes	Hazardous waste is collected, treated and disposed according to international best practice		
Lead Implementing Agency	DOE & LWMA		
Total Estimated Cost	SCR 20,400,000		
Timeline	2012-2015		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Develop hazardous materials & waste regulation	Increased regulation of hazardous materials and waste in Seychelles.	DOE & LWMA	Presence of legislation
2. Implement management scheme / permitting for transport & storage of hazardous waste	Accidents and or incidents due to handling of waste is reduced or eliminated	LWMA	Permits. No. of accidents / incidents

3. Construct hazardous waste treatment facility	Hazardous waste is treated and disposed in an environmentally safe manner	DOE / LWMA	Presence of facilities.
4. Develop capacity for management of Hazardous waste.	At least five people are trained in the characterizing, handling, treatment and disposal of hazardous waste	DOE & LWMA	Number of competent people
Cross-Sectoral Linkages	Social and human development		
Climate Change Considerations	Disposal option by incineration will lead to GHG		
Capacity Building (incl. education) requirements	Training for in-service staff in the management of hazardous waste		
Legal & Institutional needs	Development of new hazardous waste regulation as per activity Development of technical standards by LWMA Recruitment of additional staff for hazardous waste management		
Relevant applicable policies	Waste Policy		
Links to conventions and treaties	Basel Convention, Rotterdam Convention, Stockholm Convention, LBSA Protocol-Nairobi Convention		
Possible sources of funding	Government subvention, external donors		

Strategic Objective 5	To strengthen institutional capacity for the management of solid waste
Outcomes	A competent agency to oversee solid waste management in the country staffed by a professional workforce
Lead Implementing Agency	LWMA
Total Estimated Cost	SCR 9,240,000
Timeline	2012-2017

Activities	Expected Results	Responsibilities	Objectively Verifiable Indicators
1. Recruit sufficient competent staff in key institutions	At least two staff with Bsc level of education and one at Msc level	NHRDC	No. of graduates
2. Develop and implement staff retention strategy	Graduates serve at least 5 years with the Agency	LWMA, DPA	Service history of professionals
3. Develop formal waste training programmes	Waste management is a subject in courses being run at Educational institutions	UniSey, SIM	No. of professional courses in place
4. Improved solid waste management contracts & enforcement	Waste management operations are carried out in accordance to best practice	LWMA, DOE	No. of professional courses in place
5. Achieve cost recovery & sustainable financing for solid waste management	The cost for solid waste management is borne fully by waste generators	DOE, LWMA, MoF	% GOS subventions of budget
Cross-Sectoral Linkages	Education for sustainability; Social and human development		
Climate Change Considerations	For activity 4. Routes must be optimized to reduce vehicular emission arising from the collection of waste		
Capacity Building (incl. education) requirements	Employment of Bsc graduates in the waste sector; Training of Bsc graduates at Msc level in waste management		
Legal & Institutional needs	None identified		
Relevant applicable policies	Human resources policy		
Links to conventions and treaties	None identified		
Possible sources of funding	Government, British Council		

7.7 Cross-Sectoral Issues

• The water sector interlinks closely with development, land use, coastal zone management and energy. Water needs to be pumped from one part of the island to another. It is important that actions under the sector harmonise with that of energy thematic, since water treatment and pumping uses a high amount of energy. Construction of housing estates places a demand for water and planning in this sector must take into account the projections in population and housing over the coming years.

• Development of sanitation services ties closely with National Development Policy especially with respect to housing and developments. The planning of industrial zones and other economic activities must take into account the demand for water and the capacity to treat effluent to high standards.

• Solid waste management interlinks with the thematic for Energy and economics of sustainability as well as land use. It is not easy in a small country to find suitable sites for solid waste infrastructures such as landfills, incinerators. Good planning is required to ensure that there is no conflict of uses. It is also important that solid waste processes be economically viable through the appropriate cost recovery mechanism and that solid waste is viewed as a resource and attempts made to tap into this source of energy.

7.8 Measurement of Progress

Progress in the sector will be measured by a high investment in infrastructures e.g. water storage facility, distribution network, sewerage, solid waste recycling facilities. The infrastructures must be made financially viable so that the required repairs are carried out and are able to fund re-investment programmes.

Critical Success Factors

The critical success factors are
1. Political commitment and stability
2. Availability of funding for large infrastructure project
3. Effectiveness of cost recovery schemes
4. Presence of a trained & competent workforce in Government and the private sector
5. Liberalization of the waste sector
6. Level of public involvement and participation

Monitoring & Evaluation

Monitoring and Evaluation shall be based on indicators in the action plan. In particular, the following outcomes can be used as a general measure of success:

• Demand for potable water
• Qualify of surface and ground water
• Number of water restrictions per year
• Number of connections to centralized sewerage treatment works
• Effluent quality from waste water treatment plants

Thematic Sector : Water, Sanitation and Waste

Goals	Estimated Cost	Notes
1. Ensure effective and integrated management of water resources	SCR 797,400,000	Water Master Plan
2. Integrated management of wastewater for the protection of human health and the environment	SCR 422,400,000	
3. Solid waste is managed in an integrated and environmentally safe manner	SCR 935,184,000	

8 TOURISM AND AESTHETICS

8.1 Introduction

Tourism is one of the main pillars of the Seychelles economy. The sector contributes at least 25% to the Gross Domestic Product and provides approximately 15% of direct employment. During the past decade the industry has grown substantially with new tourism products coming online and achieving record numbers in terms of tourist arrivals. In 2010 Seychelles recorded the highest number of visitors in its tourism history with over 175,000 visitors. The major tourist markets are France, United Kingdom, Germany and Italy, which account for 60% of the total visitors to the country.

The sector has also had a number of new, luxury accommodation establishments coming into operation as well as a revitalisation of existing hotels. There are now over 220 accommodation establishments providing over 3000 hotel rooms. There are also now approximately 60 restaurants/cafeteria; 130 car hires; 10 tour operators; 20 dive centres; and over 380 vessels serving the tourism industry which includes yachts, boat charters, glass bottom boats, and ferries.

The growth in tourism over the past ten years has meant more pressure on the local resources of the country. As a result of this, the Government has had to balance the needs of economic development and the need to lessen and mitigate the impact of such development on the environment. This has caused the country to shift its focus to market Seychelles as an eco-tourism destination. As a result, the tourism industry has become more sustainable with an increase in nature-based attractions, products and services.

Since the beginning of the IMF economic reform programme in 2008, the private sector has been playing a greater role in marketing Seychelles as a tourism destination and the overall formulation of the strategic direction of the tourism industry. The tourism industry has also taken a new élan, especially among the private sector, following the announcement in August 2010 of the Seychelles Brand concept. This Seychelles Brand approach goes beyond the physical beauty of the islands. It bridges Seychellois social cohesion, arts, history and culture closer to other civilizations. In accordance to this strategy, the Seychelles Tourism Board has adopted the Anse Royale Beach Leisure Park and the Creole village at Domaine De Val de Près.

Guiding Principles

The tourism strategy of the Government of Seychelles is to attain self-sustaining economic growth by securing targeted increases in the number of visitors to the country and the amount spent by each tourist. Sustainable tourism is the only approach for the tourism industry to minimise the negative impacts of tourism on human and natural resources.

Sustainable Tourism Principle: Sustainable tourism is "tourism that meets the needs of present tourists and host regions while protecting and enhancing opportunity for the future" (UNWTO). It establishes a balance between the environmental, social and economic aspects of tourism. It preserves the natural environment and culture and maximizes local, economic benefits for the indigenous and local community.

Environmental conservation: It is vital to improve the relationship between tourism and the environment to minimize the adverse impacts of tourism development. The tourism industry has to be proactive to preserve the natural and local resources and to conserve biodiversity. It is necessary to promote environmentally sound technologies in the industry, promote renewable energy, water re-use and recycling of waste.

8.2 Thematic Outlook 2012-2020

The significant growth in visitor arrivals in the last ten years, from 130,046 (2000) to 175,000 (2010) is a trend that will continue to place pressure on existing human and natural resources and infrastructure. Resources such as water, energy and food all impinge on the country's ability to meet the demand for these resources in a sustainable manner. The successful implementation of tourism is

Main challenges

- Balancing the demands of the tourism industry and the needs of the local population. Although both are inextricably linked, it is important to ensure that the tourism industry generates the maximum benefits minus the impacts on the environment and the social fabric of the country.
- The increase in tourism development will also cause additional pressure on human resources. Until Seychelles can improve its institutional capacity to cater for additional human resources, there will still be a strong demand for foreign labour.
- The growth in tourist arrivals also poses a public health risk due to introduction of diseases. Not very long ago Seychelles had faced the threat from SARS, the influenza 'A ', to name but a few.

therefore highly dependent upon the performance of all the other thematic sectors in this strategy. Climate change will seriously affect the country's ability to manage those resources in the most sustainable manner.

The economic benefits of the tourism industry to Seychelles are tremendous and will continue to play a significant role in economic growth in the future. Proceeds from tourism also support sustainable development initiatives, such as conservation activities, resource management and infrastructure development in such a way that tourism development is inevitably linked to the successful implementation of this strategy.

Market surveys undertaken in developed countries indicate that consumers are becoming more concerned about the environment and the negative impacts of tourism development. This growing trend needs to be reflected in the tourism offerings of Seychelles and the population needs to be aware of these expectations of tourists. However, trends indicate that the local community's values are changing to increasing the demand for socially responsible tourism and environmentally responsible tourism experiences. Visitors and residents are now more conscious about sustainable development, sustainable tourism, biodiversity and eco-tourism. The trend for carbon offsets and taxes may impact on long haul tourism, as these will tend to make such destinations even more expensive.

There is a growing trend of resentment expressed against hotels that restrict access of the locals to beaches or their premises. In Seychelles, the beach is public domain by law but there are cases where owners of tourism establishments minimize access particularly in front of their property in order to provide further exclusivity to their clients. Possible increase in petty crime, littering and disturbances by the local population would exacerbate this conflict.

Land constraints also limit the extent to which tourism development can expand in Seychelles. It is generally felt that large scale tourism developments have reached a level of saturation on the main inhabited islands. Nevertheless, the demand from the public for beaches for recreational purposes will continue to increase. As a consequence, densification of certain areas will bring down the attractiveness of these sites.

The risk of disease outbreaks, especially of a global nature are expected to become more common in the future. The last two outbreaks of SARS and Influenza 'A' have had an impact on the tourism industry in Seychelles. Regional outbreaks of Chikungunya can also impact on tourism. Natural disasters, such as tsunamis, storms, floods and high tides all affect the tourism industry in Seychelles. Those risks and extreme events that are linked to climate change are expected to increase in frequency and intensity.

8.3 Policy Framework

The policy framework for the tourism thematic area is well developed and has even influenced international efforts towards sustainable tourism. The main policy platforms are:

Seychelles Strategy 2017: Is a national policy that acknowledges tourism as one of the main drivers of growth and contributor to the economic development in Seychelles. It covers the need to increase Seychellois stakeholding at all levels in the tourism industry. It also sets the targets for tourism development and expansion until 2017.

Vision 21 - Tourism Development in Seychelles 2001-2010: The policy document covers the trends in Seychelles' tourism; its contribution to the national economy; an evaluation of the Seychelles' tourism industry; opportunities for expanding tourism, strategic directions and the way forward for sustainable tourism in Seychelles The Seychelles Sustainable Tourism Plan 2012-2020 will replace the Vision 21- A master plan to guide the development of tourism industry while integrating the principles and practices of sustainability in the daily operations of tourism businesses and service providers, hence, ensuring a balance between the objectives for economic development and those for cultural, environment conservation and protection and socio-cultural integration.

Seychelles Eco-Tourism Strategy for 21st Century (SETS 21): Seeks to position Seychelles as an eco-tourism destination – defining the nature of the Seychelles eco-tourism experience and provides a framework for developing Seychelles as eco-tourism destination. It also promotes cultural sustainability and the further distribution of benefits to the local communities.

Seychelles Tourism Board Act 2005: Provides for the establishment of the Seychelles Tourism Board whose responsibility is for the development and implementation of tourism policy, establishing and monitoring of standards and the quality of tourism service providers. It also covers marketing Seychelles as a tourism destination and working with stakeholders to address tourism issues and challenges.

Tourism Sector Policies: The policy covers the framework and guidelines under which the various tourism sectors operate. Depending on their portfolio, various regulatory agencies and departments, together with the Seychelles Tourism Board (STB), are responsible for certain components of the policies. A wide range of tourism policies are in place.

Convention on Biological Diversity - Guidelines on Biodiversity and Tourism Development: International guidelines for activities related to sustainable tourism development in vulnerable terrestrial, marine and coastal ecosystems and habitats of major importance for biological diversity and protected areas, including fragile riparian and mountain ecosystems.

8.4 Stakeholder Framework

The stakeholder framework for the tourism sector was traditionally focused on key, government organisations but now entails greater involvement of the private sectors, NGOs and the local communities. Such a change in approach has increased stakeholder participation, coordination and as a result a better tourism product and service. The current stakeholder involvement within the tourism sector, although it needs further strengthening, can be used as a model for other sectors.

Government Agencies: The portfolio of tourism presently falls under the President's office, given its national, economic importance. However, the tourism industry is overseen by a semi-autonomous statutory body, the Seychelles Tourism Board (STB). The board comprises of seven directors, a majority

of which are private sector representatives. The Seychelles Tourism Board has a network of overseas tourist offices in the major markets. It works closely with other government Ministries and departments as well as with the private sector. The Seychelles Tourism Academy is responsible for the training for the various labour requirements of the tourism industry. The Seychelles National Parks Authority offers a wide range of parks and ecological sites for visits and is an important stakeholder in diversifying the Seychelles tourism products. The Tourism Police was instituted in 2008 and they are positioned at various beaches. Its objective is to safeguard beaches and nature trails. As a result there has been a decline in incidents of theft at the tourism sites of attraction.

The National Arts Council administers the arts development and the creative industry in Seychelles which are important forms of entertainment for the tourism industry. This includes music shows, visual arts, fashion, theatrical performances etc. The Small Enterprise Promotion Agency promotes and develops small and medium sized enterprises and craft work in Seychelles.

Private Sector: The private sector is an important stakeholder in sustainable tourism in Seychelles. The Seychelles Hospitality and Tourism Association (SHTA), formed in 2002, represent a broad spectrum of the tourism and hospitality industry with a membership of 113 accommodation establishments and 11 destination management companies. They also encourage associate memberships to incorporate businesses closely involved with the tourism industry. The SHTA is a platform which works closely with government to develop and expand the tourism industry in Seychelles. The Seychelles Chamber of Commerce and Industry (SCCI) play a lesser role in the tourism industry in Seychelles, although it has important implications such as representing the industries that support the tourism trade. Other associations in Seychelles, such as the Taxi Operators Association, Car Hire Operators Association, Marine Charter Association, Fishing Boat Owners Association and the Seychelles Farmers also have a key role to play in ensuring the development of the industry.

Non-Governmental Organisations (NGOs): The majority of NGOs involve with the tourism sectors are those engaged in conservation and the management of parks and protected areas. These include the Island Conservation Society, the Seychelles Islands Foundation, the Silhouette and Moyenne Island Foundation and Nature Seychelles. Other NGOs such as Sustainability 4 Seychelles and Marine Conservation Society of Seychelles are involved in energy, marine, recycling and other conservation initiatives with tourism operations.

Community-based groups: The linkages with the tourism sector are still relatively undeveloped but growing. TESS (The Ecotourism Society of Seychelles) is an active community-based NGO promoting awareness and developing new ecotourism opportunities. Efforts to engage local community groups in tourism have been limited to individual artists, sculptors and entertainers.

8.5 Goals and Strategic Objectives

Goal 1 Promote a sustainable tourism industry

This goal aims to establish the long-term sustainability of the industry by upholding the environmental, economic, social and cultural aspects of its tourism activities and development. It advocates the overriding objective of sustainable development to preserve and promote sustainable activities, resources and livelihoods for future generations.

	Strategic Objectives
1	To significantly minimise the negative impacts of tourism development on the environment and society
2	To implement sustainability standards by introducing a tourism sustainable scheme for the tourism industry
3	To promote the sustainable management of existing local and natural resources within the tourism industry
4	To diversify and expand the tourism experience in Seychelles
5	To integrate the principles of sustainable tourism in educational institutions/organizations

Goal 2 Enhance the economic benefits of tourism for the local communities

This goal seeks to foster the involvement of local communities in the tourism sector, to develop tourism projects and activities that can provide economic, cultural, social and environmental benefits which meet the needs of the local people. In return, community empowerment can improve the tourism product and experience to secure the long-term viability of the industry.

	Strategic Objectives
1	To promote Seychellois involvement in tourism development
2	To preserve and promote the cultural heritage and traditional values of Seychelles
3	To promote corporate social responsibility within the tourism sector

8.6 Action Plan

Goal 1 Promote a sustainable tourism industry

Strategic Objective 1	To significantly minimise the negative impacts of tourism development on the environment and society
Outcomes	• The natural environment will become cleaner and aesthetically more appealing. • Reduction in number and type of environmental incidents. • The tourism industry becomes more sustainable. • The tourism business becomes more profitable.
Lead Implementing Agency	Department of Environment, Seychelles Hotel and Tourism Association, Seychelles Tourism Board
Total Estimated Cost	SCR 2,000,000
Timeline	Launched in 2011, over a continual period lasting over 10 years

Activities	Expected Results	Responsibilities	Objectively Verifiable Indicators
1. To encourage the tourism industry to adopt environmentally sustainable practices.	Tourism operations are more environmentally friendly leading to reduction in operational costs.	SHTA, STB, SBS, Energy Commission, MoF, SMSA, SNPA, Marine Charter Association, Taxi Association, SCHOA, ENGO's	Number of environmentally friendly appliances and establishments
2. To encourage tourism promoters and investors to adopt architectural designs that reflect the ecological, cultural and traditional values of Seychelles	Tourism promoters and investors integrate sustainable principles into building design and construction	Planning Authority (MLUH) DOE, SIB, SHTA & Tourism Trade, MoF, STB	Utility cost No. of architectural designs inspired by energy efficient concepts.
3. To encourage research on the impacts of certain tourism activities (e.g. motorized water sports) on the environment.	Identification of impacts of these activities on the environment	DOE, SNPA, SMSA, SPA, SFA, STB, SHTA and Tourism Trade	Plan of action drafted on measures to be taken.
4. To encourage adoption and funding of sites of potential ecological conservation by tourism operators with active participation of visitors.	Increase knowledge and awareness amongst operators and visitors on the importance of conservation, maintenance and management of these sites.	SHTA, STB, Tourism Trade, DOE, DA's-MCDYS, MLUH, ENGOs	Increase in protected sites. Availability of funding and better management of these sites.
5. To support and promote public awareness campaigns for a cleaner environment through the media and at community level	A more favourable environment for our visitors.	DOE, MLUH, DA's-MCDYS, LWMA, STB, Tourism Trade, ENGO's	Reduction in the amount of litter
Cross-Sectoral Linkages	Education for sustainability; Land Use, coastal zone and urbanization; Social and Human development; Sustainable consumption and production; Agriculture and Food security		
Climate Change Considerations	To address climate change as one of the most urgent environmental problems facing humankind.		
Capacity Building (incl. education) requirements	Training of tourism environmental representatives from various sectors of the industry in sustainable environmental management. Training of STB staff in sustainable tourism development. Training of Environment conservationists.		

Legal & Institutional needs	Regulations to facilitate adoption and maintenance of sites by tourism operators
Relevant applicable policies	SETS 21, Tourism Sector Policies, Seychelles Strategy 2017, Environmental Protection Act, National Biodiversity Strategy.
Links to conventions and treaties	Global code of ethics for tourism, Convention on Biodiversity and Tourism Development (CBD), United Nations Convention to combat desertification (UNCCD), United Nations Framework Convention on Climate Change (UNFCCC), Kyoto Protocol 1992/ 1997.
Possible sources of funding	Government of Seychelles, UNDP -GEF, UNWTO, AFDB, grants under multi/ bilateral agreements.

Strategic Objective 2	To implement sustainability standards by introducing a tourism sustainable label scheme for the tourism industry		
Outcomes	• Increasing the percentage of sustainable tourism establishments in Seychelles • Increasing sustainable operations that integrate environmental, economic and social thinking into core business practices.		
Lead Implementing Agency	Seychelles Tourism Board, Accredited Independent Body, Seychelles Hotel and Tourism Association, Seychelles Tourism Academy.		
Total Estimated Cost	SCR 1,000,000		
Timeline	Launched in 2011, recurring basis lasting over 10 years		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Submission of proposed criteria to the Government of Seychelles for endorsement.	Approval of criteria	Cabinet of ministers	Approved criteria
2. To conduct an informational seminar on the eco-label targeting the operators in the tourism industry.	Raise awareness of sustainable practices and influence more tourism operators to apply for the label	Accredited Independent Body, STB and SHTA	Number of workshop held.
3. To implement the marketing plan for the eco-label targeting the operators in the tourism industry, introducing the incentives that will be available to operators adopting the label.	Raise awareness of sustainable practices and influence more tourism operators to apply for the label.	STB, SHTA	Number of establishment certified

4. To promote renewable energy, energy efficiency and energy conservation through the label.	Increase use of renewable energy in the tourism sector	Energy Commission, STB, SHTA	Hotel energy bill. % renewable energy adopted.
5. To promote water efficiency	Decreased consumption of water use within the tourism sector	STB, SHTA, DOE, PUC, MoH, MLUH	Volume of water used Amount of re-used treated waste water
6. To promote the 3Rs principle of Reduce, Re-use and Recycle through the eco-label	Reduction of waste from tourism establishment.	STB, SHTA, LWMA, DOE, MEHRD	Amount of waste generated; Presence of waste sorting scheme
7. To encourage and reward best sustainable practices of the establishments adopting the label.	Tourism operators integrate sustainable practices in their core business activities.	Accredited Independent Body, STB	Tourism operators will have a renewed commitment to apply for the label.
Cross-Sectoral Linkages	Energy and Transport; water, sanitation and waste; Sustainable consumption and production; Agriculture and food security; Education for sustainability		
Climate Change Considerations	The sustainable practices under the coverage of the label will enable tourism establishments to reduce their greenhouse gas emissions, lessen their carbon footprint, thus lessening the tourism industries contribution to climate change.		
Capacity Building (incl. education) requirements	The stakeholders involved in the implementation of the label, including the tourism establishments will be required to train their personnel to integrate sustainable practices in their operations.		
Legal & Institutional needs	All necessary business licenses, fire, health and environmental permits have to be obtained prior to an establishment being certified with the label.		
Relevant applicable policies	Vision 21; SETS 21; STB Act; Environment Protection Act		
Links to conventions and treaties	The label seeks to promote the conservation of biodiversity, in line with the Convention on Biological Diversity (CBD). Specific standards of the label sustain the requirements of the Stockholm Convention. Particular standards of the label is in line with the Davos Convention and UNCCD, promoting the tourism industries reduction of the carbon footprint through the reduction of greenhouse gas emissions		
Possible sources of funding	Government of Seychelles, UNWTO, UNDP-GEF project funds, and Grants under Multi/Bilateral Agreements, Collaborative Actions for Sustainable Tourism in Africa		

Strategic Objective 3	To promote the sustainable management of existing local and natural resources within the tourism industry		
Outcomes	• The tourism sector will be committed to sustainably manage the local and natural resources, to lessen the depletion of the existing resources. • The tourism sector will play a proactive role in raising awareness by involving both visitors and the local communities in the preservation of the natural resources, marine and terrestrial eco-systems. • The tourism sector will be involved in the promotion of the local/ natural products of the agricultural sector and that of the local artisans.		
Lead Implementing Agency	Department of Environment, Ministry of Investment, Natural Resources and Industry, Seychelles Agricultural Agency		
Total Estimated Cost	SCR 1,000,000		
Timeline	Launched in 2011, over a continual period lasting over 10 years.		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. To raise awareness about the impacts of tourism activities and development on the natural resources.	Positive changes in tourist behaviours and the local communities; towards sustainable management of natural resources.	DOE, SHTA, Seyfa, SMSA, SNPA, SFA, IDC, STB, STA, ENGOs	Stakeholder takes initiatives to preserve the local and natural resources in their local geographic area.
2. To develop policies that support sustainable management of natural resources.	Set of revised policies that integrate the principles of sustainable resource management within the sector	STB, DOE, SAA, Seyfa, SHTA	Presence of policies.
3. To undertake an awareness campaign to promote local arts, crafts and other local products in the tourism sector.	Increased visibility and sale of local artifacts in the Tourism sector.	STB, SENPA, SAA, Seyfa, STA, SHTA	Amount and variety of local products. Sales of local craft.
Cross-Sectoral Linkages	Agriculture and food security; Fisheries and marine resources; Sustainable consumption and production; Education for sustainability; Biodiversity and forestry		
Climate Change Considerations	Preservation of the local and natural resources will enable tourism establishments to reduce their greenhouse gas emissions, lessen their carbon footprint, thus lessening the tourism industry's contribution to climate change.		
Capacity Building (incl. education) requirements	The stakeholders involved in the promotion of local and natural resources management will be required to train their personnel to build their capacity to manage the local and natural resources.		

Legal & Institutional needs	All necessary business licenses and permits required for the tourism establishments, agricultural sector and the small and medium enterprises.
Relevant applicable policies	Vision 21; Strategy 2017; STB Act; Environment Protection Act;
Links to conventions and treaties	These initiatives will be in line with the conservation of biodiversity, the Convention on Biological Diversity (CBD) These initiatives will be in line with the requirements of the Stockholm Convention, UNCCD, and Davos Declaration and to the universal principles of eco-tourism and sustainable development.
Possible sources of funding	Government of Seychelles, local and international stakeholders of the tourism industry, grants under multi/bilateral agreements, local and international financing institutions.

Strategic Objective 4	To diversify and expand the tourism experience in Seychelles		
Outcomes	• A good cross section of niche- tourism activities to market overseas. • Visitors have a wider range of tourism products to choose from while on holiday. • Increase of government revenue through tax collection from local enterprises. • Increase local participation in the tourism industry.		
Lead Implementing Agency	DOE, STB, SHTA & other Tourism sectors, Ministry of Investment, Natural Resources and Industry.		
Total Estimated Cost	SCR 2,500,000		
Timeline	Launched in 2011, over a continual period lasting over 10 years.		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Upgrading and development of nature trails and other natural/cultural sites	Increase in the number of eco-tourism attractions for visitors.	Seychelles Heritage Foundation DOE, ENGOs	No of trails being maintained
2. To create incentives for locals to invest in tourism related businesses	More local owners of tourism businesses.	MoF, SIB, SIBA, DBS, CBS, SENPA	Presence of incentives No of locally owned tourism related businesses.

3. To promote the marketing of local crafts and other souvenir products in terms of branding, packaging etc	Increase revenue from sale of local products	SENPA, STB, SHTA, MINRI	Better quality of locally made products.
4. To introduce mobile bazaars with 100% Seychelles made products.	Visitors are more aware of locally made products.	SENPA, SHTA, MINRI, PDF, LDDB	Mobile bazaars in place
Cross-Sectoral Linkages	Sustainable consumption and production; Economics of sustainability; Agriculture and food security; Biodiversity and forestry		
Climate Change Considerations	Coastal zone issues. Tourism, energy and other economic-related activities have a direct impact on climate change and are equally vulnerable to the consequences of climate change. The tourism industry should play a proactive role and assist in establishing short, medium and long term plan of action to minimize the adverse impact of climate change on the environment.		
Capacity Building (incl. education) requirements	Training of SENPA staff and Entrepreneurs		
Links to conventions and treaties	United Nations Convention to combat desertification (UNCCD), Convention on Biological Diversity (CBD), United Nations Framework Convention on Climate Change (UNFCCC) 1992/ Kyoto protocol 1997 UNFCCC		
Possible sources of funding	UNDP- GEF, UNWTO, AFDB, Government Of Seychelles, grants under multi/bilateral agreements		

Strategic Objective 5	To integrate the principles of sustainable tourism into educational institutions/ organisations
Outcomes	• Industry and non industry workers are sensitized on sustainable tourism
Lead Implementing Agency	Department of Environment, Ministry of Education Employment and Human Resources Development.
Total Estimated Cost	SCR 1,500,000
Timeline	Launched in 2011, over a continual period lasting over 10 years

Activities	Expected Results	Responsibilities	Objectively Verifiable Indicators
1. Environmental management training for public and private officials.	Availability trained members of tourism trade and STB personnel.	ENGOs, STB, SHTA, STA, UniSey.	Number of people trained.
2. Improve the communication between public and private sectors with respect to sustainable tourism and environmental management	Members of tourism trade are better informed.	STB, DOE, SHTA, Tourism trade	No of workshops held
3. Address the long-term institutional needs of tourism industry with respect to environmental maagement and conservation	There are trained people in the field of environmental management including sustainable tourism	DOE, STB, SHTA, ENGOs	Number of locals employed at tourism establishment.
Cross-Sectoral Linkages	Education for Sustainability; Social and Human development; Economics of sustainability; Sustainable consumption and production		
Climate Change Considerations	The tourism Industry will have to play a proactive role in collaboration with other stakeholders to minimize the impact of climate change by focusing on short, medium and long term action plans.		
Capacity Building (incl. education) requirements	Training of trainers in the environment and sustainable tourism		
Legal & Institutional needs	Revision of legislation to facilitate training opportunities for personnel of both public and private sector		
Relevant applicable policies	SETS 21, Environment Protection Act		
Links to conventions and treaties	United Nations Convention to combat desertification (UNCCD), United Nations Framework Convention on climate change (UNFCCC) Montreal Protocol, Vienna Convention in 1993 and amendment in Beijing in 2002		
Possible sources of funding	Government of Seychelles, UNDP-GEF, Collaborative Actions for Sustainable Tourism in Africa, Grants under Multi/Bilateral agreements, Tourism trade		

Goal 2 Enhance the economic benefits of tourism for the local communities

Strategic Objective 1	To promote Seychellois involvement in tourism development		
Outcomes	• Greater participation of Seychellois within the tourism industry. • Reduce dependence on foreign labour and increase local competency and knowledge. • Local producers can increase their production and sales		
Lead Implementing Agency	Ministry of Education, Employment and Human Resources, SHTA and Tourism Trade, Ministry of Industry, Natural Resources and Investment		
Total Estimated Cost	SCR 2,500,000		
Timeline	Launching in 2011, over a continual period lasting over 10 years		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Develop awareness campaigns on business opportunities in tourism sector	Greater cross section of the community becomes aware of the role that they can play in tourism.	MCDYS, SIB, local media SENPA, STB SHTA, STA, UniSey, ENGO's, DOE	No. of Seychellois investors in tourism industry
2. Develop and carry out short training modules, meetings and workshops at community level for ditrict representatives to advice those willing to invest in the sector.	Community/ district representatives equipped with skills and knowledge to encourage entry into tourism sector	SIB, MoF, STB, MCDYS, SHTA, ENGOS, DPA	Number of Workshops held at district levels.
3. Revise current policies for Seychellois involvement in the tourism sector.	To have clear policies in place that will guide investment opportunities in the industry.	STB, SHTA and Tourism trade SENPA, MoF, DOE, and Planning Authority	Presence of revised policies.
4. Organization of tourism fairs, bazaars and other activities	Increase involvement of artists, painters, handicraft makers in the tourism industry	STB, SENPA, SHTA, NAC, MSDC	Number of fairs and other activities held.

5. Promote networking between the various stakeholders related to the tourism industry.	Establish a good network for communication promotion, and marketing	STB, SIB, DOE, SHTA, ENGOS, Local Media	No of marketing campaigns, networking activities.
6. Establish a central online business information system.	Knowledge of opportunities available for investment Increase investments through submission of projects.	SIB, DICT, SHTA and Tourism Trade, SENPA, STB	Presence of website.
7. Workshops to sensitize the general public on opportunities that exist in the industry.	Greater awareness of the public and investors about investment opportunities that exist in Seychelles.	SIB, SHTA, SENPA, STB	Availability of a calendar for the workshops and feedback from same.
8. Creation of an online directory for tourism industry.	Greater awareness of businesses of the businesses that exist that can assist their operation.	STB, SHTA, Tourism trade	Setting up of the online directory.
9. Promote local agricultural and fishery products in the tourism sector.	Increased consumption of local agro products	SAA, SFA, Seyfa, SHTA, Tourism trade, STB	No. of campaigns
10. Develop short training programmes in quality assurance, product branding and packaging.	Better quality local products to the industry	SHTA, Tourism trade, SAA, Seychelles Farmer Association, STB	No. of people trained.
11. Develop a small theme farm for visitors to visit local products.	Valorization of local gastronomy.	STB, SAA, Seyfa, MSDC, SHTA	Existence of theme farms.
12. Promote special packages for residents within the tourism sector.	Increased revenue from tourism	SHTA, STB SNPA, ENGOs, SIF, IDC	No. of special packages for locals.

Cross-Sectoral Linkages	Sustainable consumption and production; Economics of sustainability; Education for sustainability; Agriculture and food security; Fisheries and marine resources; Social and human development; Biodiversity and forestry
Climate Change Considerations	Coastal zone issues. Tourism, energy and other economic related activities have a direct impact on climate change and are equally vulnerable to the consequences of climate change. The tourism industry should play a proactive role and assist in establishing short, medium and long term plan of action to minimize the adverse impact of climate change on the environment
Capacity Building (incl. education) requirements	Important for the District Administrations and Community representatives to acquire knowledge about sustainable tourism development. Training of locals in business skills and other prerequisites. Training needs for Seychelles Agricultural Agency, SFA and Farmers Association Staff in management, marketing, Quality Assurance and Service delivery. Training needs for Tour Guides, Park rangers, conservationists.
Legal & Institutional needs	Local authorities to be more proactive and innovative. Revised existing regulations to facilitate implementation. Fair trading regulations and price control of imported products. Price regulation on domestic tourism and incentives to encourage tourism service providers to cater for all residents.
Relevant applicable policies	Employment Policy, Education policy, Tourism Policies, Investment Code, Seychelles Eco-Tourism Strategy, Agricultural and Fisheries Policy Strategy 2017
Links to conventions and treaties	United Nations Convention to combat desertification (UNCCD) United Nations framework convention on climate change (UNFCCC) 1992/1997- Kyoto Protocol United Nations convention to combat desertification(UNCCD) United Nations framework on climate change(UNFCCC) 1992/1997-Kyoto Protocol
Possible sources of funding	Government of Seychelles, UNDP-GEF, Grants under Multi/Bilateral Agreements, AFDB, UNDP-GEF, DBS, Tourism trade.

Strategic Objective 2	To preserve and promote the cultural heritage and traditional values of Seychelles		
Outcomes	• Reduce foreign labour and increase local competency and knowledge.		
Lead Implementing Agency	Ministry of Social Development and Culture, Seychelles Heritage Foundation, Ministry of Community Development Youth and Sports, Ministry of Investment, Natural Resources and Industry		
Total Estimated Cost	SCR 2,000,000		
Timeline	Launching in 2011, over a continual period lasting over 10 years		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Encourage the re-introduction of traditional businesses at community level as tourism attractions.	Visitors able to experience traditional life.	MCDYS, SENPA, SHTA and Tourism trade, STB	Increase in visitors' involvement and interaction at community level.
2. Encourage residents to make use of tourism sites and attractions including facilities and services	Increased residents use of tourism facilities and services	SHTA, MHAET & DOE, SNPA, ENGOS, IDC, STB	No. of promotional activities targeting locals.
3. Promote local gastronomy and traditional folkloric activities	Tradition and cultural traditions are preserved and promoted	MSDC, NAC, Seychelles Heritage Foundation, SHTA, MCDYS, STB	No. of campaigns held
Cross-Sectoral Linkages	Commerce and Industry, Finance, Culture & Heritage		
Climate Change Considerations	Not Applicable		
Capacity Building (incl. education) requirements	Training of key hotel staff in folkloric activities and traditional events Training of new tour guides and refresher courses for existing ones		
Legal & Institutional needs	Revised of existing policy of culture to cater for traditional / folkloric activities for visitors		

Relevant applicable policies	Tourism Policies, Seychelles Heritage Foundation Act
Links to conventions and treaties	UNDP-GEF, UNWTO, Government of Seychelles, AFDB, Development Bank of Seychelles, Grants under Multi/Bilateral Agreements, Tourism Trade, Collaborative Actions for Sustainable Tourism in Africa
Possible sources of funding	UNDP-GEF, UNWTO, Government of Seychelles, AFDB, Development Bank of Seychelles, Grants under Multi/Bilateral Agreements, Tourism Trade, Collaborative Actions for Sustainable Tourism in Africa

Strategic Objective 3	To promote corporate social responsibility within the tourism sector		
Outcomes	• To have a tourism industry that contributes to the local community.		
Lead Implementing Agency	Ministry of Community Development, Youth & Sports, Ministry of Social Development & Culture		
Total Estimated Cost	SCR 500,000		
Timeline	Launching in 2011, over a continual period lasting over 10 years		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Organize workshops for the tourism trade to sensitize them on corporate social responsibility	Tourism trade implementing projects at community level	SHTA, STB, Seychelles Heritage Foundation, SENPA, ENGOs	No. of projects being implemented at community level.
2. Encourage locals to fund some project initiatives undertaken by the local communities	More locals involved in setting small projects at community level.	SHTA & Tourism trade, SENPA, NAC, SAA, Seyfa, SFA	More private funding at community level
Cross-Sectoral Linkages	Education for sustainability; Economics of sustainability; Sustainable consumption and production; Agriculture and food security; Fisheries and marine resources		

Climate Change Considerations	Tourism, energy and other economic related activities have a direct impact on climate change and are equally vulnerable to the consequences of climate change. The tourism industry should play a proactive role and assist in establishing short, medium and long term plan of action to minimize the adverse impact of climate change on the environment, especially at community level.
Capacity Building (incl. education) requirements	Training of locals at community level to empower then to set up their own projects.
Legal & Institutional needs	Revision of existing legislation to facilitate implementation of small community projects.
Relevant applicable policies	Tourism Policies, SETS 21, Strategy 2017
Links to conventions and treaties	Convention on Biological Diversity-(Biodiversity and Tourism Development), United Nations. Convention to combat desertification(UNCCD), United Nations framework on Convention on climate change(UNFCCC) 1992-1997-Kyoto Protocol,
Possible sources of fundingz	UNDP-GEF, Tourism Trade, , Government of Seychelles, Grants under Multi/Bilateral Agreements, Collaborative Actions for Sustainable Tourism in Africa

8.8 Cross-Sectoral Issues

• Tourism is a diverse industry that cuts across nearly all sectors of the economy. Its linkages with other sectors are important since it has the potential to support other economic activities by generating income throughout a complex supply chain of goods and services ranging from furniture and furnishings, handicrafts, food items, agricultural products, guiding services, construction, finance, etc. Most of these services are also produced and provided by small entrepreneurs. Tourism also brings other material benefits such as conservation, preservation and enhancement of the national cultural heritage and a valorization of the surrounding natural environment.

• Education and Health are key factors for sustainable practices in the tourism industry. Education begins at community level, primary, secondary-post secondary institutions and is extended to the whole local population through different projects set up by environmental NGOs and the civil society. It is how we bring about changes in peoples attitude towards tourism development and increase their knowledge on what can be done to promote sustainable tourism in their own communities.

• The maritime sector is dependent on tourism and any decision regarding marine activities will have an effect on sustainable development. The country enjoys an extensive economic exclusive zone (EEZ); presently, marine protected areas are under serious threat from illegal activities, such as piracy, and this is having a heavy impact on the Seychelles economy. Serious monitoring mechanisms to safeguard this industry are imperative for the future of the Seychellois people.

• The fisheries sector plays an important role in our national food security chain. The need

to enhance and further develop a sustainable fishing industry is another key factor to prevent the depletion of our fishes/sea food stock. It is important to note that fish and seafood products are an important aspect of the Seychellois culture and cuisine. Both artisanal and industrial fishing, supply fresh fish and seafood products for the hotel and catering industry and provides a key supporting activity to the tourism industry.

• As a small island state, availability of land is a major obstacle when planning any development, including tourism. The scarcity of land has pushed government to consider other alternatives such as land reclamation for commercial and industrial businesses.

• Energy and Transport. Seychelles depends heavily on the importation of refined petroleum products for the operation of most tourism operators. Over the years, energy consumption has increased substantially. Energy is a sector which needs considerable investment, especially renewable energy. There is a need to empower all stakeholders including the tourism industry as well as visitors to adopt energy saving principles in their daily activities so as to foster the sustainable use of energy.

8.9 Measurement of Progress

Calendar of Activities

• Introduce a timeline/calendar of activities. This calendar should clearly show activities to be undertaken, the starting date, progression dates and dates of completion.

Monitoring

• Establish mechanism for efficient and effective monitoring of the activities outlined in the action plan. These will depend on the nature of the activities planned and the stakeholders involved. E.g. In the case of communities and the tourism trade annual surveys (physical and/or online) will be required to assess level of progress.

Reporting

• Quarterly progress reports on the status of activities scheduled to be undertaken need to be submitted to the NSDP Secretariat, for information and guidance. This should incorporate; status, successes, weaknesses, challenges, constraints and future projects.

• The secretariat should in turn ensure close liaison with the lead agency and thematic committee, if there is a need for timely dissemination of information.

• In addition, thematic representative on the Seychelles Sustainable Development Strategy Committee should be in a position to brief the committee on works undertaken during the committee meetings.

Review of the Seychelles Sustainable Development Strategy 2012-2020

• A systematic review of the Seychelles Sustainable Development Strategy (SSDS) -Action Plan should be effected on an
annual basis and this should be in the form of a stakeholder's workshop. This will enable regular analysis of the activities planned; their implementation, challenges and outcome.

Thematic Sector: Tourism and Aesthetics

Goals	Estimated Cost	Notes
1. Promote a tourism industry that is sustainable from an environmental, economic, social and cultural perspective	SCR 8,000,000	The estimated figure has taken into consideration all activities which include organizing of workshops, training, educational campaigns and to pay local and international consultants to impart their expertise either through training, auditing, etc.
2. Enhance the economic benefits of tourism for the local communities	SCR 5,000,000	Estimated figure is expected to cover training, creation of website, educational and promotional campaigns.

9 THE ECONOMICS OF SUSTAINABILITY

9.1 Introduction

There is growing concern that the current state of the environment and social situation is a result of weak links between economic decisions and the allocation of resources in a manner that takes into consideration environmental and social issues. Conversely, economics can be the solution to some of the environmental and social challenges being faced today. This was recognized by the earliest proponents of sustainable development and the subject of debate at the Stockholm Conference on Human Development in 1972. Achieving this understanding and implementing it successfully is the challenge of sustainable development and the object of this thematic chapter.

The key to the implementation of this sustainable development strategy is the proper alignment of economic decisions to the goals of this plan and also the mainstreaming of environmental and social issues in economic decision-making. 'Environmental mainstreaming' is the informed inclusion of relevant environmental concerns into the decisions of institutions that drive national, local and sectoral development policy, rules, plans, investment and action. It results in a better understanding of the capabilities of environmental assets, the consequences of environmental hazards and the real or potential impacts of development on the environment.

The economy and society are intimately dependent upon the health of the environment. Environmental assets (e.g. fertile soils, clean water, biomass and biodiversity) yield income, offer safety nets for the poor, maintain public health, and drive economic growth. But conversely, environmental hazards (e.g. pollution, environmental damage, and climate change) all threaten livelihoods and development. Poor people are especially dependent on environmental assets and are vulnerable to hazards. But environmental and developmental institutions and decisions tend to be separate, which results in the environment being viewed as a set of problems rather than potentials.

Seychelles, being a small island state, with limited natural resources and a fragile economy, is vulnerable to global economic perturbations and increasingly environmental ones, such as climate change. It depends upon tourism and fisheries for economic development, both vulnerable to human pressure. Indiscriminate construction,

Guiding Principles

The guiding principles for sustainability economics is based upon the outcomes of several global meetings on sustainable development, in particular the Rio Summit and the UN Commission on Sustainable Development:

- **A Saving economy:** "that an economy must save at least as much as the sum of depreciation on the value of made-made and natural capital.

- **Addressing Market Failure:** Market and intervention failures related to resource pricing and property rights should be corrected. E.G market activities that create pollution should be taxed to the full extent or incentives should be provided to buy eco-friendly technology.

- **Paying for Restoration:** Maintenance of the regenerative capacity of renewable natural capital.

- **Technology transfer:** Adoption of new technology should be steered via an indicative planning system that switches from non-renewable to renewable natural capital are fostered while efficiency-increasing technical progress should dominate throughput increasing technology.

- **Create sustainable substitutes:** Renewable natural capital should be exploited, but at a rate equal to the creation of renewable natural capital substitutes (including recycling). Whilst non-renewable should be used and managed in a sustainable manner to avoid annihilation.

pollution and over-fishing are just some of the consequences of the de-linking eco nomic and environmental decision-making.

Guiding Principles (cont.)

- **Limits to Exploitation:**
The overall scale of economic activity must be limited so that it remains within the carrying capacity of the remaining natural capital. Given the uncertainties present, a precautionary approach should be adopted with a built-in safety margin.

9.2 Thematic Outlook 2012-2020

The future of sustainability economics is good, especially following the 2010 global economic crisis. The benefits to the economy of investing in natural capital and the restoration of ecosystem services was clearly highlighted at 2010 tourism exhibition for without an intact and performing natural ecosystem, the tourism industry in Seychelles will not exist. This co-dependency is being observed in tourism, fisheries and also in other areas such as pollution control, waste management and disaster prevention. Whilst there is still a lack of tools and policies to integrate and mainstream environmental issues into economic decision making, it is clearly evident in government decision-making that environmental issues are considered. However, this is not consistent and not based upon appropriate cost-benefit analyses, economic valuation and market information.

In a survey conducted as part of this planning process, it was found that there is little understanding of economic and socio-economic-environment interactions among stakeholders. Furthermore it was found that although there is awareness of the linkages, the majority of commercial operations, large and small, and the public sector do not factor these considerations into their decision-making. The issue of environmental economics was not considered in the first environment management plan of Seychelles, but came in as a thematic sector in the second environment management plan. However, activities under this thematic were poorly implemented, mainly due to lack of capacity, financing and knowledgebase.

To ensure some level of success in this plan, the thematic area will focus on practical opportunities for consolidating the links between economic decision-making and environment management. Whilst political endorsement is important, the strategy calls for making changes to the decision-making process in a manner whereby those environmental and economic issues are adequately considered. It is unlikely that funds will become available to discretely focus on this issue, but certainly as part of projects aimed at mainstreaming biodiversity, environment and resource management into decision-making. The development of an environment economics function within government needs to be called for. The role of the ministry responsible for economic development, finance and industry needs to be further strengthened in this process. The performance of the Seychelles Macro-economic Reform programme will have a profound impact on the manner in which this thematic sector is implemented and opportunities need to be explored.

9.3 Policy Framework

Ideally, environmental economics in Seychelles should be administered by the Department of Environment, working in close collaboration with the Ministry of Finance, precisely the Revenue Commission, who does the tax administrations.

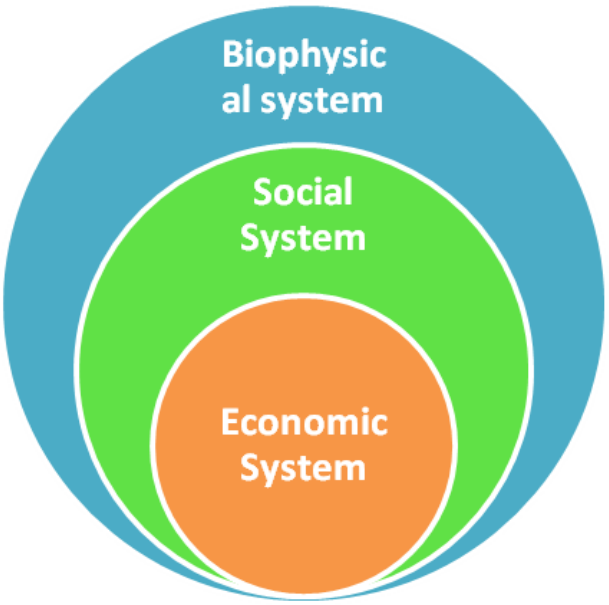
The **Seychelles 2008 Macroeconomic Reform Programme**, makes no provisions for reforms in the environment sector, although broadly speaking the reforms are relevant to sustainable development. For example with the introduction of the VAT as of 2012, the taxes impose for environmental reasoning, such as the GST Act 136E and those of Trade Tax such as levies on PET bottles, plastic bags and other non-biodegradable products will continue to exist. Most of these tax policies are in place in order to curb malpractice, be it in businesses or on an individual basis and promote the use of environmentally sound practice. It thus encourages investment and innovation in environmentally friendly technology, the use of environmentally friendly products and the reduction of environmental wastes.

World Trade Organisation - As Seychelles is seeking accession to the World Trade Organization by 2014, this plan will need to take into account the provisions of WTO once Seychelles has acceded to WTO. The preamble of the Marrakesh Agreement stresses on sustainable development and the 'Decision on Trade and Environment declares that: "There should not be, nor need be, any policy contradiction between upholding and safeguarding an open, non-discriminatory and equitable multilateral trading system on the one hand, and acting for the protection of the environment, and the promotion of sustainable development on the other." Furthermore, 'The General Agreement on Trade in Services' contains a "general exceptions" clause, Article XIV, similar to GATT Article XX. Addressing environmental concerns, paragraph (b) allows WTO members to adopt policy measures that would normally be inconsistent with GATS if this is "necessary to protect human, animal or plant life or health" (identical to GATT Article XX(b)). The Agreements on Technical Barriers to Trade (TBT), on Sanitary and Phytosanitary Measures (SPS), on Subsidies and Countervailing Measures, on Agriculture and the Agreement on Trade-Related Aspects of Intellectual property (TRIPS) all contain very explicit clauses on environmental, animal and human life protection.

Main Challenges

- Environmental economics remain a poorly understood concept and virtually no expertise in the area in Seychelles
- There is no clear institution responsible for advancing work in sustainable development and aligning economic development with environmental and social aspirations.
- The key government agencies involved with economic planning, trade and investment do not necessarily factor environmental and social conditions in their planning and implementation processes.
- Decision-making in both government and business is often made in spite of lack of appropriate scientific information or appropriate economic analyses. The use of cost-benefit analyses in environmental impact assessment, as well as use economic valuation methods is limited.
- There are little or no incentives which encourage the transfer o cleaner and greener technologies. This is combined with a lack of institutional support and after-care services.

ACP Economic Partnership Agreement and Contonou - In June 2000, after a quarter of a century of the Lomé Convention being the cornerstone of trade and aid between Europe and the developing world, a new trade and aid agreement was reached between the EU and 71 ACP countries. The treaty, which replaced Lomé IV, became known as the Cotonou Agreement, after Cotonou in Benin. Seychelles along with the Eastern and Southern Africa countries commenced negotiations with the European Union to create an Economic Partnership Agreement to preserve the trade preferences. The Cotonou Agreement, unlike the earlier Lome convention makes explicit reference to the environment. In fact Article 32 is dedicated to the preservation of environment and natural resources. This is built upon in the new Economic Partnership Agreement (EPA).



The Interim EPA makes several references in which the parties are bound to protect the environment, using eco friendly business practices and notably the conservation of fish resources as stipulated in article 35.

SADC/COMESA - Regionally, both COMESA and SADC have implemented initiatives consistent with the three pillars of sustainable development, including climate change. In addition to the regional process, COMESA and SADC aim to have regional scientific and technical communities to increase knowledge base and its management to support informed decision making processes. Both organizations seeks to promote and enhance collaboration, synergy, partnerships and effective participation of Governments, business community, and civil society and other stakeholders in climate change matters and provide a framework for the establishment of an African BioCarbon Facility and COMESA Carbon Fund that combines market-based offsets, using public and private funds. The overall objective of SADC's Environment and Sustainable Development programme is to ensure the equitable and sustainable use of the environment and land-based resources for the benefit of the present and future generations. The economies of SADC Member States are mainly agro based, so there is a lot of emphasis on addressing environmental degradation arising from deforestation, loss of biodiversity, pollution, soil erosion, decreasing quality and quantity of water, poor sanitation services and poor urban conditions. The SADC Regional Indicative Strategic Development Plan (RISDP) stresses the importance of sustainable use and management of the environment in fighting against poverty and food insecurity and it identifies Environment and sustainable development as one of the key intervention areas.

The policy framework for economic development at the national, regional and international level is evolving and as the Seychelles economy continues to expand, it will be necessary to explore measures to further strengthen the links with those regional and international treaties and platforms. This SSDS and the relevant agreements discussed here are mutually complementing, and by adhering to the WTO GATTS, EPA and Regional treaties will serve to directly implement the strategy outline in this document.

9.4 Stakeholder Framework

The stakeholder framework for this thematic is broad-based as it involves all levels of society as well the key sectors involved in decision-making.

Community-based groups: Without the Community-based groups, it will be impossible to meet the challenges associated with economic development and welfare. It is important, however, that this group is empowered and feels part of economic policies being implemented. At the national level, government undertook a number of district level consultations during the preparation of the 2008 macro-economic reform.

Government and other Agencies: The two main organisations involved in Environment Economics and Mainstreaming in Seychelles are the Department of Environment and the Ministry of Finance. The Ministry of Finance is a crucial partner in linking national expenditure/revenue and economic growth to sustainability issues such as consumption and conservation. Other parastatal organizations include the Public Utilities Corporation (PUC), Solid Waste Management Agency, and Energy Commission. Other government ministries include the ministry of Investment and Natural resources, ministry of national development and the ministry of Education to name a few. The role of government in (i) institutionalizing the internalization of environmental cost in to economic development, (ii) developing and improving sustainable financing mechanisms for sustainable development and management of biodiversity, and (iii) the synchronising of our national efforts with that of the international partners and international obligations, needs to be further strengthened.

Non-Governmental Organisations (NGO's): NGOs are very much concerned and involved in the area of environmental economics and mainstreaming. In some cases they are sourcing out their own funds to finance pilot projects (e.g. Cousin Island) which, if they prove beneficial, can be replicated nationally.

Private Sector: The importance of the role of the private sector in this thematic area cannot be understated. SCCI together with SIB has a major part to play. There ought to be public/private partnership in the development of this thematic area in order for Seychelles to achieve the goal of sustainable development. This thematic area is currently under-developed and thus need more education and sensitization on the issue in order to attain its optimal goal.

Other Groups: Other important stakeholders are those involved in the AG's Office, SFA, SLA, the Media, SBS, STC and the Office of the President. The latter is especially important particularly as some of the decision-making pertaining to the environment is taking place at the highest level. Environmental Economics entails all aspect of life ranging from issues of water conservation, pollution prevention, recycle, re-use, user pay principles and so many others. It is for this reason that thorough consultations should be undertaken across sectors before implementation is initiated.

9.5 Goals and Strategic Objectives

Goal 1 Mainstreaming of environmental economics in decision-making

'Environmental mainstreaming' is the informed inclusion of relevant environmental concerns into the decisions of institutions or individual that drive national, local and sectoral development policy, rules, plans, investment and action. It results in a better understanding of the capabilities of environmental assets, the consequences of environmental hazards, and the real or potential impacts of development on the environment. Such understanding can consequently improve decisions, especially if there is a systematic institutional framework for making such decisions. In its emphasis on integrated approaches and informed trade-offs, environmental mainstreaming is a major practical component of sustainable development.

	Strategic Objectives
1	To adopt and implement management practices in government and industry to improve corporate environmental performance
2	Utilisation of education and technology as a means to mainstream environmental valuation in everyday life and economic activity as deemed appropriate by the relevant stakeholders
3	Introduce new legislations, code of conducts and enforceable guidelines that will institutionalize economic valuation within environmental concerns
4	Introduce new legislations, code of conducts and enforceable guidelines that will institutionalize economic valuation within environmental concerns

Goal 2 Develop and improve sustainable financing mechanisms and partnerships for ecosystem conservation and sustainable development

Using the market as a means to implement sustainable financing mechanisms is an important way to internalize environmental costs into economic development. But the problem is then compounded by the fact that many environmental goods and services are public. Nevertheless, there are two ways in which markets can be restructured so as to ensure that the environmental services enter into the market system more effectively: (1) is to create markets in previously free services (i.e. introduction of user pay) – this would require restriction of access to such services by charging for e.g. entrance fees and/or changing property rights; and (2) would be to modify markets by centrally deciding the value of the environmental services and ensuring that those values are incorporated into the prices of goods and services (this is a market-based-incentive approach). Sustainable financing should take into account the community and society at large. The benefits of environment protection need to be tangible to the lay person. For example once a marine park becomes economically viable, with tourists, excursions and other such activities, the community will have an interest in protecting its heritage. Poaching will be seen as an assault on community property and thus offer possibilities; (1) for community enforcement and (2) turn threats/challenges into opportunities.

	Strategic Objectives
1	Creation of a conducive environment by the Government which fosters public private partnership in sustainable environmental practices
2	Create self-sustaining, financial mechanisms in the following environmental functions: waste assimilation capacity, life support and natural goods

Goal 3 Harmonise national efforts for sustainable development with international best practice and obligations

International best practise and obligations are very good guiding principles upon which countries like Seychelles can learn from in its quest to forge forward and build capacity on how best to achieve sustainable development. It is important that as a Small Island State, Seychelles enhances its knowledge on such issues and becomes a pioneer in this domain, as its livelihood depends primarily on the environment.

	Strategic Objectives
1	Contextualize and promote good international environmental practices in areas where it is practical and appropriate
2	Develop capacity to tap into various international funds and initiatives to support the implementation of our national environmental policies.
3	Work with our international partners to address issues such as carbon emission and climate change

9.6 Action Plan

Goal 1 Mainstreaming of environmental economics in decision-making

Strategic Objective 1	To adopt and implement management practices in government and industry to improve corporate environmental performance
Outcomes	Any new or updated National Development Strategy has to make explicit references to the thematic area

Lead Implementing Agency	Ministry of Environment, Ministry of Foreign Affairs, Ministry of Finance and Trade		
Total Estimated Cost	SCR 6,348,000		
Timeline	2012-2017 (NDS) and 2012-2020 (SSDS)		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Develop a targeted communication strategy that permeates all relevant sectors	Environment economics is promoted	Media, DOE	Presence of Communication Strategy
2. To mainstream environment into national and sectoral plans, budgets and fiscal instruments.	Environment is included in national and sectoral plans, budgets and fiscal instruments.	DOE, MoF, MNR, NHRDC	All national policy and relevant documents contain a section on environment development
3. Strengthen institutions and capacities financially and technically to mainstream environmental economics	Institutions are equipped to mainstream environmental economics	DOE, MoF, DNR, NHRDC, SIM	Presence of economic policies which takes environment into consideration
4. Sensitise individuals, institutions, and society, by providing incentives	Population is aware of the environment in sustaining economic livelihood.	DOE MoF, DNR, NHRDC, SIM	By 2015 approximately 1/3 of population is proactive, sensitized and concerned about issues pertaining to the environment.
Cross-Sectoral Linkages	None		
Climate Change Considerations	Refer to the Goals on the Education and Environment sectors/chapters		
Capacity Building (incl. education) requirements	Building capacity in the Public and Private Sectors in relation to Environmental Economics		
Legal & Institutional needs	Building capacity in relevant Institutions		
Relevant applicable policies	EMPS 2000-2010, Interim EPA with EU, Seychelles Extended Fund Facility (EFF) with IMF, EU Budget Support, etc		

Links to conventions and treaties	None
Possible sources of funding	GOS, UNDP, AFDB or World Bank

Strategic Objective 2	Utilisation of education and technology as a means to mainstream environmental valuation in everyday life and economic activity as deemed appropriate by the relevant stakeholders		
Outcomes	Any new or updated National Development Strategy has to make explicit references to the thematic area		
Lead Implementing Agency	Ministry of Environment, Ministry of Foreign Affairs, Ministry of Finance and Trade		
Total Estimated Cost	SCR 4, 122,000		
Timeline	2012-2017 (NDS)and 2012-2020 (SSDS)		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Disseminate emerging good practices and develop education programme pertaining to environmental economics	Community at large sensitized on environmental economics	Media, civil society , community	Frequency of the thematic area in Media and workshops
2. Set up good and regular communication links among the institutions and groups involved in mainstreaming	Each institution develop leaflet addressing environmental concerns in relation to operations	Media, civil society , community	Presence of newspaper articles, leaflets and websites on environmental economics
3. Adopt technology for the sharing of information on mainstreaming practices	Emerging technologies are used for main-streaming	ICT	Use of technologies for mainstreaming

Cross-Sectoral Linkages	Education for Sustainability
Climate Change Considerations	None
Capacity Building (incl. education) requirements	Ministry of Environment as the focal point to build such capacity
Legal & Institutional needs	Increase ability to utilize economic tools pertaining to environment
Relevant applicable policies	Education, Communication and Energy Policies
Links to conventions and treaties	None
Possible sources of funding	GOS, EU and Bilateral Partners

Strategic Objective 3	Introduce new legislations, code of conducts and enforceable guidelines that will institutionalize economic valuation within environmental concerns		
Outcomes	Mandatory for all laws and legislations concerned with the environment to have some aspect of EE		
Lead Implementing Agency	Ministry of Environment and AG's Office		
Total Estimated Cost	SR 600,000		
Timeline	2012 - 2015		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Update legislations, code of conducts to include EV e.g cost-benefit analysis for EIA	Environmental assets valued and reflected in EIA	AG's Office and the National Assembly	EV incorporated in national legislation

Cross-Sectoral Linkages	Legal and Enforcement provisions in the EMPS and relevant National Sectoral Policy documents, particularly land use management (nearly all sectors)
Climate Change Considerations	None
Capacity Building (incl. education) requirements	Building the Capacity of Legal department with regards to all sectors impacting on environment
Legal & Institutional needs	Build Capacity of the Legal Department and have an office which deals with Environment Legal issues
Relevant applicable policies	EMPS, NHRDC and Enforcement policies
Links to conventions and treaties	None
Possible sources of funding	GOS

Strategic Objective 4	Integrate, empower and reinforce the institutional capacity of key stakeholders in order to undertake, use and take into account environmental valuation in order to make informed economic decisions
Outcomes	Institutional capacity of stakeholders empowered and equipped with regards to environmental valuation
Lead Implementing Agency	Ministry of Environment and AG's Office
Total Estimated Cost	SCR 5,850,000
Timeline	2013-2015

Activities	Expected Results	Responsibilities	Objectively Verifiable Indicators
1. Strengthen the capacityin key Ministries and organisations to carry out environmental valuation	Build expertise in environmental economics	Department of Public Administration	By 2015, key stakeholders (PUC, National Development, Investment department, Industry, Energy Department, Transport sector, etc... have at least two dedicated staff/experts in the thematic area
2. Incorporate environmental valuation into institutions responsible for planning and finance	Key institutions can apply EE in assessing projects and undertakings	Planning Authority, MoF	EV being applied by institutions.
3. Develop strategy for job creation in this field	Environmental Economics professionals are available	DOE, NHRDC	Job creation strategy developed and implemented by 2013
4. Undertake training in Green Accounting, and environmental Economics	A pool of experts exists in the thematic area	University of Seychelles and NHRDC	No. of experts
Cross-Sectoral Linkages	All sectors that are environmentally related		
Climate Change Considerations	None		
Capacity Building (incl. education) requirements	All sectors have to build capacity		
Legal & Institutional needs	Ministry of Environment should play a pivotal role		

Relevant applicable policies	Environmental policies, Employment policies, Human Development Policies and Economic Development policies
Links to conventions and treaties	None
Possible sources of funding	GOS, Public-Private Partnership

Goal 2 Develop and improve sustainable financing mechanisms and partnerships for ecosystem conservation and sustainable development

Strategic Objective 1	Creation of a conducive environment by the Government which fosters public private partnership in sustainable environmental practices		
Outcomes	Seychelles is renowned for the excellence of Public-Private Partnership in sustainable environment practices		
Lead Implementing Agency	Ministry of Environment and AG's Office		
Total Estimated Cost	SCR 4,632,000		
Timeline	2019		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Create public–private partnership Board to undertake valuation of protected areas Marine parks, Nature Trails, National Reserve and introduce sustainable financing where possible	Protected areas and parks are self financing	DOE, STB, MoF	Presence of Board Valuation of sites Level of self financing of parks
2. Develop standards for eco-friendly products	Standard for eco-products are in place	SBS	Presence of standards

3. Review and develop economic incentives for re-cycling/re-use/ green practices in production, distribution, importation and others, in Eco-friendly products and services.	Incentives that work to increased the level of recycling	DOE, Industry and Investment	Presence of economic incentives
4. Develop cost recovery measures for products that become waste.	Users meet the full life cycle cost of products	DOE	Presence of levies and charges
Cross-Sectoral Linkages	Water Sanitation and Waste		
Climate Change Considerations	Measures will ease the Impact on Climate Change		
Capacity Building (incl. education) requirements	Capacity be built in all sectors involved in this issues		
Legal & Institutional needs	Not available		
Relevant applicable policies	Macroeconomic policies, development policies and environmental policies		
Links to conventions and treaties	None		
Possible sources of funding	GOS, Private Sector and NGOs		

Strategic Objective 2	Create self-sustaining, financial mechanisms in the following environmental functions: waste assimilation capacity, life support and natural goods
Outcomes	Establishment of innovative and user-friendly mechanisms to generate funds in the usage of environmental assets
Lead Implementing Agency	Ministry of Environment, STB, NGOs and Ministry of Finance
Total Estimated Cost	SCR 1,000,000

Timeline	2019		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Development of innovative, self-financing mechanism for national parks and nature reserves.	All nature Parks and trails are self-financing	DOE, SNPA and MoF	National Parks and nature reserves are self financed.
Cross-Sectoral Linkages	SNPA, Finance, Tourism, local Community and the Environment		
Climate Change Considerations	Not applicable		
Capacity Building (incl. education) requirements	Capacity has to be build at local Government level/community and in the SNPA		
Legal & Institutional needs	Not available		
Relevant applicable policies	Capacity has to be build at local Government level/community and in the SNPA		
Links to conventions and treaties	None		
Possible sources of funding	GOS, Private Sector and NGOs		

Goal 3 Harmonise national efforts for sustainable development with international best practice and obligations

Strategic Objective 1	Contextualize and promote good international environmental practices in areas where it is practical and appropriate
Outcomes	Seychelles to adopt a " Beyond GDP" approach to assessing the performance of the Economy

Lead Implementing Agency	Ministry of Foreign Affairs, Ministry of Finance, Ministry of Environment		
Total Estimated Cost	SR 1,200,000		
Timeline	2012 and beyond		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Adoption of international best practices that has proven to work in other countries.	Seychelles becomes a globalleader in mainstreaming environment and economic development	Ministry of Foreign Affairs, Ministry of Finance, Ministry of Environment	Reputation at international level
Cross-Sectoral Linkages	In all sectors		
Climate Change Considerations	Not applicable		
Capacity Building (incl. education) requirements	In all sectors where the need arise		
Legal & Institutional needs	Not available		
Relevant applicable policies	Environment, Finance and Tourism Policies		
Links to conventions and treaties	None		
Possible sources of funding	GOS, UNEP, GEF		

Strategic Objective 2	Develop capacity to tap into various international funds and initiative to support the implementation of our national environmental policies
Outcomes	A strategy is developed by 2013 on how to access all the available funds internationally

Lead Implementing Agency	Ministry of Foreign Affairs, Ministry of Environment and Ministry of Finance		
Total Estimated Cost	SCR 1,150,000		
Timeline	2012-2020		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Participate in regional organisations (COMESA, SADC, AFDB, AU) and seek increased cooperation	Increased external funding for local projects	MFA, DOE, MoF	Access to international funding.
Cross-Sectoral Linkages	None		
Climate Change Considerations	None		
Capacity Building (incl. education) requirements	Need to build capacity for international negotiations		
Legal & Institutional needs	None		
Relevant applicable policies	Public Sector Policies		
Links to conventions and treaties	SADC Treaty, COMESA Treaty, the Bretton Woods Programmes, UN treaties		
Possible sources of funding	GOS		

Strategic Objective 3	Work with our International Partners to address issues such as carbon emission and climate change
Outcomes	A strategy is developed by 2014 on how best to partner and benefit from International Organizations

Lead Implementing Agency	Ministry of Foreign Affairs, Ministry of Environment and Ministry of Finance		
Total Estimated Cost	SCR 900,000		
Timeline	2012-2013		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. To reduce carbon emissions and address climate change at all levels of society	Reduced carbon footprint	DOE, MFA	Carbon footprint
Cross-Sectoral Linkages	Climate Change		
Climate Change Considerations	Reduction of global warming gas emitted by Seychelles		
Capacity Building (incl. education) requirements	Capacity has to be build in the following: Ministry of Environment, PUC, Metrological office, Land Use Management, Bureau of Standards, Energy Commission, Tourism, Civil aviation, Maritime Authority		
Legal & Institutional needs	None		
Relevant applicable policies	Public Sector Policies		
Links to conventions and treaties	SADC Treaty, COMESA Treaty, the Bretton Woods Programmes, UN treaties		
Possible sources of funding	GOS		

9.7 Cross-Sectoral Issues

Since the best economic principles that make up the very nature of this thematic area are also present in most if not all of the other thematic areas, it is difficult to isolate or separate distinct issues which are cross cutting while being unique to this thematic area. The economy and society are intimately dependent upon the health of the environment. Environmental assets (e.g. fertile soils, clean water, biomass and biodiversity), yield income, offer safety nets for the poor, maintain public health and drive economic growth. But conversely, environmental hazards (e.g. pollution, environmental damage and climate change) on the other hand all threaten livelihood and development.

Environment sustainability requires collaboration – the critical issue is for the integration of environment and development interests and ideas, not just environment being forced into development. It will be as much a political and institutional change process as a technical one – working directly with politically hot, overarching policy issues on matters such as security, macro-economic policy, employment, climate change and 'low-carbon growth'. Environmental economics and sustainability depends upon leadership and catalytic organisations to forge the necessary links and processes, and needs to be a continuing and long-term process. It is not a one-off project as it requires commitment at all level and across sectors in order to achieve economic sustainability.

9.8 Measurement of Progress

Successful environmental economics of sustainability is achieved once government ministries and sector departments, aid cooperation agencies' operational departments and country offices, the private sector as well as the community at large, assume environmental responsibility and routinely address environmental issues, factoring them into decisions. Environmental departments and key stakeholders should take on more of coordination, advisory and monitoring function to ensure progress.

Monitoring and evaluation should be built into the programming process and indicators properly set in motion to measure progress. As a result, the following overall benchmarks will be an indication of progress:

(1) Participation

- Greater interaction of environment and development stakeholders, both nation ally and internationally.
- Widened involvement of stakeholders in making the case for the importance of environment to growth and development.
- Improved involvement of environmentally-dependently vulnerable stakeholders.

(2) Policy and Political Outcomes

- High-level macro-economic, fiscal, development and social policies, constitutions and statements of national vision, include environmental considerations.
- Political leadership across all parties is broadly supportive of sustaining environment in development process.

(3) Effective Planning

- Inclusion of development – environment linkages in national development strategies.
- Inclusion of development-environment linkages in sector plans and implementation strategies
- Environment is reflected both as a sector or range of sectors (e.g. for environmental protection and environmental service delivery) and as a cross-cutting issue for all other sectors in the plan (e.g. as safeguards, etc...)

(4) Budget Outcomes

- Inclusion of development-environment linkages in national and sector budgets including NGOs.
- Fiscal instruments (taxes and subsidies) informed by development-environment linkages.

(5) Institutional and capacity outcomes

- A range of appropriate tools/procedures to mainstream environment on a continuing basis is available, recognized and with adequate mandates, skills and resources to employ them.
- Strengthened capacity in key sector ministries to include environmental sustainability into their strategies.
- Strengthened capacity within finance/ planning ministries as well as environmental agencies to integrate environment into budget decision-making.
- Strengthened capacity within environment institutions to understand development processes and interact in a constructive manner.
- A range of systemic links between institutions are made, formal and informal, to ensure improved flow of information and ideas.
- Environment is part of core educational and training curricula at all levels.
- Environment-development criteria are established as cross-cutting norms for planning and monitoring purposes.

(6) Investment outcomes

- Improved domestic resource mobilization for poverty-environment investments.
- Increased donor contributions to country-level environmentally sustainable investment.
- A coherent set of economic and regulatory tools and incentives promote and reward integration and added value, while discouraging inappropriate behaviours.

(7) Behavioural outcomes

- Sustained behavioural change by individuals, institutions, and society in both public and private domains – environment is a normal, accepted and expected part of doing business.
- Key patterns and processes of production, consumption and waste treatment in sectors and localities are informed by clear environmental consideration.
- The media and public interest groups regularly address environment development links

(8) Ultimate (developmental) impacts of these outcomes

- Improved productivity and sustainability of use of environmental assets.
- Risks from environmental hazards better managed through informed, targeted control mechanisms
- Improved and sustained income, safety nets, health and livelihoods for individuals, companies and the public from use of environmental assets and from economic growth.
- Improved access to environmental and natural resources, especially for the poor.

Thematic Sector Name: Economics of sustainability

Goals	Estimated Cost	Notes
1. Mainstreaming of environmental economics in decision-making	SCR 16,920,000.00	This cost takes into account all the activities associated with the first goal; namely, conduct of workshops, training, sensitization programmes & campaigns, development of strategies, legislations etc..., capacity building and so forth. No consideration was made for the possibility of sourcing external funding.
2. Develop and improve sustainable financing mechanisms and partnerships for ecosystem conservation and sustainable development	SCR 5,632,000.00	The cost is based on the assumption that GOS will be financing this programme entirely as its addresses mostly administrative and fiscal changes nationally. It will be basically from the Annual National Budget allocations.
3. Harmonise national efforts for sustainable development with international best practice and obligations	SCR 3,250,000.00	Successful implementation of this programme requires commitment from both GOS and the International Donor Partners as this is a continuous process. Funding most probably will come from our Development Partners with GOS contributing counterpart funding.

10 SUSTAINABLE CONSUMPTION AND PRODUCTION

10.1 Introduction

The integration of industry and commerce into sustainable development priorities is critical for the long-term economic growth and international competitiveness of industry. The fundamental framework for industry and sustainable development can be found in Agenda 21 and the Rio Declaration on Environment and Development. The role of business and industry is addressed in chapter 30 of Agenda 21. Other issues such as industry and economic development, consumption and production patterns, social development and environmental protection are referred to across the entirety of Agenda 21. The Johannesburg Plan of Implementation (JPOI) calls for the strengthening of industrial development in order to address poverty eradication and sustainable natural resource management (Chapter II). The JPOI calls for action to "encourage and promote the development of a 10-year framework of programmes in support of regional and national initiatives to accelerate the shift towards sustainable consumption and production (SCP)". The Seychelles economy is very sensitive to external economic perturbations, especially with Europe, its main trading partner. The 2008 global economic crisis led Seychelles to engage in an IMF-endorsed Macroeconomic Reform Plan, aimed at redressing macroeconomic deficiencies and implementing a robust economic governance framework to protect the economy from external shocks. In that process, the Seychelles Rupee was floated, thus eliminating a thriving foreign currency black market and freeing finance for the private sector. Whilst availability of affordable credit remains an issue, private sector investment, commerce and industry has grown. In 2010, Seychelles had an economic growth of 6.2% despite a global downturn and external debt has been brought to a sustainable level.

Guiding Principles

Industrial development, societal needs/ concerns and environmental concerns should be pursued in a harmonious manner. There are several guiding principles for sustainable industry.

Strengthening enabling environment: highlights the starting point for sustainable industry. Well enforced regulations and good governance that relies on sound science, risk management, the markets and voluntary approaches that supplement legal requirements all contribute to a successful evolution towards sustainable industry.

Providing critical skills through education: is one of Government's prime roles in order to foster and maintain a base of well trained personnel, as this would enable the country to move towards knowledge based economy.

Promote the business community's technological innovation and management system: Maintenance of the regenerative capacity of renewable natural capital.

In the last 100 years the Seychelles economy has been transformed from one dependent upon the coconut industry (1900-1970) to a booming tourism industry (1972-now), and in the last 10 years has witnessed a growth in services, such as offshore financial services. The labour market has also expanded with the growth in the economy: from a mere 13, 761 (33% of 41, 700) in 1960 to over 39, 560 in 2009. To meet growth demands, Seychelles has more than 9,000 expatriates working primarily in the private construction industry and the hotel industry. Seychelles lacks the basic resources to support its economy, so most construction materials, raw materials and equipments are imported. Combined with the cost of labour, goods and services in Seychelles can be uncompetitive vis-à-vis the rest of the world, and this has major repercussions for the development of the local industry, pushing the industry to focus on value-addition and niche markets, such as visitors and local consumers. Negotiations with WTO are ongoing, but Seychelles is already a full member of South African Development Community (SADC) and Common Market for Eastern and Southern Africa (COMESA).

Seychelles has a vibrant cottage industry sector with over 1500 businesses registered in 2010, a large number of SMEs (Small & Medium-sized Enterprises) and very few large companies.

The challenge of government is to ensure there is sustainable growth in the goods and services sector so as to maximize job creation and social development as well as minimising the negative impact of industry and consumption on the environment. Consumption trends in Seychelles are very much linked to the rate of inflation, and despite a hike in inflation following the economic reforms in 2008 (5.3 %), the rate of inflation is now stable. These fluctuations have to some extent influenced consumer behavior and curtailed consumption but more studies are needed. However, consumption awareness is vital for sustainable development in Seychelles as the country is highly dependent upon imported products.

Guiding Principles (cont.)

Engage and grow business community involvement in technological cooperation and foreign direct investment (FDI):
This is critical for enhancing social and economic development and for improving environmental practices.

Encourage voluntary initiatives and partnerships involving business in partnerships and initiatives that complement cost effective and enforced regulation

Support continued business-to-business capacity building and dialogue on eco - and resource - efficiency, environmental management systems, and cleaner production. Any "one size fits all" approach is incompatible with the great diversity that exists within business.

Open dialogue with business on continuous improvement in resource - and eco-efficiency in industrial settings: Efficiency is a bottom-line consideration that lends itself very well to the pursuit of sustainability and which has been integrated by many companies with other considerations of cleaner production, life-cycle thinking and waste minimization.

10.2 Thematic Outlook 2012-2020

The economic prospects of Seychelles over the next 10 years is expected to be good, taking into consideration periodical global and even local economic troughs. The strengthening of the economic governance and macro-economic structure is aimed at making the country more resilient to such changes. Central Bank reserves, which are an essential indicator of the country's ability to handle these uncertainties in the market has reached 211M $US 17.5M in 2010, an equivalent of two months of imports, compared to a situation prior to the IMF reform programme whereby foreign exchange demand was far greater than the supply side. The economy is also robust in view of the increase in FDIs over the last 10 years. In 2010, Seychelles benefitted from 236.44 M US$ in FDIs. This large inflow of FDIs will most likely stimulate further development, production and also consumption with demand for utilities such as energy and water, infrastructure and consequent impact on the environment in terms of land use change, waste, pollution and greenhouse gas emissions.

At the sectoral level, it is expected that the tourism industry will grow at a slower pace, in view of lack of suitable properties. However, redevelopment of existing properties and some densification is expected. The agricultural sector will remain stable with perhaps some regress in livestock due to increased competition from imported substitutes. The fisheries sector is expected to grow and become more significant in terms of processing and value-added focused.

Main Challenges

- The concept and practice of sustainable industrial development in many instances are lacking. Policies do not emphasize corporate responsibilities towards the protection and sustainability of the environment, as it should have been, thus relying heavily on environment protection-related legislations.
- An overarching institutional platform is required to create the needed synergies in planning and implementing industrial development programmes related to the environment.
- Grass root stakeholders participation was low and they had diverse opinions about the issue of environment in relation to their trades.
- A challenge remains to develop a suitable mechanism for measurement and reporting.

Tremendous growth in services is expected, especially with the arrival of the Seychelles undersea fibre-optic cable, which will service the country with high-speed internet connection services. The University of Seychelles will also stimulate the creation and expansion of knowledge industries. The cottage and SME's will continue to occupy a very important place in the economy provides an increasingly wide range of specialised products and services.

Although some consolidation and horizontal integration is expected, Government policy is such that it allows the participation of all investors in the economy. Recent reforms in taxation and investment codes has streamlined the formation of businesses and commercial operations and also created a much more level playing field for economic expansion. Ongoing oil and mineral exploration in the Seychelles Exclusive Economic Zone (EEZ) may create new opportunities for growth and expansion of the economy.

10.3 Policy Framework

Industrial development in Seychelles has been driven by the Industrial Policy of 1996, which favored the development of low impact green industries. Other policies, namely the Cottage Industry Policy, the Small and Medium Enterprises (SMEs) Policy, the Science and Technology policy have contributed to the expansion of production capacity in the Seychelles.

Seychelles is also active on the UN Commission on Sustainable Development and involved in implementing Agenda 21, the Johannesburg Plan of Action, the decisions of the Commission on Sustainable Development and the U.N. Millennium Development Goals in Seychelles. Seychelles is also preparing to accede to the WTO.

The Marrakech Process is a global process to support the elaboration of a **10-Year Framework of programmes on Sustainable Consumption and Production** (SCP), as called for by the WSSD Johannesburg Plan of Action. The goals of the programme are to assist countries in their efforts to green their economies, help companies develop greener models and encourage consumers to adopt more sustainable lifestyles. Regional SCP implementation networks have been launched in all regions, engaging all interested stakeholders. Institutional mechanisms are supporting implementation projects and capacity building efforts in line with established regional priorities.

The Strategic Approach to International Chemicals Management (SAICM) is a policy framework to foster the sound management of chemicals. The Global Programme of Action (GPA) aims at preventing the degradation of the marine environment from land-based activities by facilitating the duty of states to preserve and protect the marine environment.

Some key Definitions

In general, industry refers to the production of an economic good (either material or service) within an economy. The scope of the industry sector in this plan encompasses the following;

Primary sector: mining, fishing and agriculture. Relates to all activities related to the extraction and or production of raw materials.

Secondary sector: production, manufacturing, construction and value addition. Relates to processing of the raw materials and their conversion into useable products.

Tertiary sector: mainly services. Relates to trade & commerce, tourism, souvenirs, logistics, financial, telecommunication, insurance, professional, scientific, technical services and so on.

Quaternary sector: has to do with the knowledge industry, focusing on technological research, design, innovation, development. It relates to the creation and the application of scientific knowledge to meet the needs of society.

10.4 Stakeholders Framework

The previous heading of this thematic area was: "Commerce, Industry and Production". The main institutions involved were the Department of Industry, the Department of Investments, the Seychelles Chamber of Commerce and Industry, the Small Enterprise Promotion Agency, the Investment Bureau, the Ministry of Finance, Customs Division, the National Consumers Forum, the Seychelles Bureau of Standards, and the Fair Trading Commission. Henceforth, this thematic area has been expanded to incorporate the entire market so as to place more emphasis on sustainable production and consumption, both closely linked to trade. The number of key stakeholders would therefore increase to involving stakeholders from across the economy, as well as actors from the primary, secondary, tertiary, quaternary and quinary sectors.

Community-based groups: entrepreneurs, including cottage industry operators are grouped for various events, such as entrepreneurial trainings. A small number of them, especially those in the art, craft, food production, etc, obtain their raw materials from their immediate environment. So the links to resources they need for their business activities are clear but there is a lack of cooperation with regards to protection of the environment or sustainable use of raw materials extracted.

Some key Definitions (Cont.)

Quinary sector: is related to non-profit making activities. Securing finance and implementing projects for the betterment of the communities.

Sustainable: embraces the concept of meeting human needs while not diminishing other people's or species or future generations' chances of survival.

Sustainable production and consumption: is about reducing environmental and social impacts attributed to the products and services we produce and consume while maintaining and / or improving economic outputs and our standard of living.

Government Agencies: Since a decade or so, Government has gradually moved away from being an economic actor, and has embraced the role of facilitator. Government has also gradually shifted the burden of employment to the private sector and a lot of emphasis has been place on creating entrepreneurs from those exiting Government.

Non-Governmental Organisations (NGO's): The Seychelles Chamber of Commerce and Industry (SCCI), the National Consumer Forum and the Seychelles Craft Association were the three main NGOs involved with this thematic area. It is paramount that others are invited, so that the needed synergy is created and maintained.

Private Sector: Industry voluntary initiatives are quite lacking and a lot of work needs to be done in this area. This is critical for the implementation, for instance, of the ISOs, best practices, technology transfers and diffusions, innovation, research and development.

Other Groups: Public media has been at the forefront to educate the public on many issues related to environment, production, consumption and their relationships to sustainability. Religious leaders have also played their parts in due regards. It is paramount that creation of other concern groups be encouraged with the aim of educating and as a result, helping in safeguarding our economy.

SADC: promotes sustainable and equitable economic growth and socio-economic development through efficient productive systems, deeper co-operation and integration, good governance and durable peace and security so that the region emerges as a competitive and effective player in international relations and the world economy. The Trade, Industry, Finance and Investment (TIFI) Directorate, under SADC, has been mandated to coordinate regional trade and financial liberalization; to facilitate competitive, diversified industrial development; increased investment and the integration of the SADC economy into the global economy and to foster regional integration through the SADC Free Trade Area, the creation of the Customs Union, Common Market and the Monetary Union. The aim is to contribute to the SADC ultimate objective of poverty eradication in the region. TIFI undertakes its mandate through designated units, which include: Trade; Customs; Macroeconomic Policies and Convergence; Finance and Investment; Standards, Quality Assurance and Metrology and Industry Productive Competitiveness. There are also a number of Protocols, such as Trade, Industry, etc., that Seychelles need to be party to in order to be able to reap all due benefits.

COMESA: The Common Market for Eastern and Southern Africa is a preferential trading area, and Seychelles is eligible to benefit from preferential tariff rates on imports from other countries from within this trading block.

10.5 Goals and Strategic Objectives

Goal 1 Stimulate industries and consumers to become Sustainable Consumption and Production (SCP) Practitioners

Production and consumption may have undesirable impacts on our environment. If such activities are not conducted in a sustainable manner, future generations would be deprived from enjoying an equal or better standard of living.

	Strategic Objectives
1	To develop enabling frameworks that stimulates planning, investments and technology transfer in SCP.
2	To promote consumption of local goods and services, within an SCP framework with particular attention to the sustainability benefits of 'consuming local.'
3	To engage the industry in adopting environmental objectives and measurable targets for implementing sustainability principles and the life-cycle approach in their operations and decision-making.
4	To engage industry associations and related bodies in developing platforms for promoting sustainable industrial development, trade and consumption.

Goal 2 Strengthen the institutional platform for doing business efficiently and effectively with clear benefits for sustainable development

A strong institutional platform is critical for there to be synergy among various institutions and organisations so that environmental concerns may be brought to light. In doing so, policy coherence is decisive in attaining environmental efficiency and effectiveness while ensuring that economic growth is maintained.

	Strategic Objectives
1	To develop and implement policies and incentives that promotes efficiency, minimisation of waste, energy and resources in the sector
2	To institutionalise policy coherence in the implementation of industrial and commerce policies; to further stimulate confidence and long-term focus in the sector
3	To further strengthen the institutional framework and capacity of key stakeholders to implement ISO, national standards and other quality objectives

10.6 Action Plan

Goal 1 Stimulate industries and consumers to become Sustainable Consumption and Production (SCP) Practitioners

Strategic Objective 1	To develop enabling frameworks that stimulates planning, investments and technology transfer in SCP.
Outcomes	An enabling SCP oriented platform
Lead Implementing Agency	Ministry of Investment, Industry and Natural Resources (MIINR)
Total Estimated Cost	SCR 720,000
Timeline	2012

Activities	Expected Results	Responsibilities	Objectively Verifiable Indicators
1. Stakeholders analysis	Completed stakeholders analysis	MIINR	Stakeholders analysis report
2. Involvement of stakeholders	Active Stakeholders participation	MIINR	Qantity of Stakeholders responses received
3. Drafting of the enabling framework	Enabling framework in SCP	MIINR	Presence of enabling framework
4. Evaluation of the enabling framework	Feedback from stakeholders	MIINR	No. of feedback
5. Launching and Implementation of the enabling framework	Enabling framework implemented	MIINR	Enabling SCP operational
Cross-Sectoral Linkages	Tourism and aesthetics; Fisheries; Economics of sustainability; Land Use, coastal and urbanization; Energy and Transport; Water, Sanitation and Waste; Biodiversity and Forestry; Social and Human development, Education for sustainability.		
Climate Change Considerations	Waste minimization mechanisms across industrial sectors		
Capacity Building (incl. education) requirements	Training of members from institutions / organizations to work on the enabling framework		
Legal & Institutional needs	Legal implications of the framework needs to be understood by all stakeholders		
Relevant applicable policies	Industrial Policy, SMEs Policy, Cottage Policy, Tourism Policy, Craft Policy, Art Policy, Fisheries Policy		
Links to conventions and treaties	UN, SADC, COMESA, WTO		
Possible sources of funding	UN		

Strategic Objective 2	To promote consumption of local goods and services, within an SCP framework with particular attention to the sustainability benefits of 'consuming local.'		
Outcomes	Consumption of local goods and services are promoted		
Lead Implementing Agency	Ministry of Investment, Industry and Natural Resources (MIINR)		
Total Estimated Cost	SCR 10,800,000		
Timeline	2012 – 2020		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Comprehensive study on local products	Completed market research analysis	MIINR	Report
2. Presentation of project to stakeholders	All stakeholders endorse project	MIINR	No. of Stakeholders participated
3. Launching of project	Participation of all stakeholders	MIINR	No. of Stakeholders participated
4. Products are promoted	Increased No. of products promoted	MIINR	No. of feedback of stakeholders
5. "Consuming locally" is an accepted brand locally	Increased sales of local produce	MIINR	Statistics from stakeholders
Cross-Sectoral Linkages	Tourism and aesthetics; Fisheries; Economics of sustainability; Land Use, coastal and urbanization; Energy and Transport; Water, Sanitation and Waste; Biodiversity and Forestry; Social and Human development, Education for sustainability.		
Climate Change Considerations	Reduction of carbon footprints and minimization of wastes		
Capacity Building (incl. education) requirements	Training of members from institutions / organizations / enterprises on sustainable product development		

Legal & Institutional needs	Legal implications of quality, health, value for money
Relevant applicable policies	Industrial Policy, SMEs Policy, Cottage Policy, Tourism Policy, Craft Policy, Art Policy, Fisheries Policy, Trade, Education
Links to conventions and treaties	UN, SADC, COMESA, WTO
Possible sources of funding	UN

Strategic Objective 3	To engage the industry in adopting environmental objectives and measurable targets for implementing sustainability principles and the life-cycle approach in their operations and decision-making.		
Outcomes	Local business committees are fully environmentally oriented		
Lead Implementing Agency	Ministry of Investment, Industry and Natural Resources (MIINR)		
Total Estimated Cost	SCR 12,000,000		
Timeline	2012-2020		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Review existing programmes	Completed programmes	MIINR	Review report
2. Involvement of stakeholders through consultative workshop	Stakeholder input into new programmes	MIINR	Qty. of Stakeholders invited
3. Development of training programme for industry on environmental objectives and environmental management system.	Increase knowledge of EMS and EQO	MIINR	No. of trainings held

4. Evaluation of implementation	Implementation evaluation report	MIINR	Report
Cross-Sectoral Linkages	Tourism and aesthetics; Fisheries; Economics of sustainability; Land Use, coastal and urbanization; Energy and Transport; Water, Sanitation and Waste; Biodiversity and Forestry; Social and Human development, Education for sustainability.		
Climate Change Considerations	Optimization of use of resources and minimization of wastes		
Capacity Building (incl. education) requirements	Training through education on life-cycle management, environmental operation manual formulation, measurement techniques, environment – related quantitative methods to decision making		
Legal & Institutional needs	Environmental and Standards related Legislations		
Relevant applicable policies	Industrial Policy, SMEs Policy, Cottage Policy, Tourism Policy, Craft Policy, Art Policy, Fisheries Policy, SBS Act, Environment and Health related Acts		
Links to conventions and treaties	UN, SADC, COMESA, WTO		
Possible sources of funding	UN		

Strategic Objective 4	To engage industry associations and related bodies in developing platforms for promoting sustainable industrial development, trade and consumption
Outcomes	Industry associations and related bodies are engaged in developing a platform for sustainable industrial development, trade and consumption
Lead Implementing Agency	Ministry of Investment, Industry and Natural Resources (MIINR)
Total Estimated Cost	SCR 24,000,000
Timeline	2012-2020

Activities	Expected Results	Responsibilities	Objectively Verifiable Indicators
1. Identification of training needs	Report on training needs	MIINR	Report
2. Formulation/ delivery of training	Trainings delivered	MIINR	No. of training conducted
3. Formulation of associations / bodies	Formulated associations / bodies	MIINR	No. of stakeholders participated
4. Engagement of associations / bodies	Feedback from stake-holders	MIINR	No. of feedback of stakeholders
5. Evaluation of implementation as per established associations / bodies	Evaluation reports	MIINR	Reports
Cross-Sectoral Linkages	Tourism and aesthetics; Fisheries; Economics of sustainability; Land Use, coastal and urbanization; Energy and Transport; Water, Sanitation and Waste; Biodiversity and Forestry; Social and Human development, Education for sustainability.		
Climate Change Considerations	Waste minimization across industrial sectors		
Capacity Building (incl. education) requirements	Training of prominent members of associations / bodies		
Legal & Institutional needs	Legal implications associations and related bodies, formulation of constitutions.		
Relevant applicable policies	Industrial Policy, SMEs Policy, Cottage Policy, Tourism Policy, Craft Policy, Art Policy, Fisheries Policy		
Links to conventions and treaties	UN, SADC, COMESA, WTO		
Possible sources of funding	UN		

Strategic Objective 1	To develop and implement policies and incentives that promote efficiency, minimisation of waste, energy and resources in the sectors		
Outcomes	Sectoral policies and incentives are developed and implemented		
Lead Implementing Agency	Ministry of Investment, Industry and Natural Resources (MIINR)		
Total Estimated Cost	SCR 240,000,000		
Timeline	2012 – 2020		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Sectoral needs analysis	Completed analysis report	MIINR	Report
2. Stakeholders analysis	All stakeholders identified / sector	MIINR	Stakeholders analysis reports
3. Workshop for drafting of policies / incentives packages	Participation of all stakeholders	MIINR	No. of stakeholders participated
4. Formulation of policies / incentives packages	Feedback from stakeholders	MIINR	No. of sectoral policies / incentives packages
5. Approval / Implementation of Policies / incentives packages	Launching and implementation of policies / incentive packages	MIINR	No. of policies and incentive packages approved and implemented
Cross-Sectoral Linkages	Tourism and aesthetics; Fisheries; Economics of sustainability; Land Use, coastal and urbanization; Energy and Transport; Water, Sanitation and Waste; Biodiversity and Forestry; Social and Human development, Education for sustainability.		
Climate Change Considerations	Waste minimization across industrial sectors		
Capacity Building (incl. education) requirements	Training of members from institutions / organizations to work on the policies and incentive packages		

Legal & Institutional needs	Policies and incentive packages to be converted into laws
Relevant applicable policies	Industrial Policy, SMEs Policy, Cottage Policy, Tourism Policy, Craft Policy, Art Policy, Fisheries Policy. Environment, SBS and Health Acts
Links to conventions and treaties	UN, SADC, COMESA, WTO
Possible sources of funding	UN

Strategic Objective 2	To institutionalise policy coherence in the implementation of industrial and commerce policies; to further stimulate confidence and long-term focus in the sector		
Outcomes	Trade and Industry policy create confidence and long term focus in the sector		
Lead Implementing Agency	Ministry of Investment, Industry and Natural Resources (MIINR)		
Total Estimated Cost	60,000,000		
Timeline	2012 – 2020		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Creation of a Consultative Committee	Consultative Committee	MIINR	Establishment of consultative committee
2. Drafting and signing of memorandum of understanding	Memorandum of understanding signed	MIINR	No. of MoU signed
3. Consultative meetings	Participation of all stakeholders	MIINR	No. of stakeholders participated
4. Education / Training	Workshop organized for stakeholders	MIINR	Trainings held
5. Evaluations	Reports on actions taken to ensure coherence	MIINR	No. of reports

Cross-Sectoral Linkages	Thematic Areas: Tourism and aesthetics; Fisheries; Economics of sustainability; Land Use, coastal and urbanization; Energy and Transport; Water, Sanitation and Waste; Biodiversity and Forestry; Social and Human development, Education for sustainability.
Climate Change Considerations	Waste minimization mechanisms across industrial sectors
Capacity Building (incl. education) requirements	Training of members from institutions / organizations to work on the enabling framework
Legal & Institutional needs	Legal implications of the framework needs to be understood by all stakeholders
Relevant applicable policies	Industrial Policy, SMEs Policy, Cottage Policy, Tourism Policy, Craft Policy, Art Policy, Fisheries Policy
Links to conventions and treaties	UN, SADC, COMESA, WTO
Possible sources of funding	UN

Strategic Objective 3	To further strengthen the institutional framework and capacity of key stakeholders to implement ISO, national standards and other quality objectives		
Outcomes	Implementation of ISO, national standards and other quality objectives for sustainable production		
Lead Implementing Agency	Ministry of Investment, Industry and Natural Resources (MIINR)		
Total Estimated Cost	60,000,000		
Timeline	2012 – 2020		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Needs assessments	Completed need assessment	MIINR	Report

2. Presentation of reports to stakeholders	Participation of all stakeholders	MIINR	No. of presentations
3. Implement recommendations	Participation of all stakeholders	MIINR	No. of recommendations implemented
4. Evaluation / remedial actions implemented	Improvements in institutional framework	MIINR	No. of remedial actions taken
5. Education and trainings	Strengthened capacity of stakeholders	MIINR	An enabling SCP platform established
Cross-Sectoral Linkages	Tourism and aesthetics; Fisheries; Economics of sustainability; Land Use, coastal and urbanization; Energy and Transport; Water, Sanitation and Waste; Biodiversity and Forestry; Social and Human development, Education for sustainability.		
Climate Change Considerations	Waste minimization across industrial sectors leading to less organic waste landfilled resulting to decrease in global warming gases in the atmosphere.		
Capacity Building (incl. education) requirements	Training of members from institutions / organizations		
Legal & Institutional needs	Legal implications of the ISO, national standards and other quality objectives in the context of production, trade and consumption needs to be understood by all stakeholders		
Relevant applicable policies	Industrial Policy, SMEs Policy, Cottage Policy, Tourism Policy, Craft Policy, Art Policy, Fisheries Policy		
Links to conventions and treaties	UN, SADC, COMESA, WTO		
Possible sources of funding	SADC, UN		

10.7 Cross – sectoral Issues

- Sustainable Industry is in essence a cross sectoral thematic area, involving all other economic and non-economic actors.
- While industrial development is just one aspect of commercial activity, many sectors beyond manufacturing (such as agriculture, retail, services, energy, natural resources and others) depend on it, making it central to commercial activity and sustainable development.
- While saying this, it is crucial to note that the reverse is also true: an economy is system, in which not even one element can be ignored.
- Other cross-sectoral issues that need to be taken into account are education, mass media, standards and quality, health, environment, to name but a few.
- It is expected that the various committees to be established do take into account the complexity of this thematic area so that all stakeholders are included and involved.
- It is critical to understand that a system approach needs to be embraced in whatever Seychelles intends to undertake so that no oversights occur and that the economy of Seychelles reaches a higher level.

10.8 Measurement of Progress

- Sustainable industry is a sensitive thematic area and the measurement of progress needs to be methodical with the findings communicated to all stakeholders, especially those at grassroots level.
- The action plans presented in this paper highlight the objectives, activities, expected results and indicators, to ensure that the goals are achieved.
- It is crucial to note that a successful industrial base strengthens society and contributes to the capacity to pursue sustainable development. Given its spectrum, it is also critical to note that some other benefits to keep sight of would be that sustainable industrial development:
    - Provides products and services not only for consumers but also along the entire supply chain including other businesses and the public sector
    - Shares good practices
    - Contributes to societal capacity in capital equipment, know-how and skilled employees
    - Creates jobs and contributes to capacity-building
    - Builds and maintains infrastructure (for energy and water, among others)
    - Grows new opportunities for economic growth at local and regional levels
    - Promulgates accountable and transparent environmental and other management systems, cleaner production and eco-efficiency
    - Generates resources needed to finance social needs, for example tax revenues to public authorities
    - Engenders capacity to design and implement technological innovation and cooperation.

Thematic Sector: Sustainable Consumption and Production

Goals	Estimated Cost	Notes
1. Stimulate industries and consumers to become Sustainable Consumption and Production (SCP) Practitioners	SCR 47,520,000	There is a considerable amount of work to be done in terms of capacity building across the board, ranging from producers to consumers, public sensitization and awareness, institutional strengthening, inter alia, in order for this sector to attain the objectives and aims envisaged.
2. Strengthen the institutional platform for doing business efficiently and effectively with clear benefits for sustainable development	SCR 360,000,000	

11 ENERGY AND TRANSPORT

11.1 Introduction

The energy and transport sector emit about 82% of the total national CO^2 emissions from fuel combustion in Seychelles according to the National Greenhouse Gas Inventory report for 2000.

Energy – Seychelles consumed 167,000 tons of oil equivalents (TOE) of primary energy in 2010 with a per capita consumption of 1.9 TOE, slightly above the world average. The population's access to energy is satisfactorily high with 99% of households connected to the grid. The per capita electricity consumption for the same year is around 4,200 KWh/yr. These indicate an improved quality of life. However, Seychelles energy supply is not sustainable as the country depends on imported petroleum fuels to meet almost all its energy needs, including fuel for electricity generation. Being dependent on imported fuel, the country is particularly vulnerable to oil price fluctuation and volatility, as was the case in 2008 when oil prices surged to more than 140 USD a barrel, hitting Seychelles particularly hard, with the share of oil imports rising to 10% of GDP in that year.

Throughout the country, electricity generation is based on diesel generators without recovery of waste heat from the exhaust gas (co-generation) except for the main power station Victoria C. Large amounts of heat, which can be used to create hot water and steam, are lost in the exhaust gas of the diesel engines and dissipated in the ambient air. In addition, PUC average CO^2 emission from 2000 to 2007 was estimated at 689 g/kWH. It would not be sustainable to indefinitely add a new diesel generator of this type whenever an additional capacity is required. Cogeneration and renewable energy options should also be considered. The share of renewable energy sources in the total primary energy supply is quasi-nil at the present although some renewable sources such as solar and biomass are available and have some potential. The uses of renewable energy are limited to wood biomass for cooking in isolated households or communities: about a thousand solar water heaters and a few photovoltaic installations. The development of renewable energy sources is deemed a way to increase Seychelles' energy independence rate. Targets of 5% and 15% of electricity generated from renewable energy have been set by 2020 and 2030 respectively.

Guiding Principles for Energy

Energy should be conserved as the country is importing most of its energy needs.

Energy should be used efficiently and there are many and various ways and measures to save energy.

Reliance on fossil fuels should be gradually reduced as they are not sustainable sources.

Energy independence should be increased to reduce economic vulnerability through use of local sources of energy.

Only **proved** efficient energy technologies and Renewable Energy should be used.

Energy supply should be diversified i.e. made of a combination of different sustainable technologies

Energy demand should not grow faster than the **GDP.**

Public and Private sector Partnership (PPP): Both the public and the private sectors should participate together in the development of the energy sector.

The tools for achieving the policies should vary from incentives to legislation and investment promotion.

On the energy demand side, several signs also indicate that the demand may not be sustainable. For instance, there is no legislation concerning the use of air-conditioning and the imports of electrical appliances. The air-conditioner is one of the most energy consuming equipments in offices but is often used without care, for instance in poorly insulated buildings, having windows with glass louvers or air leaks on doors. Several measures can be deployed to reduce electricity consumed by air-conditioning in Seychelles. Incandescent lamps of 100 Watt are cheap and widely sold in shops. All types of appliances are allowed to be imported freely without requirements of compliance with energy performance standards or energy labels.

In addition, the absence of a demand-side management (DSM) programme in PUC coupled with a subsidised electricity tariff, does not encourage consumers to save energy and translates into increased peak demand, which has presently reached 42.6 MW compared to Mahé's generation capacity of 57 MW. Actions on Energy Efficiency have been so far limited to only a few results such as 1) exemption of Goods & Services tax (GST) on energy saving equipment and 2) public sensitization by means of leaflets and TV spots.

A more comprehensive energy efficiency strategy will improve sustainability on energy demand.

Land Transport - The transport sector is growing very fast linked to the increase in economic activity. Despite this growth, the existing road network has not expanded to accommodate this increase, resulting in traffic congestions, in particular in the city of Victoria. A dual carriageway connects the Airport to Providence, which alleviates vehicular flow and plans are underway to construct a dual carriageway from Victoria to north Mahé (La Retraite) to serve new reclaimed areas and reduced congestion in the northern part of the city. The road from Providence to Victoria is also being upgraded with a road bypass from New Port to Inter Island Quay being planned. The total length of roads on Mahé is currently 508km. A public bus service is in operation to most parts of the island.

Guiding Principles for Transport

Transportation has significant economic, social and environmental impacts and so is an important factor in sustainability.

A sustainable transport system:

- Allows the basic access and development needs of individuals, companies and society to be met safely and in a manner consistent with human and ecosystem health, while promoting equity within and between successive generations.
- Is affordable, operates fairly and efficiently, offers a choice of transport modes and supports a competitive economy as well as balanced regional development.
- Limits emissions and waste within the planet's ability to absorb them, uses renewable resources at or below their rates of generation and uses non-renewable resources at or below the rates of development of renewable substitutes while minimizing the impact on the use of land and the generation of noise.

In over 20 yrs the vehicular population in Seychelles grew from 6,050 (1990) to more than 17,515 (2010), an increase of more than 300%. There is indeed concern over this alarming growth which impacts on movement of vehicles and also consumption of gasoline. The road transport sector represents nearly 43% of the national total energy consumption.

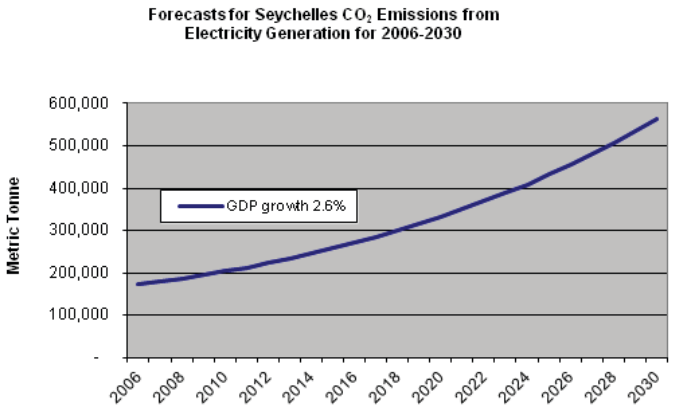
Maritime Transport - Most of the goods imported into Seychelles arrive by sea through Port Victoria. However, there is an increase in air freight as shipping becomes riskier due to the activity of pirates in the region. Shipping transactions have increased by 85% since 2004. In 2004, the amount of goods which transacted through our port was 555,900 tons as compared to 1,024,400 in 2007. Port Victoria saw an increase by 59% between 2004 and 2009 of containers landing in port. Transport among the islands of the Seychelles is undertaken by small cargo boats and by landing crafts for the transporting of goods and construction materials. For passengers, there is regular ferry service between Mahé, Praslin and La Digue.

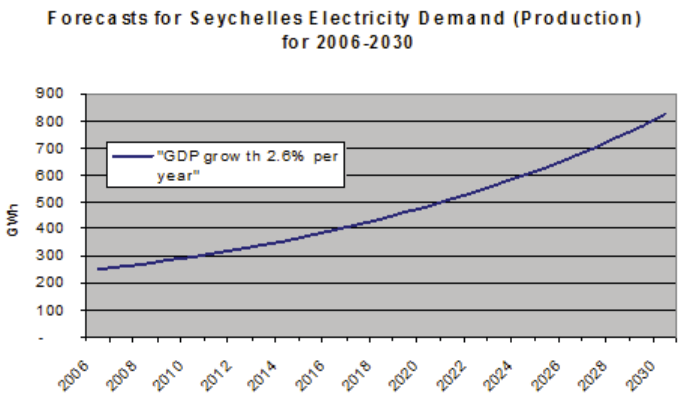
Increase in tourism developments on the outer islands has also led to a threefold increase in inter-island boat transport. To cater for demand and growth, an extension of the Commercial Port on Mahé is being planned in order to extend berth capacity and allow for quicker turnaround for ships. A new commercial Port is also being planned for Praslin as well as an upgrading of the existing facility to cater for pleasure yachts and inter-island ferries.

Air Transport - Seychelles has one international airport and handles 86 international flights in and out of Seychelles per week. The airport also serves a fleet of small propeller planes and helicopters which serve the other islands of Seychelles. Air traffic has significantly increased in the last 10 years and will increase further due to the increase expected in the number of tourists visiting the islands. There are plans to build a second runway, a new international terminal and to convert the existing terminal into a cargo terminal.

11.2 Energy and Transport Outlook 2012-2020

Energy Outlook- The two charts below show a projection to 2030 for national electricity demand and corresponding GHG emissions from PUC power stations, based on econometric models. The scenario uses a GDP growth of 2.6% per year, equal to GDP average annual growth rate over 16 years from 1990 to 2006, and a diesel electricity generation technology. It is expected that Seychelles will derive at least 10-15% of its energy from renewable energy sources by 2030.





Source: GHG Mitigation Options Report, 2008

Transport Outlook - Current trends indicate that the transport sector will continue to grow in Seychelles to meet the continuing demand for transportation. This increase is linked to the growth in the tourism industry and the increase in Foreign Direct Investment (FDI), especially in infrastructure development. The significant increase in land transport is also related to the efficiency of the mass transport system. Despite high taxes, growth in vehicle ownership coupled with limited road development has resulted in severe congestion around the city. The increase in maritime traffic will be affected by the presence of attacks of piracy in the northern Indian Ocean. Although such risks will not decrease shipping, it has led to an increase in shipping costs related to insurance and security of the vessels. Growth in container shipping in and out of Seychelles will grow, especially related to demands by the tourism industry. Aviation will also see a significant increase – driven primarily by the growth in tourism. Seychelles has seen a tremendous increase in flights over the last 3 years and this is expected to increase.

Despite plans for expansion of the road network, the port and airport facilities, some level of congestion and pollution is expected due to the heavy investment nature of these projects

Main Challenges in the Energy Sector

- The preparation of an Energy Act and subsequent legislations for the energy sector
- The preparation and implementation of a long-term comprehensive Energy Efficiency programme
- The development of renewable energy to increase energy independence rate
- To ensure security of energy supply in spite of high costs of petroleum fuels and pirates activities in the region
- The building of capacity on Energy at all levels
- To ensure energy access by all the population at affordable price
- To prepare for future eventualities such as oil price shocks, disruption of oil supply/imports due to unforeseen events
- To achieve the targets and vision of the new Seychelles Energy Policy for 2011-2030

11.3 Policy Framework

Energy Policy Framework

Energy Policy of Seychelles, 2010-2030 - The policy recommends increased energy efficiency (EE) and increasing contribution from renewable energy (RE) in the energy matrix. The targets of renewable energy contribution are 5% in 2020 and 15% in 2030. The energy base will be diversified and in the long term, energy supply will be 100% based on RE. The three dominating areas targeted for action are the consumption and production of electricity and land transport, which account for more than 80% of oil consumption in Seychelles.

Mauritius Strategy for the Further Implementation of the Programme of Action for the Sustainable Development of Small Island Developing States (SIDS) - The SIDS Strategy for energy considers the development of integrated energy programmes including comprehensive assessments of energy resources, current and projected patterns of energy use, enhancing energy efficiency and promotes the development and use of renewable energy as well as advanced, clean energy technologies that are affordable and readily adaptable. Energy dependence is a major common issue of many SIDS which are particularly suited to RE because of their geographical location.

United Nations Framework for Climate Change Conventions (UNFCCC) - Seychelles is the second country to have signed the UNFCCC. Although Seychelles does not have any obligations to reduce its GHG emissions, as a signatory of the convention it has to demonstrate efforts for reducing its GHG emissions.

International Renewable Energy Agency (IRENA) - Seychelles became a member of IRENA in 2010 and ratified the IRENA convention in 2011. IRENA is an ambitious initiative to establish cooperation at the international level for the development of RE and hence help pave the way towards a sustainable energy future. IRENA develops comprehensive solutions, such as fostering all types of renewable energy and consider various renewable energy policies on the local, regional, and national level.

Safeguards Agreements with the International Atomic Energy Agency (IAEA) - Seychelles has signed two Safeguards Agreements with IAEA in connection with the Treaty on the Non-Proliferation of nuclear weapons, which in turn can enable Seychelles to benefit from the IAEA Technical Cooperation programme for projects using radiation-based technologies and capacity building on energy.

Transport Policy Framework

Seychelles Land Transport Planning & Policy Study (1997): Analysis of the transport trends in Seychelles and recommendations for reducing congestion and modernizing the road infrastructure.

Victoria Traffic Management Study (2007): Presents a report on the present traffic situation in and around Victoria and sets the target to improve the situation for the next 20 years through Traffic Management Projects.

Road Act and Road Transport Act – Provides the legal framework for the management and enforcement of road and traffic related issues.

Merchant Shipping Act – Provides a legal framework within which ships that are registered and operate in our economic exclusive zone, operate safely without major consequences to our maritime ecosystem.

Harbour Act – This provides legislation with which ships should comply to control and monitor ships entering into our harbours and ports.

Maritime Zone Act – This regulation sets the boundaries of our exclusive economic zone and where we can enforce our local regulations and also international maritime law.

Carriage of Goods by Sea Act – This piece of legislation regulates how ships should carry their goods, especially where it concerns safety, e.g. water line limits.

Fisheries Act – This act governs the way that fishing activities should take place in our waters. It also controls local fishing and international fishing agreements.

Airport Regulation Act – This regulation controls the activities taking place when airlines land, park and when they take off from our airports. It also controls the way day to day activities takes place in and around airports and aerodromes.

Civil Aviation (Control of Obstruction) Act– This act controls the obstruction in the way of buildings around the airport and aerodromes, obstruction in the flight paths on approach and take-off.

Marpol 73/78 is the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978. ("Marpol" is short for marine pollution and 73/78 short for the years 1973 and 1978.) Marpol 73/78 is one of the most important international marine environmental conventions. It was designed to minimize pollution of the seas, including dumping, oil and exhaust pollution.

The **International Civil Aviation Organization (ICAO)**, a specialized agency of the United Nations, codifies the principles and techniques of international air navigation and fosters the planning and development of international air transport to ensure safe and orderly growth.

11.4 Stakeholder Framework

Energy

Ministry of Home Affairs, Environment, Transport and Energy has the portfolio responsibility for energy. **Seychelles Energy Commission** has the mandate for the implementation of the energy policy, especially on energy efficiency, renewable energy and legislative framework. **PUC** (Public Utilities Corporation) has to meet its legal mandate for the provision of electricity, administer feed-in tariffs for independent power producers (IPP's), participate in national Energy Efficiency programs as part of its Demand-side Management program and must ensure not to pollute the environment. **SEYPEC** (Seychelles Petroleum Company) has to meet its legal mandate for the import, storage and distribution of petroleum products and is a key partner in the eventual introduction of bio-fuels for transport fuel, sets fuel prices and must ensure not to pollute the environment. **Attorney General's Office** ensures that all new legislations or revised legislations on energy are adequate (Energy Act, Electricity Act, Energy Efficiency Act, Air-conditioning regulations, Tropical Building Code). **Planning Authority at MLUH** is a key partner in the development, promotion and implementation of an energy-efficient Tropical Building Code.

Seychelles Bureau of Standards (SBS) is the national standards body which can source and procure international standards related to energy management, efficient appliances, and energy consumption testing for appliances and eventually test equipment in laboratories. **Customs services** which have to meet their mandate with regard to implementation of legislation on Energy-efficient equipment in the future. **NATCOF** which also has interest in public awareness on energy conservation and energy-efficient appliances. Energy **NGO's** which benefit from most government policies and programmes on energy (provision of energy auditing service, implementation of projects on sustainability/climate change.)

All energy consumers, who are constantly supplied at affordable price. **Importers of equipment,** who select the types of air-conditioners and appliances to import. **Architects and Building Contractors** which can design and build energy-efficient buildings as required by the "Tropical Building Code." **IPP'S** (Independent Power Producers), which will produce electricity mainly from renewable energy on a commercial basis for selling to the general public through the grid. They contribute to increasing Seychelles' energy independence. **Industries and hotels** which can implement energy saving measures such as cogeneration and renewable energy and thus can obtain an accreditation label.

UNDP and EU, which provide assistance to government in the implementation of projects

Transport

The main body responsible for the administration of the transport sector is the Ministry of Home Affairs, Environment and Transport through the Department of Transport which has the lead role to prepare policies, regulations and monitor their implementation.

Seychelles Land Transport Agency: The implementing agency for the Department of Transport where Land Transport issues are concerned and assisting in preparation of policies. They aim for environmental sustainability in the implementation of land transport activities. They also carry out enforcement of the road transport regulations through the Highway Patrol.

Seychelles Police: The main institution to enforce the road transport regulations and undertaking precautionary actions.

Seychelles Public Transport Corporation: Their main role is to provide an efficient, safe and affordable transport system. Also have in mind the reduction of emissions.

Seychelles Petroleum Company: Being the main importer of fuels, they have the responsibility to ensure that the type of fuels being imported at least the minimum required international standard with regards to pollution which in turn has an impact on climate change.

Motor Dealers: Play very important role to ensure that the type of vehicles that enter into the country are those which are environmentally friendly and will not impact on our environment.

Seychelles Civil Aviation Authority: Responsible for the preparation of Policies and Regulations for the efficient and safe operation of all airports and airstrips and to monitor all agencies and organisations which use the air facilities and our airspace.

Private Sector (Airlines): The role of the private sector in this sector has significantly grown in the last 10 years, with many operators which have started operating their airlines, continuing to increase the number of flights.

Seychelles Maritime and Safety Administration: Has the responsibility to prepare policies and regulations for the efficient administration of all sea and port activities. Very important to reduce emission, spillage, ensure safety and improve quality and comfort through new, advanced technologies and continuous monitoring.

Seychelles Port Authority: They have the responsibility to control the port activities and ensure the safe entry and exit of ships to our port. They also have to ensure security and control the type of goods that enter our port and activities thereof.

Seychelles Fishing Authority: Have a direct role to play especially where it concerns fishing activities and boats which fish in our seas/territory.

Seychelles Petroleum Company: Being the main importer of fuels, they have the responsibility to ensure that the type of fuels being imported for the different types of ships and boats meet at least the minimum required international standard with regards to pollution which in turn has an impact on climate change.

11.5 Goals and Strategic Objectives

Goal 1 To Promote Sustainable Energy Demand and Supply

Sustainable energy is the provision of energy which meets the needs of the present generation without compromising the ability of future generations to meet their needs. Sustainable energy sources include all renewable sources and also technologies that improve energy efficiency. Also, a country's energy demand that grows faster than its GDP is deemed as not sustainable and increased Energy Efficiency must be implemented in order to maintain a sustainable energy demand.

A sustainable energy supply does not deplete local energy resources or pollute the environment (ground, forest, water, air, sea, etc.) or produce excessive noise and vibration or cause a health hazard to population and fauna. A well-balanced combination of technologies with less fossil fuels and more renewable energy is deemed a sustainable energy supply system.

	Strategic Objectives
1	To promote Energy Efficiency in all sectors of the economy
2	To promote alternative and renewable energy at national level
3	To prepare a long-term national energy plan
4	To monitor the environmental impact of the energy sector and to undertake mitigation measures
5	To build capacity at all levels

Goal 2 To Promote Sustainable Land, Air and Sea Transport

	Strategic Objectives
1	To limit GHG emissions and other pollutants from road transportation
2	To minimise adverse environmental impacts of land transport infrastructure
3	To minimise adverse environmental impacts of sea transport infrastructure
4	To minimise adverse environmental impacts of air transport

11.6 Action Plan

Goal 1 To promote Sustainable Energy Demand and Supply

Strategic Objective 1	To promote Energy Efficiency in all sectors of the economy (Household Appliances)		
Outcomes	Energy-Efficient Appliances are promoted and Consumers are more conscious about EE		
Lead Implementing Agency	Seychelles Energy Commission		
Total Estimated Cost	SCR 1,500,000		
Timeline	2012-2016		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Carry out a public awareness programme on energy-efficient appliances, energy labels, lifecycle costs of appliances	General public more aware of energy efficient appliances	SEC, S4S, PUC, NATCOF	No. of public awareness programmes

2. Carry out a market survey of household appliances and establish baseline information	Baseline information on household appliances	SEC, PUC	Surveys
3. Prepare Minimum Energy Performance Standards (MEPS) for household appliances (refrigerators, freezers, TV, irons, heaters, etc.)	Draft MEPS for major household appliances	SEC, PUC	Existence of working documents on the MEPS
4. Prepare a procedure for testing the energy performance of refrigerators and freezers based on internationally recognized standards	Validated procedure for laboratory energy performance testing of refrigerators and freezers	SEC, PUC, SBS	Draft Procedure for laboratory energy performance testing of refrigerators and freezers
5. Organise workshops on energy-efficient appliances for consumers, importers, technicians and students	Well informed stakeholders on energy efficient appliances	SEC, PUC, S4S	No. of workshops having components on EE and energy-efficient appliances
6. Phase out incandescent light bulbs of 75W, 100W and above, and Promote more efficient lamps such as CFL, LED, etc.	Phase out of incandes-cent light bulbs of 75W, 100W and above	SEC, PUC, S4S	Regulations in force; Campaigns held; Number of incandescent light bulbs collected and number of CFL's distributed by PUC
7. Reduce the taxes (trades tax, VAT) applied on energy efficient appliances to make them more attractive	Reduced taxes on all energy-efficient appliances	SEC, PUC, MOF	Approval obtained from Government/ Ministry of Finance for the tax reduction

Cross-Sectoral Linkages	Water, Sanitation and Waste Management/ Goal 3: Solid waste EE appliances generally have longer lives, which translates into less waste and more money savings. CFL's are toxic due to the mercury vapor in them and a special waste bin should be provided later on when the number of CFL's in use has greatly increased in the country
Climate Change Considerations	Emissions of GHG from the power stations are slightly reduced when energy-efficient appliances are used
Capacity Building (incl. education) requirements	Staff of the SEC and PUC will need training on EE, information and materials for implementing the plan
Legal & Institutional needs	Public awareness programmes will be subcontracted to private businesses; Energy Efficiency Act; A steering committee will be necessary
Relevant applicable policies	Energy Policy for Seychelles, 2010-2030
Links to conventions and treaties	Mauritius Strategy, UNFCCC
Possible sources of funding	GOS, UNDP/GEF, Bilateral Cooperation

Strategic Objective 1 (2)	To promote Energy Efficiency in all sectors of the economy (Buildings & Construction)
Outcomes	More energy-efficient new buildings; more efficient use of air-conditioning (AC)
Lead Implementing Agency	Seychelles Energy Commission
Total Estimated Cost	SCR 8,000,000
Timeline	2012-2020

Activities	Expected Results	Responsibilities	Objectively Verifiable Indicators
1. Carry out Energy Audits in large air-conditioned buildings to establish a baseline information	Several buildings audited including Government administration buildings	SEC, S4S, PUC, NATCOF	No. of energy audits completed
2. Organise workshops on energy efficient buildings and present findings of the energy audits to all stakeholders and train technicians on cooling loads calculations	Key stakeholders informed on energy-efficient buildings; Technicians trained on cooling loads calculations	SEC, PUC, Planning Authority	Number of workshops held with a component on Energy-Efficient buildings; Number of participants in the workshops
3. Develop air-conditioning Regulations/Code and undertake a public awareness	A Bill of Use of air-conditioning in Seychelles	SEC, PUC, Planning Authority	Availability of a draft air-conditioning regulations
4. Establish MEPS (minimum energy performance standards) for air-conditioners	Draft MEPS for air-conditioners available at SEC	SEC, PUC	Availability of draft MEPS for air-conditioners
5. Prepare a laboratory testing procedure for air-conditioners based on internationally recognized standards	Equipment acquired; Training; Test procedure validated; Actual testing of AC started	SEC, SBS, SIT	Funds or technical assistance secured; laboratory location identified (SBS or SIT); Concurrence of SBS
6. Enforce law to ban imports of inefficient air-conditioners (AC).	Import of inefficient air-conditioners is banned	Customs, SEC, PUC	Number of Efficient air-conditioners imported and used

Activities	Expected Results	Responsibilities	Objectively Verifiable Indicators
7. Promote Energy Consumption standards including Energy Performance of buildings	All stakeholders informed about the EC standard	SEC, PUC, SBS	Public awareness programme; Dissemination of a Draft Energy consumption standards for buildings
8. Develop a Tropical Building Code for Seychelles with the assistance of experts and involving all the stakeholders	Implementation of the Building Code (with more emphasis on air-conditioned buildings)	SEC, Planning Authority	Number of Activities relating to the development of a building code
Cross-Sectoral Linkages	Energy-efficient buildings generate substantial savings which is in the interest of other sectors that use buildings		
Climate Change Considerations	Emissions of GHG from the power stations are relatively reduced when buildings are energy-efficient		
Capacity Building (incl. education) requirements	Staff of the SEC and PUC will need training on EE, information and materials for implementing the plan; Customs officers need a training on checking energy labels and classes of equipment		
Legal & Institutional needs	A steering committee will be required to coordinate all the activities; the private sector (architects, building engineers) will have to be involved		
Relevant applicable policies	Energy Policy for Seychelles, 2010-2030		
Links to conventions and treaties	Mauritius Strategy, UNFCCC		
Possible sources of funding	GOS, UNDP/GEF, Bilateral Cooperation		

Strategic Objective 1 (3)	To promote Energy Efficiency in all sectors of the economy (Hotels & Industry)		
Outcomes	More efficient use of energy in hotels and industry; more informed and more energy-efficiency conscious consumers in the sector		
Lead Implementing Agency	Seychelles Energy Commission		
Total Estimated Cost	SCR 1,000,000		
Timeline	2013-2020		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Promote energy auditing in Hotels and Industry, and establish baseline energy consumption in Hotels and Industry	Several hotels or industries audited for their energy consumption; baseline information	SEC, PUC, STB, private operators	No. of hotels or industries audited
2. Workshop on energy efficiency for hotels and industry and present energy audits findings for these sectors	Key stakeholders informed on the findings of energy audits	SEC, PUC, STB, Large hotels and Industry	No. of workshops having components on energy-efficiency in hotels and industry
3. Promote the scheme of a mandatory Energy Manager, energy auditing and energy reporting	Enterprises adopt Energy Manager, energy auditing and reporting	SEC, PUC, STB, private operators	Number of hotels or industries having adopted the scheme
4. Promote Energy Management Standards (EMS) such as ISO 50 001 or NF EN 16 001	Large and medium size hotels and industries well informed on the EMS	SEC, SBS, ISO, Dep. of Industry, STB/ Sustainable Tourism Label Scheme	No. of public awareness activities and seminars on EMS jointly organized by SBS and SEC

5. Promote cogeneration in hotels and industry for production of hot water or industrial process	Hotels and industries aware of cogeneration; a pilot cogeneration plant by a private proponent	SEC, STB, PUC, private operators	No. of meetings held on cogeneration; Existence of incentives for cogeneration in the Energy Act
Cross-Sectoral Linkages	Tourism & Aesthetics sector: Energy-efficient hotels and industries can get an ecological label for their services or products		
Climate Change Considerations	Emissions of GHG from electricity generation are relatively reduced when hotels and industry are more energy-efficient		
Capacity Building (incl. education) requirements	SImplementing agencies will need training on EE, information and materials for implementing the plan		
Legal & Institutional needs	A Steering Committee comprising of members from the stakeholders will be needed to coordinate these activities; New Energy Act		
Relevant applicable policies	Energy Policy for Seychelles, 2010-2030		
Links to conventions and treaties	Mauritius Strategy, UNFCCC		
Possible sources of funding	GOS, UNDP/GEF, Bilateral Cooperation		

Strategic Objective 1 (4)	To promote Energy Efficiency in all sectors of the economy (road transports)
Outcomes	More energy-efficient road transports
Lead Implementing Agency	Seychelles Energy Commission
Total Estimated Cost	SCR 1,800,000
Timeline	2012-2018

Activities	Expected Results	Responsibilities	Objectively Verifiable Indicators
1. Promote use of Energy Management Standard (EMS) at the Seychelles Public Transport Corporation (SPTC)	The public transport system SPTC becomes more energy-efficient	SBS, SEC, SPTC	SPTC adopted EMS;
2. Reduce import tax on road vehicles having better fuel economy	More vehicles having better fuel economy are introduced in the car fleet	MHAETE, MOF, SLTA, SEC	Vehicles fuel economy; Percentage of vehicles having better fuel economy
3. Sensitise motorists on ways to save fuel while driving	Motorists are more informed on ways/tips to save fuel in driving	SEC, Dep. Of Transport, SLTA	Public awareness programme
4. Build capacity on servicing vehicle engines for improving fuel economy	More mechanics capable of fine-tuning car engines	SIT, Dep. Of Transport, SLTA, private partners, SEC	No. of technicians and mechanics trained on fine-tuning vehicles engines
5. Promote electric vehicles and two-wheelers	Electric vehicles and two-wheelers experimented including 2 for La Digue	SEC, LTA	Number of electric vehicles and two-wheelers in the country
6. Promote biofuels (ethanol and biodiesel) as additives to gasoline and gasoil	Vehicles start using biofuels	SEYPEC, SLTA	Biofuels are available in all the Service stations; Public sensitization on biofuels; Annual consumption of biofuels

Cross-Sectoral Linkages	Road transportation
Climate Change Considerations	Road transport is a large contributor of GHG emissions; more energy-efficient road transports help mitigate emissions
Capacity Building (incl. education) requirements	SIT students in Engineering to be targeted for capacity building
Legal & Institutional needs	A Steering committee will be needed to coordinate all the activities
Relevant applicable policies	Energy Policy for Seychelles, 2010-2030
Links to conventions and treaties	UNFCCC
Possible sources of funding	GOS, Bilateral Cooperation, Cooperation with Finland

Strategic Objective 1 (5)	To promote Energy Efficiency in all sectors of the economy (institutions & regulatory)		
Outcomes	A more organized and prepared institutional framework for implementing a national energy efficiency programme		
Lead Implementing Agency	Seychelles Energy Commission		
Total Estimated Cost	SCR 2,000,000		
Timeline	2012-2018		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Elaborate or review policies for Energy Efficiency	The public transport system SPTC becomes more energy-efficient	SEC	Availability of a draft policy for Energy Efficiency ;

2. Set up a national Office for Energy Efficiency	More vehicles having better fuel economy are introduced in the car fleet	GOS	Presence of NOEE
3. Develop an Energy Efficiency Act to ensure a successful national energy efficiency programme	Motorists are more informed on ways/tips to save fuel in driving	SEC, NOEE	Energy Efficiency Act
4. Review regularly energy prices to reflect true energy costs including electricity tariffs and fuel retail prices	More mechanics capable of fine-tuning car engines	PUC, MOF, SEC, NOEE	Records of the revisions of electricity tariffs and fuel prices
5. Promote electric vehicles and two-wheelers	Electric vehicles and two-wheelers experimented including 2 for La Digue	SEC, LTA	Number of electric vehicles and two-wheelers in the country
6. Promote biofuels (ethanol & biodiesel) as additives to gasoline and gasoil	Vehicles start using biofuels	SEYPEC, SLTA	Biofuels availablility at Service station; Annual consumption of biofuels
Cross-Sectoral Linkages	Policy, Institutional and Regulatory sector		
Climate Change Considerations	The activities will be instrumental in reducing GHG emissionss		
Capacity Building (incl. education) requirements	Recruitment and Capacity building for NOEE needed		
Legal & Institutional needs	The functions of the NOEE would include development of policies on EE, implementation and coordination of activities on EE, maintenance of baseline information and database on energy consumption and energy-efficient technologies, provision of information on EE, provision of training on EE, provision of services such as energy auditing. Well trained staff will be needed		

Relevant applicable policies	Energy Policy for Seychelles, 2010-2030
Links to conventions and treaties	UNFCCC
Possible sources of funding	GOS, Bilateral Cooperation

Strategic Objective 2 (1)	To promote Alternative and Renewable Energy at national level (Regulatory)		
Outcomes	A regulatory framework for promoting renewable energy		
Lead Implementing Agency	Seychelles Energy Commission		
Total Estimated Cost	SCR 2,050,000		
Timeline	2012-2016		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Develop an Energy Act to make provisions for Independent Power Producers (IPP's) using renewable or alternative energy	Seychelles Energy Act, approved by the National Assembly	SEC	Energy Act with provision for IPP
2. Amend the PUC Act	PUC Act amended and approved by NA	SEC, PUC, MOF	Availability of a draft of the revised PUC Act
3. Develop a Grid Code (GC) for IPP access to the grid	Grid code for Seychelles	SEC, PUC	Availability of working document on the GC

4. Prepare model Power Purchase Agreements (PPA) for IPP's and/or Feed-in Tariffs for electricity generated from Wind, Solar PV, Landfill gas, Waste incineration and Micro-hydro	PPA and/or Feed-in Tariffs	SEC, PUC	Availability of a working documents on PPA
5. Promote IPP investments in grid-connected renewable electricity	Investment Guide on RE	SEC, SIB, PUC, MHAET	PowerPoint Presentation in one conference of Seychelles Consuls; draft investment guide for IPP investors
6. Assess renewable energy resources	Report on RE resources in Seychelles	SEC, Meteo services	Availability of data on RE resources
Cross-Sectoral Linkages	The activities will be instrumental in the reduction of GHG from electricity generation		
Climate Change Considerations	Capacity building required for the implementation of the legal framework		
Capacity Building (incl. education) requirements	SIT students in Engineering to be targeted for capacity building		
Legal & Institutional needs	Consultancy work required for all the activities		
Relevant applicable policies	Energy Policy for Seychelles, 2010-2030		
Links to conventions and treaties	UNFCCC, IRENA		
Possible sources of funding	GOS, Bilateral Cooperation		

Strategic Objective 2 (2)	To promote Alternative and Renewable Energy at national level (large-scale projects)		
Outcomes	Several large-scale renewable energy projects developed		
Lead Implementing Agency	Seychelles Energy Commission		
Total Estimated Cost	SCR 890,000,000		
Timeline	2012-2016		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Promote Solar Street Lighting	Solar street lights installed and satisfactory	LTA, SEC, PUC	Presence of solar street lights
2. Promote Biogas Digesters for farmers	5 Pilot Biogas plants satisfactorily installed in 5 farms	SAA, SEC	Presence of biogas plants
3. Promote Wind Energy (Wind Farm at Ile du Port & Ile de Romainville)	6 MW wind farm satisfactorily installed	SEC, PUC	Media coverage on the project; Installation of the wind farm; inauguration of project
4. Promote micro hydropower (at Rochon Hermitage)	75 kW microhydro satisfactorily installed at Rochon	SEC, PUC	Presence of microhydro plants
5. Develop a landfill gas power plant at Providence	Landfill gas power plant operational	SEC, PUC	Presence of landfill gas power plant
6. Promote medium to large solar PV power plants (250 kW by GEF, 3 MW by SIDS fund)	Satisfactory solar power plants connected to grid	SEC, PUC	No of solar PV projects received and solar PV plants of a capacity above 10 KW in operation

7. Develop energy from waste (EfW) power plant at Providence (solid waste)	Operational waste EfW power plant at Providence	SEC, SIB, PUC	Presence of EFW plant
8. Develop energy from waste power plant (industrial waste from abattoir and IOT)	Operational bio-digester plant with production of electricity	SEC, PUC, DOE	Presence of AD plant
9. Voluntary agreements with hotels on a proportion of 10-20% of energy consumption to be supplied by Renewable Energy	Agreements between STB-Tourism Label and Hotels; Monitoring system approved;	SEC, STB, PUC, Hotels	STB concurrence to the scheme; Number of meetings held; Number of hotels enrolled to the scheme
10. Promote Investments in the supply and service of solar water heaters (SWH)	Incentives & Investors' guide	SEC, SIB	Number of businesses in the supply and service of SWH
11. Set up of Minimum Energy Performance Standards (MEPS) for solar waters heaters	MEPS for solar water heaters	SEC, SBS	Availability of draft MEPS for SWH
12. Revolving Fund and Soft Loan to promote use of solar water heater in households	At least 1000 houses equipped with a new SWH	SEC, PUC	Availability of funds; No. of households subscribed to the scheme
Cross-Sectoral Linkages	If use in large scale, solar PV power plant requires a sizeable area of space (land). As land is scarce in the country, the land use and management should particularly consider this issue.		
Climate Change Considerations	There is no or little emissions of GHG in usage of renewable energy		
Capacity Building (incl. education) requirements	None identified		

Legal & Institutional needs	A Steering Committee will be required to coordinate implementation of the activities/projects
Relevant applicable policies	Energy Policy for Seychelles, 2010-2030
Links to conventions and treaties	Mauritius Strategy, UNFCCC, IRENA
Possible sources of funding	GOS, Bilateral Cooperation

Strategic Objective 3	To prepare a Long-Term National Energy Plan		
Outcomes	Capacity for energy planning, Long-Term National Energy Plan		
Lead Implementing Agency	Seychelles Energy Commission		
Total Estimated Cost	SCR 2,800 000		
Timeline	2012-2016		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Prepare an Energy Act	The Seychelles Energy Act is enacted	SEC, Attorney General's Office (AG)	Presence of Energy Act
2. Prepare a long-term comprehensive energy plan including demand projections, supply options and costs	Long-term Energy Plan for Seychelles (Energy Master Plan)	SEC	Draft Energy Master available at SEC
3. Make energy demand assessment mandatory in the scoping of all major projects	Scheme is adopted by Planning Authority	Planning Authority, SEC, PUC, DOE/EIA, SIB	Scoping of projects is amended to feature energy demand assessment

4. Prepare an Integrated Resource Plan (IRP) in the public electricity generation	IRP for electricity generation	PUC	Draft IRP available at PUC
Cross-Sectoral Linkages	None identified		
Climate Change Considerations	These are integrated in the plans		
Capacity Building (incl. education) requirements	Already taken into account		
Legal & Institutional needs	Guidance at ministerial level might be needed		
Relevant applicable policies	Energy Policy for Seychelles, 2010-2030		
Links to conventions and treaties	Mauritius Strategy		
Possible sources of funding	GOS, Bilateral Cooperation		

Strategic Objective 4	To Monitor the Environmental Impact of the Energy sector and to undertake mitigation measures
Outcomes	Environment Impact Assessment of the Energy sector
Lead Implementing Agency	Department of Environment
Total Estimated Cost	SCR 5 million
Timeline	2012-2016

Activities	Expected Results	Responsibilities	Objectively Verifiable Indicators
1. Undertake an Environmental Impact Assessment for all large energy projects	EIA of all large energy projects	DOE, Project developer	EIA reports of projects
2. Undertake measures to reduce effluents, emissions and noise from power stations and SEYPEC depot	Implementation of measures	PUC, IPP's, DOE/EIA, SEYPEC	PUC, SEYPEC, IPP'S respective records of implementation of measures
3. Undertake a GHG inventory in the Energy sector	GHG inventory reports	NCCC	GHG inventory reports for designated years
Cross-Sectoral Linkages	Climate Change sector		
Climate Change Considerations	Already taken into account		
Capacity Building (incl. education) requirements	Yes for operators		
Legal & Institutional needs	A Steering Committee will be required to coordinate activities		
Relevant applicable policies	Energy Policy for Seychelles, 2010-2030		
Links to conventions and treaties	Stockholm Convention for POPS, UNFCCC for GHG		
Possible sources of funding	GOS, Bilateral Cooperation		

Strategic Objective 5	To Build Capacity at all levels		
Outcomes	Capacity built at national level to ensure effective implementation of Energy programmes		
Lead Implementing Agency	Seychelles Energy Commission		
Total Estimated Cost	SCR 5,000,000		
Timeline	2012-2016		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Build capacity on Energy Efficiency	Increased capacity/ knowledge of/on EE	SEC, PUC	No. of trainings on EE attended; No. of participants
2. Build capacity on energy demand forecasting, supply options and preparation of an Energy Master Plan	Increased capacity for energy planning	SEC, PUC	No. of participants having attended workshops/ trainings on EPT
3. Build capacity on Energy Performance Testing (EPT) for Air-conditioners, Refrigerators and freezers; setting of MEPS	Capacity for EPT of equipment,	NCCC	No. of participants having attended workshops/ trainings on EPT of SWH
4. Build capacity on Energy Performance Testing for solar water heaters; setting of MEPS	Capacity for EPT of SWH	SEC, SBS, SIT	No. of participants having attended workshops/ trainings on EPT of SWH
5. Build capacity on Energy Legislation	Capacity for energy legislation including RE laws	SEC, AG's office, UniSey	No. of participants trained on the subject

6. Build capacity on preparation of an Energy Efficiency Act	Capacity available for energy efficiency legislation	SEC	No. of participants trained on the subject
7. Build capacity on conducting Public Awareness on Energy Efficiency	Public Awareness training	SEC	No. of participants trained on the subject
8. Build capacity on Renewable Energy	Capacity/knowledge of RE increased	SEC, UniSey	Number of participants trained on the subject
9. Workshop for training Energy Managers in hotels, industries, institutions and commercial buildings	A workshop organized every year	PUC, SEC, STB	Funding secured; No. of participants having attended the workshop
10. Train Customs Officers on verification of Energy Labels and MEPS	Training/ workshop for customs officers every 2 years	SEC	Dates for the workshops; No. of participants
11. Train young graduates on Energy Studies, Energy Economics and Planning	A few graduates on Energy	GOS	No. of Seychellois students at University enrolled in the subjects
12. Set up a facility for testing energy performance of air-conditioners, refrigerators and freezers (at SBS or SIT)	Facility for Testing EP of aircon & fridge	GOS	Presence of facility
Cross-Sectoral Linkages	Education for sustainability		
Climate Change Considerations	None identified		
Capacity Building (incl. education) requirements	None identified		

Legal & Institutional needs	A Steering Committee will be required to coordinate activities
Relevant applicable policies	Energy Policy for Seychelles, 2010-2030
Links to conventions and treaties	None identified
Possible sources of funding	GOS, Bilateral Cooperation, International agencies (IEPF-Francophonie, Commonwealth)

Goal 2 To Promote Sustainable Land, Air and Sea Transport

Strategic Objective 1	To limit the emission of greenhouse gases and other pollutants from Road Transportation (Land Transports)		
Outcomes	Improvement in Air quality and reduction in GHG's emission		
Lead Implementing Agency	Department of Transport, SLTA and SPTC		
Total Estimated Cost	SCR 2,300,000		
Timeline	2012-2020		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Promote public transport	Less traffic congestion and less GHG emissions	SPTC, PTC	Media campaigns
2. Improve passenger transport terminals in the Victoria and other satellite terminals	Better and safer facilities	Department of Transport, SPTC, PTC	Upgrading of facilities

3. Develop policy and legal framework for privatization of public passenger transport	Availability of more safer modes of public transport	Department of Transport and AG's Office, SPTC , SLA and MOF	Updated new policies and regulations for public passenger transport;
4. Ensure compliance to the Road Transport Regulations and emission standards	Reduction in accidents and of toxic emissions	Department of Transport and AG's Office, Police and SLTA (HPU)	Capacity to enforce the laws; Annual number of vehicles checked by the Police patrol on the road
Cross-Sectoral Linkages	Education for sustainability		
Climate Change Considerations	Reduction in GHG's and reduction in fuel consumption		
Capacity Building (incl. education) requirements	Requires professional in Road and Traffic Engineering, road safety and Transport Engineers, Mechanical and Environmental Engineering. Also refresher training for Enforcement Officers. There is also a need to train Bus Operators and Managers. The VTS must acquire as a matter of priority equipments to measure emission and noise and also to equip it with other equipments to undertake the necessary road worthiness tests. SPTC and PTC needs to acquire new buses, especially more environmentally friendly models		
Legal & Institutional needs	Legislation new emission standards		
Relevant applicable policies	Transport Policy		
Links to conventions and treaties	None identified		
Possible sources of funding	GOS		

Strategic Objective 1(2)	To limit the emission of greenhouse gases and other pollutants from Road Transportation (traffic management)		
Outcomes	Reduction of Traffic congestion and reduction		
Lead Implementing Agency	Department of Transport, SLTA and SPTC		
Total Estimated Cost	SCR 100,000,000		
Timeline	2012-2020		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Construct a bypass road through the Yatch basin of Victoria	Reduction of congestion	SPTC, PTC	Presence of bypass
2. Install traffic signals in and around Victoria	Reduction of traffic congestion and accidents	Department Of T ransport and Seychelles Land Transport Agency (SLTA)	Traffic Management Study conducted; Locations of new traffic lights identified; Project schedule finalized
3. Improve road junctions in and around Victoria	Free flowing traffic, safer and better coordinated traffic movement	Department of Transport and SLTA	Traffic Management Study conducted; Improvement works started
4. Construct a Bypass Road at St. Louis through to Bel Air	Reduction of traffic congestion, fuel saving and time benefit	Department of Transport and SLTA	Traffic Management Study conducted; construction work started
5. Widen and improve the road alignment of Bel Eau Road	Safer roads and reduction of accidents	Department of Transport and SLTA	No. of accidents occurring in the area reduced

Cross-Sectoral Linkages	Thematic area of Land Use, Biodiversity and Forestry and Coastal Zone
Climate Change Considerations	CO_2 emission reductions and less pollutants emitted
Capacity Building (incl. education) requirements	Requires professional in Road and Traffic Engineering, road safety and Transport Engineers, Mechanical and Environmental Engineering. There is a need to train Bus operators and managers and refresher training for Enforcement officers. The VTS must acquire as a matter of priority equipments to measure emission and noise and also to equip it with other equipments to undertake the necessary road worthiness tests. SPTC and PTC needs to acquire new buses, especially more environmentally friendly models.
Legal & Institutional needs	None identified
Relevant applicable policies	Land Transport Policy
Links to conventions and treaties	None identified
Possible sources of funding	Government and Grants

Strategic Objective 1(3)	To limit the emission of greenhouse gases and other pollutants from Road Transportation (green technology)
Outcomes	Reduction in energy consumption and reduction in pollutants emitted and improvement in quality of life
Lead Implementing Agency	Department of Transport, SLTA, SPTC
Total Estimated Cost	SCR 3,500,000
Timeline	2012-2020

Activities	Expected Results	Responsibilities	Objectively Verifiable Indicators
1. Promote clean fuels	Less emission of GHG's	Department of Transport and Seypec	No. of cars using clean fuels; annual consumption of clean fuels
2. Refurbish the Vehicle Testing Station (VTS) and improve testing procedures	Testing and monitoring for emission levels from vehicles resumed	Department of Transport and SLTA	Refurbishment plan for VTS and funding are available; Work started
3. Promote electric vehicles as alternatives to existing petrol based vehicles	Reduction in fuel consumption and maintenance cost	Department of Transport and SLTA	Public sensitization programmes on TV, coverage through newspapers, No. of electric vehicles
4. Promote non-motorized transport	Improvement in health	Department of Transport	Promotion Plan available; Launching date; No. of non-motorized transports
5. Undertake a study to introduce sustainable transport project applicable for Seychelles	An advanced study report of the practicable options for sustainable transport for Seychelles	Department of Transport	TOR for the study; consultant identified; Inception report of the study
Cross-Sectoral Linkages	Thematic area of Education for Sustainability		
Climate Change Considerations	Reduction in GHG emissions		
Capacity Building (incl. education) requirements	Training in mechanical and electronic motor engineering and to educate and sensitise general public on the advantages in the use of electric vehicles		
Legal & Institutional needs	None identified		

Relevant applicable policies	Land Transport Policy and La Digue Transport Policy
Links to conventions and treaties	None identified
Possible sources of funding	Government and Grants

Strategic Objective 1(4)	To limit the emission of greenhouse gases and other pollutants from Road Transportation (regulatory framework)		
Outcomes	Improvement in road condition, safer roads and reduction in pollutants emitted		
Lead Implementing Agency	Department of Transport, SLTA, SPTC		
Total Estimated Cost	SCR 500,000		
Timeline	2012-2014		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Develop legislation to regulate vehicle weights, dimensions, construction, inspection and use;	Reduction in the damage caused to the road	Department of Transport and AG's Office	Existing regulations reviewed and updated
2. Introduce a fiscal system for roads and vehicles	Less importation of vehicles	Department of Transport and Finance	No. of vehicles imported annually
3. Introduce a legal framework for the commercial carriage of goods	Improvement of Road Safety and reduction in accidents	Department of Transport and AG's Office	Existing regulations reviewed and updated

4. Develop legislation for entry to the road transport industry, passenger and heavy goods service vehicle licensing, and taxi services	Better enforcement of road traffic regulations	Department of Transport and AG's Office, SPTC and TOA	Existing Policies reviewed; Relevant policies from other countries researched
5. Develop an integrated road safety policy and its legal and institutional framework	Improved road safety and reduced number of accidents annually	Department of Transport and AG's Office	Available policies and studies done locally and internationally researched and compiled
6. Ensure compliance to road transport regulations and emission standards	Better enforcement of RT regulations and emission standards	Department of Transport and AG's Office, Police and SLTA (HPU)	Necessary equipments obtained; Human capacity increased
7. Continue with public awareness	A well informed populace	All Sectors	Media programmes
Cross-Sectoral Linkages	Thematic Area Economics of sustainability and legal		
Climate Change Considerations	Reduction in GHG emissions		
Capacity Building (incl. education) requirements	Requires professional in road and traffic engineering, road safety. The VTS must acquire equipments to measure emission and noise and other for road worthiness tests.		
Legal & Institutional needs	Existing regulations to be amended and new regulations enacted		
Relevant applicable policies	Land Transport Policy		
Links to conventions and treaties	SADC Protocol on Transport		
Possible sources of funding	Government and Grants		

Strategic Objective 2(1)	To minimise adverse environmental impacts of land transport infrastructure (road infrastructure)		
Outcomes	Less destruction to the environment, especially tree removal		
Lead Implementing Agency	Department of Transport, Seychelles Land Transport Agency, Local Government and MLUH		
Total Estimated Cost	SCR 250,000		
Timeline	2012-2014		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Establish standards for the design and construction of roads which allow minimum impact on the environment	More environmentally friendly road design construction and Safer roads	Department of Transport and SLTA	Existing standards reviewed; Standards set in other countries Research; Revised existing standards
2. Monitoring the effective implementation of road projects	Minimized impact on the environment of road projects	Department of Transport, Planning Authority, Local Government and SLTA	Increase human capacity for project monitoring
3. Ensuring that road design is people friendly	Increase in the use of road by the general public	Department of Transport and SLTA	Road users consulted; Existing research studies consulted
Cross-Sectoral Linkages	Thematic area of Land Use and Biodiversity and Forestry		
Climate Change Considerations	Less destruction of trees, vegetation and habitat of living species		
Capacity Building (incl. education) requirements	Requires professional in Road and Traffic Engineering, road safety and Transport Engineers. Also refresher training for Building Inspectors.		

Legal & Institutional needs	New regulations to be enacted for better enforcement
Relevant applicable policies	Land Transport Policy
Links to conventions and treaties	SADC Protocol of Transport and Geneva Convention on Road Traffic
Possible sources of funding	Government

Strategic Objective 2(2)	To minimise adverse environmental impacts of land transport infrastructure (integrated planning)		
Outcomes	Better coordination of Land Use and minimizing the environmental impact		
Lead Implementing Agency	Department of Transport, SLTA and MLUH		
Total Estimated Cost	SCR 30,000,000		
Timeline	2012-2014		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Develop a Land Use Master Plan for Mahé, Praslin and La Digue	Better coordination of development	MLUH	Existing studies Consulted; Existing Land Use Plan Reviewed
2. Implement the recommendations of the Victoria Traffic Management Study	Improvement in Traffic flow and reduction of congestion	Department of Transport and Finance	Projects Design details prepared; Finance secured; Contractors selected
Cross-Sectoral Linkages	Thematic area of Land Use		
Climate Change Considerations	Less destruction to the environment which will result in an improvement in the quality of life		

Capacity Building (incl. education) requirements	Requires professional in Town Planning, Architect, Road and Traffic Engineering, Road Safety and Transport Engineers, Environmental Engineering
Legal & Institutional needs	Making the Land Use plan a legally binding document
Relevant applicable policies	Land Transport Policy and Land Use Planning Policy
Links to conventions and treaties	None identified
Possible sources of funding	Government and Grants (European Union)

Strategic Objective 3(1)	To minimise adverse environmental impacts of sea transport infrastructure (Regulatory Framework)		
Outcomes	All the obligations of the International Maritime Organisation (IMO) met		
Lead Implementing Agency	Department of Transport, SMSA and SPA		
Total Estimated Cost	SCR 350,000		
Timeline	2012-2020		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Establish policies and review the existing maritime regulation to bring it in line with international norms	Effective monitoring and enforcement to international standard.	Department of Transport and SMSA	1) Existing maritime regulations reviewed, 2) Analysis of relevant studies and international documents, 3) New policies established

2. Establish policy instruments to limit negative environmental management code	Better monitoring of ships to reduce environmental risk/disasters	Department of Transport and SMSA	1) Review existing policies, 2) Setting up of new standards, 3) Update of existing policies
3. Sign and ratify international conventions on maritime safety and transport and the law of the sea	Operations according to International Standards	Ministry of Foreign Affairs, Department of Transport and SMSA	An inventory of all relevant conventions Availability of MOU's Number of conventions being implemented
4. Continue to take appropriate regulatory and enforcement actions	Capacity to undertake better and effective enforcement	Department of Transport and SMSA	Increased capacity in human resources; Regulations are put in place.
5. Ensure that vessels comply with applicable safety, security and environmental standards	Improved safety and minimized environmental risk/disasters e.g. oil leaks	Department of Transport, SMSA, SPA and Seychelles Coast Guard	Appropriate regulations are put in place; Number of effective ship inspections; Necessary equipment acquired
Cross-Sectoral Linkages	Thematic area of Fisheries and Marine Resources and Coastal Zones		
Climate Change Considerations	None Identified		
Capacity Building (incl. education) requirements	Requires professional in the legal area specializing in Maritime laws. Also refresher training for Enforcement officers. SMSA must acquire as a matter of priority equipments to measure emission and noise.		
Legal & Institutional needs	Enacting new regulations and staff recruitment		
Relevant applicable policies	Seychelles Maritime Policy		
Links to conventions and treaties	IMO, SADC Protocol on Sea Transport		
Possible sources of funding	Government		

Strategic Objective 3(2)	To minimise adverse environmental impacts of sea transport infrastructure (Regulatory Framework)		
Outcomes	All the obligations of the International Maritime Organisation (IMO) met		
Lead Implementing Agency	Department of Transport, SMSA and SPA		
Total Estimated Cost	SCR 350,000		
Timeline	2012-2020		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Expand the capacity of the existing commercial port	Increased port space for more ships and reduced turnaround time for ships	Department of Transport and Seychelles Port Authority	No. of ships accommodated in the port
2. Undertake rehabilitation work to the existing port and upgrade the facilities	Improved and safer port facilities	Department of Transport and SPA	Assessment of existing port facilities completed Rehabilitation plans prepared
3. Continue to improve port facilities on Praslin and La Digue	Capacity to meet the ever increasing boat activities in these islands	Department of Transport and Seychelles Port Authority	Upgrade of Port facilities on Praslin and La Digue
4. Undertake appropriate regulatory and enforcement actions	Minimized risk of accidents and illegal activities	Department of Transport and SMSA	Existing laws updated; New regulations promulgated
5. Develop and implement strategies, and programmes related to sustainable shipping and port operations and environment	Improvement of Port Management and its surrounding environment	Department of Transport and SPA, Department of Transport and SMSA	Adoption of IMO standards

Cross-Sectoral Linkages	Thematic area of Coastal Zone and Fisheries and Marine Resources
Climate Change Considerations	None Identified
Capacity Building (incl. education) requirements	Requires professional in the legal area specializing in Maritime laws. Also refresher training for Enforcement officers. SMSA must acquire as a matter of priority equipments to measure emission and noise and also to equip it with other equipments to undertake the necessary enforcement actions
Legal & Institutional needs	Enacting new regulations
Relevant applicable policies	Seychelles Maritime Policy
Links to conventions and treaties	IMO
Possible sources of funding	Government, European Investment Bank, ADFB

Strategic Objective 3(3)	To minimize adverse environmental impacts of sea transport infrastructure (policy & capacity)
Outcomes	Proper legislative and administrative means to minimize destruction of the marine environment e.g. Oil spills, proper disposal of ballasts,
Lead Implementing Agency	SMSA, SPA, Coast Guards and Environment Division
Total Estimated Cost	SCR 500,000
Timeline	2012-2020

Activities	Expected Results	Responsibilities	Objectively Verifiable Indicators
1. Develop a policy of support for national coastal trade, as part of a multi-modal policy for the movement of passengers and goods	Safe transportation of people and goods	SMSA	New policies established.
2. Rehabilitation of the port installations on Mahe and Praslin	Better and safer facilities to meet the demands of the trade	SPA	Status of Port rehabilitation
3. Conduct training programs and grant qualifications for Seychellois in specialist maritime studies	Qualified personnel to undertake the various required tasks	SMSA and SPA and SMS	No. of training. No. of participants. Reports of training. National training board set up.
4. Build up capacity to ensure that qualified personnel are in place	Qualified staff to better manage port facilities	Department of Transport, SMSA and SPA	No. of training programmes held
Cross-Sectoral Linkages	Thematic area of Coastal Zone and Policy Institutional and Regulatory		
Climate Change Considerations	Effective disposal of marine waste and improvement in quality of life		
Capacity Building (incl. education) requirements	Requires training for ship captain, Port Managers and Administrators, marine environmental officers and security officers. Also there is a need to acquire the necessary equipments for measuring of emission and other pollutants and equipments to contain environmental disasters (oil spill and disposal facilities for ballast water.		
Legal & Institutional needs	None identified		
Relevant applicable policies	Seychelles Maritime Policy		

Links to conventions and treaties	IMO
Possible sources of funding	Government and grants

Strategic Objective 4(1)	To minimize adverse environmental impacts of Air Transport (Emissions Mitigation)		
Outcomes	Reduction in pollutants in the atmosphere and more economical operating cost		
Lead Implementing Agency	Department of Transport, SCAA and Air Seychelles		
Total Estimated Cost	SCR 1,000,000		
Timeline	2012-2020		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Introduce Green initiatives e.g. More efficient technologies alternative fuels. Improve flight planning to reduce amount of time in the Sky Emission trading scheme	Reduction in operating costs and pollutants in the atmosphere	SCAA	Green initiatives being adopted
2. Undertake a study to introduce carbon emission trading scheme	Reduction of GHG's	Department of Transport and SCAA	Study report
3. Establish a mechanism to increase fuel efficiency and to reduce aircraft emissions	Reduction in operation cost and pollutants	Seychelles Civil Aviation Authority and airlines	Inventory of existing systems carried out Research on available mechanism being used carried out Suitable mechanism for our situation adopted

4. Promote the use of environmentally friendly aircraft and fuel efficient cleaner engines	Reduction in operation cost and pollution	Department of Transport, SCAA	Appropriate technology adopted
5. Promote and encourage the use of technology to cut aircraft noise	Reduction of sicknesses related to hearing problems	Department of Transport, SCAA	Appropriate regulations and technology adopted
Cross-Sectoral Linkages	Health sector		
Climate Change Considerations	Reduction in pollutants from aircrafts		
Capacity Building (incl. education) requirements	Requires professional in Environmental Engineering. Also refresher training for Enforcement Officers. SCAA must acquire equipments to measure emission and noise and also to equip it with other equipments to undertake the necessary air worthiness tests		
Legal & Institutional needs	Need to train and employ more qualified staff		
Relevant applicable policies	Aviation Policy		
Links to conventions and treaties	ICAO, SADC Protocol in Transport, EASE		
Possible sources of funding	Government and grants		

Strategic Objective 4(2)	To minimize adverse environmental impacts of Air Transport (Infrastructure)
Outcomes	Safe Air Operations
Lead Implementing Agency	Department of Transport, SCAA, airlines

Total Estimated Cost	SCR 1,500,000		
Timeline	2012-2020		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Set up appropriate management plans and programmes	Improvement in Airport Management	Department of Transport and Seychelles Aviation Authority	Appropriate Management system Adopted
2. Maintenance of airports at acceptable levels of operation and safety	Improvement of airport Safety	Department of Transport and SCAA	Proper maintenance carried out
3. Guarantee the operability of all the existing airports	Increase in revenue and economic activity of the country	Department of Transport and SCAA	Downtime in airport use
4. Measures to enforce regulations, ICAO standards land European Aviation Safety Agency (EASA).	Improvement in Airport Management services and enforcement	Department of Transport and Seychelles Civil Aviation Authority	Measures developed and adopted
Cross-Sectoral Linkages	Thematic Area of Policy, Institutional and Regulatory		
Climate Change Considerations	None Identified		
Capacity Building (incl. education) requirements	Requires professionals in Airport, Transport and Mechanical Engineering. Also refresher training for existing officers. SCCA must acquire, as a matter of priority, the necessary equipment to ensure that appropriate and effective maintenance are carried out		
Legal & Institutional needs	None Identified		

Relevant applicable policies	Civil Aviation Policy
Links to conventions and treaties	ICAO, EASA, SADC Protocol on Transport, IATA
Possible sources of funding	Government and grants

Strategic Objective 4(3)	To minimise adverse environmental impacts of air transport (capacity & international cooperation)		
Outcomes	Standards set by International Organisations e.g. ICAO, EASA, etc. met		
Lead Implementing Agency	SCAA and Air Seychelles		
Total Estimated Cost	SCR 2,500,000		
Timeline	2012-2020		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Build capacity in order to ensure that qualified personnel are in place at all levels	Qualified staff in place at all levels	SCAA and Air Seychelles	Capacity assessment reports
2. Ratification and implementation of the principle treaties and conventions in the Civil Aviation area and accession to membership in ICAO	International Commitment Obligations met ; Sanctions avoided	SCAA	Status of ratification

3. Establish regional bilateral agreements in the area of air transport with the objective of establishing reciprocal legal arrangements for future national operators	Improvement in Regional Air Partnership	SCAA	No. of Bilateral agreements
4. Set up mechanism to encourage waste reduction.	Increase recycling modes in the airline industry	All Airlines	Inventory carried out Appropriate mechanism identified
5. Better manage airport/maintenance base emissions	Reduction of unnecessary pollutant emission	SCAA and Air Seychelles	Levels of pollution
Cross-Sectoral Linkages	Thematic Area of Environmental Health		
Climate Change Considerations	None Identified		
Capacity Building (incl. education) requirements	Training for pollution engineers and aerodynamic engineers, airport managers and administrators in relation to environment control for air. Acquisition of the necessary equipment to measure air emission and noise level; equipments to contain any spillage from aircraft		
Legal & Institutional needs	None Identified		
Relevant applicable policies	Seychelles Airport Policy, Seychelles Aviation Policy		
Links to conventions and treaties	ICAO, EASA, SADC Protocol on Transport		
Possible sources of funding	Government and grants		

11.7 Cross-Sectoral Issues

Cost of Energy

High energy cost translate into higher cost for businesses as production costs rise, making them less cost effective and less competitive internationally. It also affects transportation as fares for taxi, ferry and planes rise thereby reducing mobility; Likewise it affects the agriculture and fisheries sector which translate in higher food prices. Government has to reduce fuel tax, meaning lower tax revenue, or provide more funds to stabilize prices (stabilization fund).

Energy Security

It is important that the country develops alternative energy sources and diversify its energy sources. Over-dependence on fossil fuel can cause small economies to collapse in the event of fuel hikes on the international market

11.8 Measurement of Progress

Each Action Plan requires a Gantt chart highlighting the different activities involved, the time schedule for implementing the activities and their respective costs. The Gantt charts are not included in the present document, but in separate project documents. A progress report has to be prepared annually or bi-annually to inform about the progress of the action plan. A simple indicator in percentage will be used to measure the progress of achievement such as the ratio number of projects, implemented over total number of projects in the action plan. Each action itself may also need to reviewed, expanded or shortened, every year or bi-annually.

Thematic Sector Name: Energy & Transport

Goals	Estimated Cost	Notes
1. To promote sustainable energy demand and supply	SCR 911,950,000	Private Sector investments estimated to be about SCR 877,000,000
2. To promote Sustainable Land, Air and Sea Transport	SCR 242,400,000	

12 CLIMATE CHANGE

12.1 Introduction

Climate change is no longer only of interest to science but has significant implications for policy-makers, the private sector, communities and all peoples of the planet. Climate change threatens the economy and the future of the planet. The United Nations Framework Convention on Climate Change (UNFCCC), adopted in 1992, seeks to stabilize atmospheric concentrations of greenhouse gases at safe levels. Despite its efforts and the Kyoto Protocol (KP) in 1997, there are yet no legally binding commitments for countries to limit their emissions. Climate change did not feature as a thematic chapter within the first two generations of EMPS, however in view of its importance it has been included in this strategy. Seychelles prepared and published its **National Climate Change Strategy** in December 2009, and has been reflected in this thematic chapter.

As a Small Island Developing State (SIDS), Seychelles archipelago comprises of a group of 115 islands that have characteristics which make it especially vulnerable to the adverse effects of climate change, including climate variability and severe weather events. These characteristics include their limited size, geographical dislocation, proneness to natural hazards and external shocks, high exposure of population and infrastructure and limited adaptive capacity. Both adaptation and mitigation measures are central to addressing these challenges posed by climate change in Seychelles. Unfortunately, these measures are constrained by inadequate data, limited financial resources and weak technical, human and institutional capacity. The IPCC Fourth Assessment Report, WGII on small islands recognized that in most cases SIDS have low adaptive capacity and adaptation costs are high relative to gross domestic product (GDP).

The IPCC 4-AR placed a 'very high confidence' level on the probability of negative impacts imposed by climate change and sea-level rise on water resources, vital infrastructure, settlements and facilities that support the livelihood of island communities; a 'high confidence' level on the negative impacts climate change on biodiversity, tourism, agriculture, coral reefs, fisheries and other marine-based resources and 'medium' confidence level on the negative impacts upon human health. Consequently, the adverse effects of climate change and sea level rise represent some of the most immediate threats to the sustainable development of Seychelles.

Guiding Principles

Common but Differentiated Responsibility – in view of great inequalities between nations, the level of obligations to curb climate change should be different although everyone should take action.

Precautionary principle: states that the lack of full scientific certainty should not be used as an excuse for failing to act where there is a credible risk to the environment or human health.

Governance and human security – lack of actions by the largest emitters impinges on the right of those affected to live and enjoy their country of birth.

Integration and interrelationship – climate change will exacerbate food security, poverty, loss of species and environment degradation.

12.2 Thematic Outlook 2012-2020

The impacts of climate change are predicted to intensify and worsen rapidly in coming decades, especially as a result of lack of international commitment to curb greenhouse gases. The impact of climate change on coastal livelihoods as a result of sea level rise, storm and tidal surges, extreme sea-surface temperatures and coastal flooding will have serious consequences for livelihoods in the Seychelles. The effects of climate change on tourism in small islands are expected to be largely negative. Furthermore, recent studies suggest that changes in long-term rainfall patterns and temperature changes will also have adverse consequences for water, food and health. However, climate models for Seychelles, over the period 2010-2100, indicate that the rainy season is 'more likely than not' to be wetter, while the dry season is 'more likely than not' to be dryer. The probability of an increase in the Aldabra area annual rainfall is lower than that in the Mahé area and it is more likely that the Aldabra area rainfall will decrease compared to the Mahé area in the Jun-Jul-Aug season up to the year 2100.

Preliminary findings indicate that climate change will affect agriculture in numerous ways, in particular availability of water and changes in the risk of plant disease propagation. Seychelles is also at high risk from climate-sensitive diseases such as malaria and other food and water-borne diseases. Whilst river water is abundant there is steep topography and low retention of the soil and rock and the flow in these streams is erratic and falls to very low values during prolonged periods of drought. Results from four global circulation models indicate that climate change is expected to increase the severity of water shortages on Mahé, Praslin and La Digue because of the following factors

(i) decreases in rainfall during the dry southeast monsoon which will reduce stream flow, groundwater recharge and therefore water supply; (ii) increases in surface-air temperatures which will increase rates of evapo-transpiration and consequently reduce stream flow, ground water recharge and further exacerbate the water supply problem; and (iii) increases in rainfall intensity which will result in greater surface runoff and reduced water capture in existing storage facilities. The findings of this study also show that the Mahé group, which consists of narrow coastal areas and steep mountain slopes, are highly vulnerable to floods and landslides. Short, intensive rainfall may trigger landslides in severely deforested areas and zones cleared for construction. The impact of climate change on coastal livelihoods as a

Main Challenges

- Climate change impacts are being observed in Seychelles. Fisheries, agriculture, health and biodiversity are the other sectors that are being impacted by climate change.
- Lack of resources and capacity to implement the National Climate Change Strategy, in particular adaptation measures
- Lack of resources and capacity to move towards renewable energy. Access to financing and technology still a hurdle.
- Lack of appropriate institutional set-up to deal with the impacts and challenges of climate change.
- Poor research and monitoring infrastructure needed to better understand climate change, its impacts and the response required.
- There are limited incentives to promote energy efficiency, institutional, financial, and technological barriers need to be removed to foster renewable energy.

result of sea level rise, storm and tidal surges, extreme sea-surface temperatures and coastal flooding is described. Sea-level rise, rising sea surface temperatures, increased tropical cyclone intensity and changes in ocean chemistry from higher carbon dioxide concentrations are likely to negatively impact the health of coral reef systems, another major tourist attraction of the Seychelles and also important to the islands' fisheries and conservation of biodiversity. Furthermore, forest fires, especially evident during periods of extended drought, poses risks to human habitation, critical infrastructure and also the unique biodiversity of the islands.

Although, it is classified as an upper middle-income country, the Seychelles has a number of inherent vulnerabilities related to its insularity; lack of substantial natural resources; vulnerability to natural disasters; excessive dependence upon imports and limited economic base; high costs of transportation and communication and inaccessibility to economies of scale and technology. As a result, key weaknesses in the human, scientific, financial, technical, technological and institutional capacity are observed. Seychelles faces a lack of professionals in the domains of climate change, oceanography, meteorology, and other related fields.

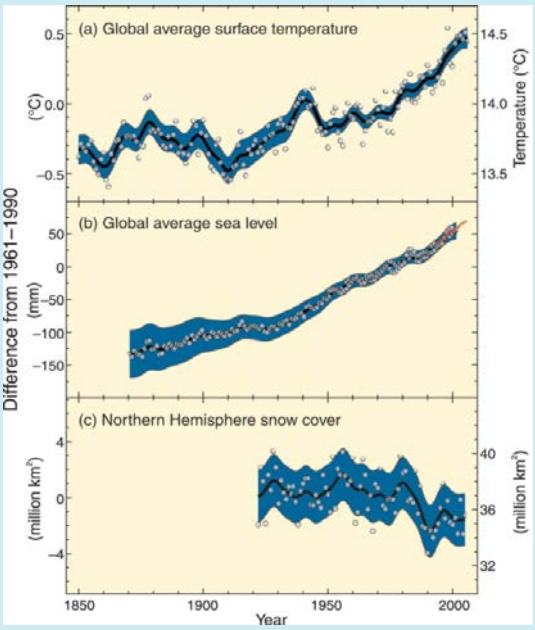


Figure 1 Observed changes in (a) global average surface temperature; (b) global average sea level from tide gauge (blue) and satellite (red) data; and (c) Northern Hemisphere snow cover for March-April. All differences are relative to corresponding averages for the period 1961-1990. Smoothed curves represent decadal averaged values while circles show yearly values. The shaded areas are the uncertainty intervals estimated from a comprehensive analysis of known uncertainties (a and b) and from the time series (c). Source: (IPCC 2007).

12.3 Policy Framework

Seychelles acceded to the United Nations Framework Convention on Climate Change (UNFCCC) on the 22nd September 1992, and signed the Kyoto Protocol on the 20th March 1998. To date, Seychelles has submitted its First National Communications to the UNFCCC.

Seychelles National Climate Change Strategy 2009 - provides a coherent and consolidated national response to climate change. It is intended to be updated and revised on an ongoing basis in response to new challenges and opportunities. Central to the strategy is the mainstreaming of climate change into sustainable development as a national cross-sectoral programme addressing matters of policy, institutions, capacity building and civil society involvement. Five strategic objectives have been proposed to support the Seychelles towards adaptation and developing resilience to climate change and its effects: (i) To advance our understanding of climate change, its impacts and appropriate responses, (ii) to put in place measures to adapt, build resilience and minimize our vulnerability to the impacts of climate change, (iii) to achieve sustainable energy security through reduction of greenhouse gas emissions, (iv) to mainstream climate change considerations into national policies, strategies and plans, (v) to build capacity and social empowerment at all levels to adequately respond to climate change.

The Environment Protection Act of 1994 is the main legal framework for the managing of the environment in Seychelles and tackles issues such as coastal zone management, ozone, and pollution.

The Town & Country Planning Act of 1972 has been the most important instrument with regards to physical development and construction. It is also the instrument which is directly linked to land use planning. It deals particularly with building regulations and best practices which also take into account environmental and climate issues.

Energy Policy of Seychelles, 2010-2030 - The policy recommends increased energy efficiency (EE) and increasing contribution from renewable energy (RE) in the energy matrix. The targets of renewable energy contribution are 5% in 2020 and 15% in 2030. The energy base will be diversified and in the long term, energy supply will be 100% based on RE. The three dominating areas targeted for action are the consumption and production of electricity and land transport, which account for more than 80% of oil consumption in Seychelles.

The **Seychelles National Climate Change Committee** (NCCC) was set up in August 1992 to provide an overall co-ordination of the development and implementation of the national climate programme and to act as an interface between national climate programme and the government. Members of the committee included representatives from most government departments, the private sector and non-governmental organizations. The NCCC Secretariat was established in 1992 under the support of the Seychelles Meteorological Services (Department Civil Aviation), now part of the Department of Environment.

An increase in extreme weather events prompted government to strengthen its national meteorological services and establish a fully-fledged institution for disaster prevention and response. The Climate and Environmental Services Division (CESD) was established in 2008, which incorporated the National Meteorological Services (NMS), the Environment Engineering Section (EES) and Programme Management Section (PMS) to enable focus on climate change issues. The creation of the Seychelles Energy Commission in 2009 was a concrete step aimed at reducing the energy insecurity of Seychelles through cost-effective mitigation options.

Principle	Rationale
1. Early action is more cost-effective and builds long-term resilience capacity	Pro-active response to both adaptation and mitigation is more cost-effective than trying to react to damage caused by floods, for example. Careful planning and design can avoid costly damage to infrastructure.
2. Sustainable development is an integral part of resilience building	Sustainable use of resources ensures that resources are not exploited beyond their capacity to recover. Climate change impacts should be integrated into sustainable development plans and targets.
3. Consistent progress in advancing towards the Millennium Development Goals (MDGs) will enhance economic growth and quality of life	Achieving the MDGs will enhance the national capacity to adapt to climate change. An educated, fed and housed workforce can better respond to the impacts of climate change.

4. Integrated planning enables cross-sectoral harmonization and effectiveness of adaptation measures	Integrated planning will enhance effectiveness of actions through extensive consideration of issues and involvement of all stakeholders. Implementation of the strategy needs to be integrated with other plans such as the SSDS and Energy Policy
5. Effective implementation of policy at all levels of management	Policy implementation should be backed by effective awareness campaigns and enforcement measures. Implementation of policy should build credibility and apply to all levels of society.
6. Actions and adaptation response should rely on proactive planning and available scientific information	Better use of long-term monitoring data and scientific research in planning and design. Consideration of technical information in decision-making and selection of options
7. Capacity building and empowerment at all levels of society	Continuous and long-term approach for capacity building through existing institutions. Capacity building should be designed to target all levels of society in line with their required response and actions.
8. Ecosystem-based adaptation needs to be further developed to decrease vulnerability to climate change	The use of ecosystems to respond to adaptation, combined with engineering technology presents the optimum opportunity to adjust to natural variability and change. Ecosystem conservation and management provides additional services which can significantly reduce impacts of climate change.

Community-based groups: Local community involvement in climate issues has been through existing consultative platforms such as the District Development Consultative Committees, community-based NGO's such as those focussing on eco-tourism and coastal zone management.

Government Agencies: At the government level, the Department of Environment is directly responsible for climate change, with the National Meteorological Services holding direct responsibility for observing and documenting climate change. The Department is also responsible for water resources management. Ministry of investment, Industry and Natural resources is concerned over the impact of climate change on fisheries and industry. The Department of Disaster and Risk Reduction (DRDM) is responsible for disaster preparedness and awareness on risks of climate change and other extreme events.

Non-Governmental Organisations (NGO's): A number of NGO's are involved in climate change indirectly, either through advocacy, research projects or adaptation initiatives such as water harvesting. The Seychelles Red Cross has a specific strategy on climate change.

Private Sector: The role of the private sector in this sector is still limited but there is a lot of interest especially in the area of energy mitigation. The tourism private sector is particularly interested in the adaptation and sea level rise aspects of climate change. Some hotel operators contribute to the national beach monitoring programme.

Other Groups: Other important stakeholders are those involved in education, especially since climate change awareness and capacity building is a critical issue.

12.5 Goals and Strategic Objectives

Goal 1 Mainstreaming climate change adaptation challenges into national sustainable development agenda.

This is an important consideration as climate change will impact all the components of sustainable development and indeed the country as a whole. This goal will aim to ensure that climate change issues are featured in decision-making, planning and implementation of actions.

	Strategic Objectives
1	To advance our understanding of climate change, its impacts and appropriate responses
2	To put in place measures to adapt, build resilience and minimize our vulnerability to the impacts of climate change, especially in critical sectors

Goal 2 Enhanced Actions on Mitigation of Climate Change

Addressing emissions of greenhouse gases is an important opportunity to move towards renewable and greener forms of energy. This goal seeks to reduce national emissions and also secure long term energy security.

	Strategic Objectives
1	Promote energy efficiency and renewable energy resources to form essential pillars of future mitigation actions, taking into account national circumstances
2	Promote the relevant emission trading mechanism and REDD-plus nationally

Goal 3 Enhanced Actions on Finance, Technology Transfer and Capacity Building to support action on mitigation and adaptation

Climate change is such a complex issue that an appropriate framework for financing, technology transfer and capacity building is required. This goal will support all actions related to addressing climate change and all its implications in the long term.

	Strategic Objectives
1	Develop policy direction and strategies to encourage and enhance action on technology development and transfer of environmentally-friendly technologies

	Strategic Objectives
2	Scale up financial resources and investment to support action on mitigation and adaptation
3	To build capacity and social empowerment at all levels to adequately respond to climate change.

12.6 Action Plan

Goal 1 **Mainstreaming climate change adaptation challenges into national sustainable development agenda**

Strategic Objective 1	To advance our understanding of climate change, its impacts and appropriate responses
Outcomes	• Existing meteorological, hydrological, oceanographic and terrestrial institutional capacity including data collection systems are upgraded and strengthened • Gaps and research priorities required to predict the impacts of climate change in Seychelles identified • Technical data sets integrated with relevant climatic, environmental, social and economic information and data sets, and traditional knowledge for risk management organized • Analytical frameworks, models and tools for projections of regional climate change and variability, risk assessment and management strengthened • Datasets and information required to underpin, reinforce and monitor vulnerable priority areas, sectors and adaptation measures developed and strengthened where, necessary • Appropriate infrastructures built • Adaptation measures in vulnerable priority areas supported by existing data sets and traditional knowledge, or new data developed in some instances as necessary • Capacity to manage, analyse and present data in a manner in which it can be useful for guiding policy and influencing adaptation developed • Sustainable long-term monitoring programmes in strategic areas, with focus on climate scenarios, risk assessments and adaptation established
Lead Implementing Agency	Department of Environment, NMS
Total Estimated Cost	SCR 27,600,000
Timeline	2012-2018

Activities	Expected Results	Responsibilities	Objectively Verifiable Indicators
1. Construct a New Meteorological Services and Early Warning Centre building	Improvement in data collection for early warnings and informed decisions on appropriate adaptation measures	DOE, NMS	Plan approved Progress Report of project implementation
2. Construct a National Emergency Operational Centre	Equipped to make informed decision on climate change disasters	DOE, DRDM	Emergency Operational Centre
3. Assess data needs and important gaps in knowledge that impede adaptation to climate change	Improvement in data collection for informed decision on adaptation measures	NCCC	Report delivered
4. Enhance the institutional capacity of national meteorological, hydrological and oceanographic service	Upgrade existing meteorological, hydrological and oceanographic institutional capacity including data collection systems	NMS	Increased in the level of institutional Capacity and data collection
5. Establish long-term monitoring of oceanographic parameters, including sea level rise and sea surface temperature	Technical data sets integrated with relevant social and economic information, and traditional knowledge for risk management	NCCC, NMS	Number of datasets monitored
6. Develop national data policies on how institutional capacity, including data from observational collection systems networks and technical sets may be sustained and upgraded	Technical data sets and tools for projections of climate variability including analytical and application systems for forecasting and early warning	NMS	Policies develop Number of datasets upgraded

7. Restore and strengthen historical climate monitoring networks	Observation networks increased	NMS	Number of climate stations repaired and installed
8. Increase use of tools to assess economic and social impacts of climate change, climate variability and sea level rise	Understanding of Climate Change made easy	DOE, NMS	Submission of report
9. Maintain and enhance basic instrumentation needed for weather, hydrological, terrestrial and oceanographic forecasting and prediction	Weather and climate predictions improved	DOE, NMS	Weekly instrument test report Number of corrected forecasts
10. Consolidate the existing beach and wetland monitoring programmes	Areas of coastal vulnerability identified	DOE	Number of beach and Wetland monitoring
11. Improve data collection and monitoring for vector distribution on the main inhabited islands, in particular mosquito species	Reliable data for informed decision making on vector-borne disease linked to climate change	MoH	Number of data collection and monitoring areas Report of monitoring
12. Undertake small and basin-scale modelling using oceanographic monitoring stations and arrays	Small scale model developed	NMS, SFA, UniSey	Number of data collection and monitoring areas Report of monitoring

13. Use high resolution models in the development of climate change scenarios for Seychelles	High resolution models acquired	NMS	Acquisition of High Resolution models Report on acquisition of models Climate scenarios developed
14. Assess and research trends and relationships of disease outbreaks or vector distributions within the context of climate variability and change	Research are available on the relationship between disease outbreak and climate change	MoH	Availability of research reports
15. Develop health risk plans based upon climate change scenarios.	Health risk due to climate change are minimized	MoH	Number of climate change scenarios performed
16. Implement the orthophoto mapping project of the three main islands	High resolution DEM data for mapping climate-related risks, zoning, and vulnerable areas.	GIS Unit	Approved project plan Number of aerial flights made Progress report of project
17. Incorporate sector data (e.g. agriculture, tourism, fisheries, forestry, etc.) into risk, vulnerability and distribution maps	Better assessment of sectors on risk and vulnerability Better informed decisions enhanced	SAA	Sector data sets identified Number of risk, vulnerability and distribution maps Mapping progress report
18. Establish Sea Level Rise/Tidal Observation stations on other islands of Seychelles	Data on sea level rise and tidal fluctuations are available	NMS	Availability of stations

Cross-Sectoral Linkages	Most of the sectors are linked directly with Climate Change and feature predominantly
Capacity Building (incl. education) requirements	Capacity Building has to be achieved in all sectors to achieve the overall goal. Implementation of UNFCCC article 6 on Education, Training and Public Awareness requires capacity
Legal & Institutional needs	EPA 95 and Meteorological Act
Relevant applicable policies	National Climate Change Strategy and Second National Communication, National Capacity Self-Assessment
Links to conventions and treaties	UNFCCC and Kyoto Protocol
Possible sources of funding	UNDP, GEF, World Bank, UNEP, Japan, WMO

Strategic Objective 2	To put in place measures to adapt, build resilience and minimize our vulnerability to the impacts of climate change, especially in critical sectors
Outcomes	• Adaptation measures to the adverse effects of climate change developed and implemented at all levels • Adaptation measures integrated into national/sectoral sustainable development strategies and linked to the budgeting process • Priorities for adaptation, especially in critical sectors identified • Ongoing management and adaptation activities implemented • Increased protection of Coastal Areas and communities from natural phenomenon • National capacities to undertake environmental monitoring, vulnerability and risk assessments in key environment and socio-economic sectors enhanced • Mechanisms for sharing Information and experience established
Lead Implementing Agency	Department of Environment, NMS
Total Estimated Cost	SCR 22,878,000
Timeline	2012-2020

Activities	Expected Results	Responsibilities	Objectively Verifiable Indicators
1. Study to identify and prioritise areas for adaptation intervention	Adaptation measures developed	NCCC, PUC	Study report No. of prioritized areas
2. Undertake review of policies and institutions with a view to ensure consideration of adaptation issues	Updated adaptation policies	DOE, DRDM	Adaptation policies
3. Mitigate potential coastal risk zones, vulnerabilities (coastal defenses, channel Breaker)	Coastal zone risks are minimised	DOE	Severely eroded areas rehabilitated Infrastructures risks from coastal erosion reduced
4. Development of legally binding coastal land-use plans (incorporating the impact of climate change)	Legally binding land use plans which takes into account climate change	TCPA	Legally binding land use plans. vulnerability assessment
5. Adoption of coping approaches with regards to the management of protected areas for resilience to climate change.	Protected areas safeguarded for resilience to climate change	SNPA	Approved plan for adoption Number of protected areas done Progress and monitoring report
6. Establish basic design specifications, incorporating climate change considerations, into coastal drainage, coastal protection, road and other infrastructure development projects	Design specifications established	DOE, Private Sector	Approved plan for design specifications Number of development projects following the designs Progress and monitoring report

7. Develop and implement on a pilot scale effective adaptation measures and tools at community level, including coastal restoration approaches	Climate change adaptation measures integrated into strategic planning processes	NCCC, MLUH	Number of effective adaptation measures
8. Research and develop alternative coastal designs which accommodate sea level rise	Building codes developed New building technology implemented	DOE,MLUH	Updated building codes and technologies No. of houses designed
9. Implement nation-wide rainwater harvesting programme	Programme developed and implemented	DOE, PUC	No. of installations completed
10. Demonstration of adaptation technology implementation, with focus on nature-based methods	Adaptation technology demonstrated	DOE	No. of adaptation technologies implemented
11. Develop and implement cost-effective beach restoration techniques in support of the tourism industry	Beach restoration techniques implemented	MoH	No. of restoration techniques implemented
12. Develop the capacity to mobilise and implement resources from international agencies to address the climate risk.	Capacity developed to address climate risk	DOE	No. of personnel trained

13. Explore and develop micro-insurance, risk reduction and financing mechanism and private sector financing options for adaptation.	Micro-insurance, risk reduction and financing mechanism established	MoF/Private Sector	No. of Micro-insurance developed
14. Establishment of a National Disaster Crop Insurance scheme	National Disaster Crop Insurance scheme created	SAA	No. of farmers joining the scheme
15. Develop and implement at pilot scale effective adaptation measures and tools at community level, including coastal restoration approaches.	Climate change adaptation measures integrated into strategic planning processes.	DOE, MLG	National reports. Project progress reports. Physical monitoring
Cross-Sectoral Linkages	Most of the sectors are linked directly with Climate Change and feature predominantly		
Capacity Building (incl. education) requirements	Capacity Building has to be achieved in all sectors and should be implemented effectively to order to achieve the overall goal. Implementation of UNFCCC article 6 on Education, Training and Public Awareness requires capacity		
Legal & Institutional needs	Establish and strengthen the role of EIA and SEA in climate change adaptation and risk/impact reduction		
Relevant applicable policies	National Climate Change Strategy and Second National Communication, National Capacity Self-Assessment		
Links to conventions and treaties	UNFCCC and Kyoto Protocol		
Possible sources of funding	UNDP, GEF, World Bank, UNEP, Japan, WMO		

Goal 2 Enhanced Actions on Mitigation of Climate Change

Strategic Objective 1	Promote energy efficiency and renewable energy resources to form essential pillars of future mitigation actions, taking into account national circumstances		
Outcomes	• Attain energy security and reduction of greenhouse gas emissions • Diversify the energy portfolio of Seychelles towards renewable forms of energy • Update the energy legislation and institutional framework to encourage innovation and transfer of technology in the energy sector • Clean Development Mechanisms initiatives developed and implemented • Cost effective renewable energy technologies promoted, shared and implemented • Greenhouse Gas Inventories maintained		
Lead Implementing Agency	Seychelles Energy Commission, Department of Environment		
Total Estimated Cost	SCR 480,000,000		
Timeline	2012-2020		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Develop an energy policy to achieve energy security	Energy policy developed	SEC	Energy policy approved Cabinet minutes
2. Development of new Energy Act	Energy Act developed	SEC	Energy Act approved Cabinet minutes
3. Feasibility studies for the establishment of wind, solar and waste-to-energy technologies	Studies effected for renewable energy	SEC, PUC	Feasibility study
4. Upgrading of national grid to accommodate alternative sources of energy	National grid able to take other sources of energy	PUC	No. of alternative sources

Cross-Sectoral Linkages	Energy and Transport
Capacity Building (incl. education) requirements	Capacity Building has to be achieved in all sectors to achieve the overall goal. Implementation of UNFCCC article 6 on Education, Training and Public Awareness requires capacity
Legal & Institutional needs	Energy policy and National Climate Change Strategy
Relevant applicable policies	Energy Act
Links to conventions and treaties	UNFCCC and Kyoto Protocol
Possible sources of funding	EU,GEF, UNDP, World Bank, UNEP, SEPEC

Strategic Objective 2	Promote the relevant emission trading mechanism and REDD-plus nationally		
Outcomes	• New emission trading mechanism & REDD+ capacity built; • Sustainable management of forests established • Emissions from deforestation reduced • Programmatic CDM projects planned and implemented		
Lead Implementing Agency	Department of Environment		
Total Estimated Cost	SCR 120,000,000		
Timeline	2012-2020		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Establish the DNA to implement CDM projects	DNA established	SEC	Energy policy approved Cabinet minutes
2. Implement CDM projects	Funding for reducing carbon emission	NMS, Private Sector	No. of projects under CDM

3. Engage in the management and conservation of Seychelles forest	Benefit from the REDD+ mechanism	DOE, SNPA	Establish baseline Approved project Amount of emission
Cross-Sectoral Linkages	Forestry Section of the Seychelles National Park Authority		
Capacity Building (incl. education) requirements	Need to increase capacity in CDM and REDD+ project formulation		
Legal & Institutional needs	The DNA Bill approved by the National Assembly and Staff recruitment		
Relevant applicable policies	National Climate Change Strategy and Second National Communication		
Links to conventions and treaties	UNFCCC and Kyoto Protocol		
Possible sources of funding	World Bank, GEF and Fast Start Funding from developed countries		

Goal 3 **Enhanced Actions on Finance, Technology Transfer and capacity building to support action on mitigation and adaptation**

Strategic Objective 1	Develop policy direction and strategies to encourage and enhance action on technology development and transfer of environmentally-friendly technologies
Outcomes	• Actions on technology transfer enhanced • Investment in appropriate technology secured • Technology to address both adaptation and mitigation sought • Environmentally sound technology promoted
Lead Implementing Agency	Department of Environment
Total Estimated Cost	SCR 600,000,000
Timeline	2012-2020

Activities	Expected Results	Responsibilities	Objectively Verifiable Indicators
1. Establishment of a clearinghouse and advisory services platform on efficient technologies and appliances	The effective use of technology is better monitored	SEC	Clearinghouse established
2. Establish demonstration projects for various energy technologies with the participation of the private sector	Demonstration project established	SEC, Private Sector	No. of private sector participated
3. Create an enabling environment for the piloting and testing of new vehicle technologies	Environment created for testing new vehicle technologies	SEC, LTA	Approved plan Monitoring and progress report
Cross-Sectoral Linkages	All sectors		
Capacity Building (incl. education) requirements	Capacity needed in the formulation and implementation of technology transfer and development		
Legal & Institutional needs	Capacity needed in financing and legal		
Relevant applicable policies	SNCCC and EPA		
Links to conventions and treaties	UNFCCC and Kyoto Protocol		
Possible sources of funding	GEF, World Bank, UNDP, UNEP, EU, Japan, WMO, Seychelles Government		

Strategic Objective 2	Scale up financial resources and investment to support action on mitigation and adaptation		
Outcomes	• Financing mechanisms for mitigation and adaptation established • Sufficient financial resources to support response to climate change sought • Resources from climate change funding mechanisms secured to implement projects		
Lead Implementing Agency	Department of Environment		
Total Estimated Cost	SCR 1,200,000,000		
Timeline	2012-2020		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Establish a system of sustainable financing for climate change adaptation, mitigation, technology transfer, education and capacity building	Financing mechanism within the UNFCCC established	DOE, NCCC	Conference of the Parties approval Manage by a board within UNFCCC
Cross-Sectoral Linkages	All sectors		
Capacity Building (incl. education) requirements	Need to train personnel in financial management and negotiation skills		
Legal & Institutional needs	Training of personnel in legal field		
Relevant applicable policies	National Climate Change Strategy		
Links to conventions and treaties	UNFCCC and Kyoto Protocol		
Possible sources of funding	World Bank, GEF and donor countries		

Strategic Objective 3	To build capacity and social empowerment at all levels to adequately respond to climate change		
Outcomes	• Develop Climate Change education and communication • Strengthen formal climate change capacity building institutions • Develop the capacity for global environment management, in particular climate change • Enhanced communication and collaboration between government agencies on climate change issues • Human capacity to monitor and assess environmental, social and economic risks and effects of climate change strengthened • Human capacity to identify, analyze and implement cost effective adaptation and mitigation response measures and creation of a pool of informed resource persons conversant with development of practical steps in adaptation tools and methods strengthened • Human capacity to identify and integrate scientific and traditional knowledge into adaptation and mitigation practices strengthened • Negotiation and advocacy skills of government and NGOs to more effectively engage at international fora		
Lead Implementing Agency	Department of Environment, Department of Education		
Total Estimated Cost	SCR 36,000,000		
Timeline	2012-2020		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Develop and deploy climate change curriculum and teacher support materials in Seychelles Schools.	Enhance teachers and students interest in climate change	DoEd	Insert Climate Change in Curriculum
2. Design and implement climate change educational and advocacy activities	Public education and outreach (PEO) programmes developed and implemented	DOE, MoEd	National PEO strategic plans Media campaigns

3. Integrate climate change education in all relevant national policies and strategies	Sensitize policy makers and public in general	NCCC	Policies and strategies incorporating climate change
4. Organize awareness and educational activities for the youth	Sensitize the youth	Youth Orgs	No. of youth sensitized
5. Promote ongoing stakeholder/ community involvement in decision making regarding climate change education, awareness & training at national and district levels	Sensitize the stakeholders and community	NCCC	No. of stakeholders and community sensi-tized
6. Develop capacity for emissions trading and carbon man-agement with focus on CDM, REDD+, NAMA and other mechanisms	Increase the level of capacity for project formulation and imple-mentation	MoEd	Number of personnel trained
7. Complete needs assessment of human capacity (resources and training required) to operate viable and sustainable the national climate center	Needs assessment completed	NMS	Result of conducted needs assessment

8.Enhance human capacity to observe, predict and monitor on all the scales (seasonal, inter annual decadal, and longer) and detect distribution of human-induced climate change	Personnel gained more knowledge on climate change detection and prediction	NMS	Number of personnel trained
Cross-Sectoral Linkages	All sectors		
Capacity Building (incl. education) requirements	Capacity Building has to be achieved in all sectors and should be implemented effectively in order to achieve the overall goal. Implementation of UNFCCC article 6 on Education, Training and Public Awareness requires capacity		
Legal & Institutional needs	Capacity needed for implementation of all climate change projects		
Relevant applicable policies	SNCCS		
Links to conventions and treaties	UNFCCC and Kyoto Protocol		
Possible sources of funding	GEF, World Bank, UNDP, UNEP, EU, Japan, WMO, Seychelles Government		

12.7 Cross-Sectoral Issues

Agriculture

Agriculture is only 3% of the Seychelles GDP (NSB, 2006), but with the recent global food crisis, the issue of national food security has taken the highest priority in Seychelles. Whilst there is evidence that the impending food crisis will likely persist in the near future, climate change is thought to affect agriculture in numerous ways, in particular availability of water and changes in the geographical range of plant diseases.

Whilst agriculture is inextricably linked to the climate, the recent increase in food prices, which has aggravated access to food in many parts of the world, is caused by a number of other factors beside climate change. Climate change will affect food security by affecting local and global food production and by affecting access to food supplies. Agriculturally - based livelihood systems in small islands are already vulnerable to climate change, especially in terms of crop failure and loss of livestock due to either extended droughts or persistent floods.

Fisheries

Fisheries are extremely sensitive to climate variability and change (Stenseth et al. 2005). In Seychelles, the fisheries sector constitutes the second major pillar of the economy and contributes significantly to food security, a level of reliance which confers high vulnerability to climate change (Allison et al. 2009).

The sector is dominated, economically, by the industrial purse-seine tuna fishery and production of canned tuna. Strong climate oscillations (ENSO and Indian Ocean Dipole) have profound effects on the purse-seine fishery, due to modifications of tuna habitat and, consequently, catchability (Menard et al. 2007). In 1998, when ENSO and dipole interacted, the direct, indirect and induced economic effects of the tuna industry declined by 58%, 34% and 60%, respectively (Robinson et al. 2009). The sector currently faces numerous challenges, including overfishing, competition and changes in trade regimes. Sector-level strategies to adapt to climate change and other challenges are not mutually exclusive and include fishery and market diversification, improved services, development of mariculture and sustainable fisheries management (Robinson et al. 2009). Of minor economic importance compared to the industrial fisheries, the artisanal fisheries sub-sector plays a vital role for food security and employment. Severe degradation of coral reef habitat occurred in the wake of the 1998 coral bleaching event (Graham et al. 2006). Loss of structural complexity and slow recovery at some sites has affected reef fish biomass, suggesting possible lag effects on reef fisheries (Graham et al. 2007). However, coral reef fisheries are of relatively minor importance in value and volume compared to the demersal line fishery based on the extensive banks of Seychelles, for which the effects of climate change are less immediate. Combining a relatively high level of adaptive capacity, conferred by socio-economic factors (McClanahan et al. 2008), with a strong institutional background in environmental and resource management (Cinner et al. 2009), there are tenable opportunities for adaptation to climate change in the artisanal fisheries sub-sector.

Human Health

Seychelles is at risk from climate-sensitive diseases such as malaria and other food and water-borne diseases.

Climate-related events that may affect health in Seychelles include the spread of certain diseases such as leptospirosis and chikungunya, and respiratory ailments arising during extreme drought conditions. Leptospirosis is a bacterial infection that can cause death in both humans and animals. The infection is commonly transmitted through contamination of water, so it is usually prevalent during periods of rainfall. On the other hand, the chikungunya fever is a result of an insect-borne virus transmitted by virus-carrying Aedes mosquitoes. Chikungunya manifests itself with a prolonged fever that affects the joints of the extremities. The acute febrile phase of the illness lasts only two to five days.

Other climate-sensitive diseases including other vector-borne diseases, non-vector diseases, heat-related diseases, diseases from urban air pollution, and diseases related to extreme weather conditions such as floods, droughts, strong winds and fires may occur in the Seychelles but there is little documented evidence of this.

Nevertheless, although Seychelles may have experienced relatively low climate-sensitive health impacts in the past, its vulnerability to such impacts remains very high and prevention as well as potential adaptation measures will need to be further developed.

Water Resources

Water supply in Seychelles is primarily from river sources, combined with groundwater extraction and desalination plants in some locations. Whilst river water is abundant there is steep topography and low retention of the soil and rock and the flow in these streams is erratic and falls to very low values during

prolonged periods of drought. Groundwater extractions have not been successful in view of the narrow coastal plateau. Desalination plants have been installed to meet shortfall in demand during the dry season. Water distribution on the three main islands is extensive, serving more than 87% of the population with treated water supply (NSB, 2007). Despite these efforts, the Seychelles will face serious water shortages in the near future (INC, 2000); primarily due to a lack of adequate resources to invest in appropriate reservoirs and growing demand (PUC, 2004).

Furthermore, recent studies suggest that changes in long-term rainfall patterns and temperature changes will have adverse consequences for the water sector (Payet & Agricole, 2006). Results from four global circulation models, indicate that climate change is expected to increase the severity of water shortages on Mahé, Praslin and La Digue because of the following factors (i) decreases in rainfall during the dry southeast monsoon which will reduce stream flow, groundwater recharge and therefore water supply; (ii) increases in surface air temperatures which will increase rates of evapo-transpiration and consequently reduce stream flow, ground water recharge and further exacerbate the water supply problem; and (iii) increases in rainfall intensity which will result in greater surface runoff and reduced water capture in existing storage facilities. Payet and Agricole (2006) also note that a warmer and wetter climate for the Seychelles will not necessarily translate into a greater availability of water. Dry spells are likely to be longer and precipitation events more intense. These predicted changes will affect water supply adversely because of greater variation in stream flows.

Coastal Sector

The impact of climate change on coastal livelihoods as a result of sea level rise, storm and tidal surges, extreme sea-surface temperatures, and coastal flooding will have serious consequences for livelihood on small islands, such as the Seychelles. In the Seychelles, more than 90% of the population and development are concentrated on the coastal plateau of the main granitic islands, which are themselves very narrow strips, no more than two km wide. These combined factors are expected to cause further erosion of the coastline, inundate agricultural areas, aggravate coastal flooding, and affect salinity balance in mangrove areas. Such impacts on the physical and ecological environment in most cases translate into socio-economic impacts such as loss of coastal infrastructure (such as tourism establishments and homes), loss of crops and coastal fisheries.

There is considerable evidence for historical accretion and erosion of beaches in the Seychelles, either through natural or man-made causes. Anse Kerlan, on Praslin is a case where human interference has completely destabilized the beach to the point where one land owner is estimated to have lost over 10,000 m2 of land in the last few years (Quatre, 2005). Extreme tide levels in the last few years have also served to destabilize the coastline. Climate change and sea level rise will exacerbate these problems and lead to further destabilization of the coastline.

Coastal Flooding

Coastal flooding especially during spring tides and heavy rainfall has become common in Seychelles, however the problem is further compounded by the lack of appropriate drainage and high density developments.

Coastal Tourism

Coastal Tourism plays a role of unmatched importance in the economy of the Seychelles and any shocks that negatively impact the tourism industry are felt throughout the islands. Tourism now accounts for about 29 per cent of foreign exchange earnings, 20 per cent of GDP and one third of employment. Climate change will impact tourism through its effects on the resources (e.g. beaches & coral reefs) Infrastructure (e.g. hotels & guesthouses) are critical to tourism services and also on the

climate-related amenities that tourists seek when visiting destinations such as the Seychelles (Payet, 2007). The effects of climate change on tourism in small islands are expected to be largely negative (Mimura et al, 2007). Sea-level rise, rising sea surface temperatures, increased tropical cyclone intensity and changes in ocean chemistry from higher carbon dioxide concentrations are likely to negatively impact the health of coral reef systems, another major tourist attraction of the Seychelles and also important to the islands' fisheries and conservation of biodiversity. Increased coral mortality would also accelerate coastal erosion, as demonstrated by the effects of coral mortality over the past decade in the Seychelles (Sheppard et al., 2005).

Forest Fire

Forest fires pose risks to human habitation, critical infrastructure and also the unique biodiversity of the islands. (GoS, 1998). Many of the islands of the Seychelles are host to a number of endemic species and with no migration corridors, forest fires present one of the highest threats to conservation. Forest fires are also the main cause of erosion and consequently land instability on Praslin. To reduce the risk of forest fires, burning permits are mandatory during certain periods of the year. Although fire contingency plans and other measures are in place, such as fire breaks, the lack of suitable early warning and fire control equipment hampers both prevention and response. It is expected that extended droughts may increase the likelihood of forest fires (Payet, 2005). Forest fires are much more common on the island of Praslin and Curieuse than on other islands in the Seychelles. The risk of forest fires is linked to periods of little or no rainfall, type of vegetation and involuntary or voluntary arson. The high incidence of forest fires on Praslin during the months of June to August relates to the dry season.

12.8 Measurement of Progress

Detailed schedule

A detailed schedule of project review meetings will be developed by the SSDS Secretariat, in consultation with the climate change implementation partners and other stakeholders and incorporated into the periodic thematic report. Such a schedule will include: (i) timeframes for Reviews, SSDS Steering Committee Meetings, and other relevant advisory and/or coordination mechanisms; and (ii) sector-related monitoring evaluation activities.

Quarterly Monitoring and Progress and Report

Quarterly monitoring and implementation of progress will be the responsibility of the head of the climate change thematic area through quarterly progress reports and quarterly meetings of the SSDS. This will allow parties to take stock and to troubleshoot any problems pertaining to the sector in a timely fashion to ensure smooth implementation of sector activities. The sector's performance indicators will be fine-tuned in consultation with other stakeholders.

Annual Monitoring and Progress Report

Annual Monitoring and Progress report will occur through Steering Committee. The performance benchmarks of the sector are monitored based on delivery rates and qualitative assessments of achievements of outputs. It will also reflect progress achieved in meeting the sector work plan and assess performance of the sector in contributing to intended outcomes through outputs and partnership work. An analysis of sector performance over the reporting period, including outputs produced and, where possible, information on the status of the outcome. The constraints experienced in the progress towards results and the reasons for these have to be highlighted and clear recommendations for future orientation in addressing key problems.

Thematic Terminal Report

This comprehensive report will summarize all activities: achievements and outputs of the sector lessons learnt; objectives met, or not

achieved, structures and systems implemented, etc. and will be the definitive statement of the sector's activities during its lifetime. It will also lay out recommendations for any further steps that may need to be taken to ensure sustainability and replicability of the sector's activities. The report will also be used as one of the basic documents for discussions in the steering Committee (SC) meeting, highlighting policy issues, operational issues and recommendations for the decision of the SC participants.

Independent Evaluations
The thematic sector will be subjected to at least one independent external evaluation as follows:

Mid-term Evaluation
An independent, mid-term evaluation will be undertaken at the end of the second year of implementation. The mid-term evaluation will determine progress being made towards the achievement of outcomes and will identify course correction if needed. It will focus on the effectiveness, efficiency and timeliness of thematic sector implementation of projects; will highlight issues requiring decisions and actions and will present initial lessons learned about the sector design, implementation and management. Findings of this review will be incorporated as recommendations for enhanced implementation during the final half of the sector's term.

Final Evaluation
An independent final evaluation will take place three months prior to the termination of the thematic sector action plan and will focus on the same issues as the mid-term evaluation. The final evaluation will also look at impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental goals. The Final Evaluation should also provide recommendations for follow-up activities.

12.9 Total Estimated Cost

Thematic Sector: Climate Change

Goals	Estimated Cost	Notes
1. Mainstreaming climate change adaptation challenges into national sustainable development agenda	SCR 50,478,000	This goal will aim to ensure that climate change issues are featured in decision-making, planning and implementation of actions.
2. Enhanced Actions on Mitigation of Climate Change	SCR 600,000,000	This goal seeks to reduce national emissions and also secure long term energy security.
3. Enhanced Actions on Finance, Technology Transfer and Capacity Building to support action on mitigation and adaptation	SCR 1,836,000,000	This goal will support all actions related to addressing climate change and all its implications in the long term.

13 EDUCATION FOR SUSTAINABILITY

13.1 Introduction

The roots of Education for Sustainable Development (ESD) can be traced back to the 1970's but it was the Rio Summit in 1992 that led to the provision for ESD under Chapter 36 of Agenda 21. These provisions encourage life-long learning, re-orientation of education towards ESD, promote a SD (sustainable development) enlightened citizen and mainstreaming SD training in all sectors, including trade and industry. Furthermore the UN declared the period 2005-2014, the United Nations Decade of Education for Sustainable Development (DESD).

This thematic area, referred to henceforth as Education for Sustainability (EfS), covers environmental education and awarness programs for the formal education system as well as for lifelong learning. It addresses the integration of Environmental Education (EE) into the formal education system at all levels including initial and in-service teacher education. It also addresses environmental awareness & communication programs targeting the general public, communities and various specific target audiences such as families, tourists, businesses, professionals, youth, the police, the elderly etc. It includes education programs for various professional groups to help them integrate sustainability concerns into their work, and also advocacy programs to encourage policymakers and decision-makers to further incorporate sustainability into all aspects of governance.

Seychelles has a long history of commitment to environmental education. Much of the work that has been done to date in building capacity and resources and planning and delivering programs stems from the first EMPS (1990-2000) which included projects targeting formal and informal education sectors. Although the second EMPS did not include education as a thematic area on its own, but rather as a cross-cutting theme, many stakeholders including government, NGOs, parastatals, the media and the private sector continued to develop environmental education and awareness programs on their own and in collaboration with each other. Seychelles' commitment to Education for Sustainability (EfS) is partly drawn from our obligations to the UN Agenda 21 and related international commitments, but also stems from our own recognition that as a small island state environmental sustainability is key to national development.

Guiding Principles

Collaboration & networking: Involve all stakeholders and target naudiences in planning and implementation

Use different methods of communication: There is no 'one size fits all' - people learn & experience in different ways.

Touch the heart not the head: The emotional connection to nature and to each other can play an important role in getting the messages across and in making change happen.

Hope and possibilities: Doom & gloom doesn't work. Try to focus on the positive things people are doing and achieving to give people feelings of hope, excitement, inspiration, wanting & believing they are part of the solution.

KIS (Keep It Simple): Campaigns and key messages should be simple and clear. Aims and objectives for campaigns or programs should be simple, clear and realistic.

Make connections: between environmental issues and social issues like culture, health and socio-economic well-being – these issues are also important for sustainability and links should be made with them in environmental education programs and campaigns.

Empower Seychellois people – try to make spaces for them to become more engaged in debates, more vocal, to adopt sustainable lifestyles, to lead the way, building on our culture and heritage.

13.2 Thematic Outlook 2012-2020

The EfS sector is evolving in response to international and local trends and influences. In some cases, the situation is expected to improve, i.e. in the increasing availability of environmental goods and services

Some key Terminologies

Environmental Education (EE) as used by the United Nations is generally understood to be education about, in, and for the environment – holistic learning that would help people live more sustainably with nature and each other. In Seychelles EE is about activities in formal education, Environmental Awareness is for the public and specific stakeholders, and Environmental Advocacy targets opinion leaders for effecting change.

Education for Sustainability (EfS) broadly incorporates all educational and awareness efforts to empower people and promote action for sustainable development.

between many environmental and social problems in society.

For the past two decades many of the EfS programs have tended to focus on issues related to conservation and waste. However, the energy, food, health and economic crises of the last decade has led to a more aggressive focus on issues of sustainability, lifestyles, food security, self-sufficiency, climate change, and conservation of water and energy resources.

Similarly the traditional focus of EfS programmes on just schoolchildren and the general public is now shifting towards other types of audiences such as the youth, families, decision-makers, specific communities, business leaders, tourists, hoteliers, the construction industry, and others. There is also a shift towards positive stories – role models among regular folk as well as politicians and celebrities, best practices etc. in order to inspire people to join the "eco" trend. Use of TV, radio and print have been key strategies for Seychelles and this trend, as well as increased use of social media, is expected to continue.

The number of people, including volunteers, working in EfS has grown environmental education, outreach, advocacy, either full-time or part-time, for government, NGOs and the private sector. In recent years there have been many new funding windows for local projects by (recycling opportunities, renewable energy equipment). However, in other cases, the situation is expected to become increasingly challenging for environmental educators, such as the increasing economic development and resultant growth in consumerism and wasteful practices.

Over the last decade, Government has shown commitment to EfS programmes - the most active stakeholders in the sector being the Department of Environment and the Ministry of Education, and other public bodies. NGOs like Nature Seychelles and Wildlife Clubs of Seychelles have traditionally been active but recently, more environmental NGOs have become established and most have EE programs which they implement in coordination with other partners like schools, the media, youth networks (Care clubs, young citizens, Scouts), faith-based groups, community environment clubs, and hotels. Furthermore, current stakeholders have identified a need to work in closer collaboration with more social-oriented organisations in recognition of the close interconnections

Main Challenges

- EfS activities has had limited impact on stakeholder behavior and change towards sustainability.
- EfS activities need to be designed to cater for various interest and stakeholder groups to increase effectiveness
- Lack of measurement tools of impact of EfS activities.
- Improve collaboration, networking and cooperative action to optimize resources and know-how.
- The impact of EfS in the schools seems to be very limited – behaviours like littering, energy and water wastage, poaching etc. still occur in society.
- EfS campaigns need to focus on positive behaviours and role models in order to inspire people and contribute to the development of a strong culture of environmental sustainability in Seychelles.

NGOs and government with an education & awareness component and this is expected to continue. Grants are usually targeted towards donor-driven issues with local relevance.

Little evaluation and monitoring has been done over the last two decades to try and gauge results of campaigns but there is increasing awareness of the need for more research. It is expected that there will be more opportunities for research through University of Seychelles (UniSey), specifically the School of Education. People are however, increasingly participating more actively in environmental decision making (e.g. attending public EIA meetings, letters to newspapers, demonstrations) but much more needs to be done to empower them to come forward to critique and offer more sustainable solutions.

Successful EfS programs and campaigns also require the application of rule of law and enforcement of environmental legislation. It is expected that with greater awareness opinion leaders and government will become not only role models but also enforcers of environmental laws and norms. Action on the ground by agencies and the private sector, such as recycling initiatives, can positively re-enforce EfS activities. There appears to be an increase in the number of local companies providing such goods and services which demonstrate sustainable living.

INDICATOR	PAST TRENDS	OUTLOOK FOR 2012-2020
Stakeholders	Lead agencies DOE and MoEd, media and a few NGOs Good informal networking	More involvement by other NGOs, community groups, faith groups, private sector, tourism More difficult to coordinate
Issues	Tendency to focus more on biodiversity issues and waste	Widen to include sustainability and lifestyle issues as well (to counteract increasing consumerism and resulting environmental problems)
Strategies	Focus on problems Target children and general public	Focus on role models and best practices Target more audiences
Resources	Funding limited	More funding available
Impact	People seem generally aware of issues but not practicing behaviours. People not participating actively in environmental decision-making, i.e. EIA public consultations	Environmental behaviours more integrated into lifestyle, ways of doing business, etc. Economic growth and culture of increasing consumerism becomes a greater challenge for EFS People become more outspoken about environmental problems and issues

INDICATOR	PAST TRENDS	OUTLOOK FOR 2012-2020
Monitoring & Evaluation	Few studies of impact, few reports available/written	More M&E demanded by funding mechanisms, more research through UniSey, NGOs and other organisations
Follow-up and Support	Technologies and services rarely available, behaviours not widely role modeled	Technologies and services increasingly available locally, more eco businesses established, more role modeling by people in public eye

13.3 Policy Framework

There are a number of different policies relevant to the sector. Locally, the most directly relevant policy is the Education Policy (2000) which acknowledges the key role the formal education sector must play in helping to develop citizens that can contribute to a sustainable and harmonious society. In 2009, Government approved an Education Reform Programme to address the quality of education and also performance of students.Chapter 36 of Agenda 21 calls for each country to develop "education for sustainable development (ESD) programs for formal and informal education that will promote environmentally sustainable development."

Seychelles is also a signatory to the Barbados Programme of Action which has a similar emphasis on education for sustainable development for schools and lifelong learning. It should be noted that the UN declared 2005-2014 the Decade for Education for Sustainable Development (DESD) and that Seychelles has been involved in international networking and reporting on our achievements for the DESD. Many of the international conventions that Seychelles has ratified such as the Ramsar convention, UNFCCC, CBD, etc. also include sections on environmental education related to specific issues such as wetlands, climate change and the conservation of biodiversity. The obligations under these conventions as well as under relevant social-oriented conventions (such as MDG) should be considered when developing new campaigns and programs for schools or other audiences.

13.4 Stakeholder Framework

A large number of stakeholders representing government, parastatals, NGOs, the private sector and civil society were consulted during the development of this sectoral plan. A large number of these stakeholders are very actively involved with the planning and implementation of environmental education and awareness programs targeting schools and the general public. It should be noted that while the lead government agency for environmental education in schools is the Department of Education and that for the public is the Department of Environment, there are in fact a significant and growing number of environmental NGOs who are actively implementing environmental education and awareness programs targeting more diverse audiences. The media (television, radio and print) also play a very active role in environmental awareness raising, and work in very close collaboration with governmental and non-governmental actors alike. There are several new and/or emerging stakeholders in the sector. One is the University of Seychelles, which it is hoped will take a lead role in improving Seychelles' capacity to manage its own environmental projects and programs by providing quality tertiary education in environmental management. Another is the culture sector, including government departments, the Kreol Institute, culture-based NGOs and the artist community, all of whom

are beginning to recognize the links between culture and environment. The culture sector needs to be more actively included in the planning of education and awareness programs that seek, after all, to nurture the development of a new kreol culture that draws on environmentally sustainable local traditions as well as new "green" influences from beyond our shores.Finally, both government and non-governmental agencies in the social sector also need to be invited to become more actively involved in the planning and implementation of environmental education and awareness planning. Their involvement will help both them and environmental educators to better understand and address the links between social and environmental problems and their solutions. This includes working more closely with various faith-based groups, groups addressing social problems in society (like CARE, NCC, NATCOF), and groups targeting youth and the development of youth leadership.

13.5 Goals and Strategic Objectives

Goal 1 To provide life-long learning experiences to empower all levels of society to adopt environmentally sustainable practices.

	Strategic Objectives
1	Maintain and strengthen environmental education at all levels of the formal education system from Creche to Tertiary
2	Provide lifelong learning opportunities to empower all members of society to adopt and model environmentally sustainable practices at home, work and play
3	Promote research in EFS and ongoing monitoring and evaluation of all EFS programs and campaigns
4	Enhance and support networking between different stakeholders in Education for Sustainability

13.6 Action Plan

Goal 1 To provide life-long learning experiences to empower all levels of society to adopt environmentally sustainable practices

Strategic Objective 1(1)	Maintain and strengthen environmental education at all levels of the formal education system from Creche to Tertiary (EE Curriculum)
Outcomes	• Development of EE curriculum modules for primary and secondary education
Lead Implementing Agency	Department of Education
Total Estimated Cost	SCR 2,000,000
Timeline	2012-2015

Activities	Expected Results	Responsibilities	Objectively Verifiable Indicators
1. Establishment of list of environmental topics for module development at primary and secondary levels	List of environment topics developed	EECC, Dept of Education	List of environmental topics developed
2. Identification of suitable resources to develop selected modules	Resources available for each selected module developed	EECC (funding located in collaboration with developer)	No. of module developers & funding sources
3. Development of modules on various aspects of the environment	Fully developed modules & resource materials	Dept of Education	No. of modules developed per annum
4. Module materials distributed to schools + teacher induction	New module introduced into schools	Dept of Education	Presence of modules
5. Evaluation of use of modules in schools	Modules are being used successfully in schools	Dept of Education	No. of teachers using modules
Cross-Sectoral Linkages	Many sectors could have aspects of their work included in such modules		
Climate Change Considerations	A broad-based Climate Change module is already being developed		
Capacity Building (incl. education) requirements	Teachers will require familiarization with the materials and sometimes with novel approaches involved		
Legal & Institutional needs	Modules need to relate to education curriculum and teacher training syllabus		
Relevant applicable policies	Education Policy and other national strategies/policies, e.g. National Strategy for Plant Conservation		
Links to conventions and treaties	Agenda 21 (Chap 36), CBD, Mauritius Strategy, UNFCCC, etc		
Possible sources of funding	ETF, NGOs, GEF projects, other Overseas funding, Private sector sponsors		

Strategic Objective 1(2)	Maintain and strengthen environmental education at all levels of the formal education system from Creche to Tertiary (Tertiary Education)		
Outcomes	• Development and initiation of an Environmental Management degree program at University of Seychelles		
Lead Implementing Agency	University of Seychelles (UniSey)		
Total Estimated Cost	SCR 10,000,000		
Timeline	2012-2015		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Establishment of working group to develop program	Cross-sectoral working group set up and meeting regularly to plan the program	UniSey & relevant stake holders	Working group Minutes of meetings
2. Outline of program modules & options - 3yr degree program	Outline of 3-year program (with a certain degree of flexibility built in)	Working group (see above)	Detailed outline of program circulated to stakeholders for approval
3. Development of 1st year of program & identification of suitable course facilitators	Fully developed modules / units & resource materials for one year of the program	UniSey & working group	Detailed course materials available
4. Establishment of program within the University of Seychelles	Selected students and staff in place & 1st year of program running	UniSey	Students and staff attending 'classes'
5. Development of 2nd and 3rd year program units/modules	Fully developed modules /units & resource materials for 2nd and 3rd years of program	UniSey & working group	Detailed course materials available
6. In-service professional 'lecturer' education development and support	Facilitative approach to education within the environment management program	UniSey & external university	Broadly facilitative teaching and learning in place. Student responses/feedback

7. Annual review of program	Course flexibility to allow for changing issues & priorities in the environmental management field	UniSey staff & students & working group	Annual review of program takes place & minutes/records
Cross-Sectoral Linkages	All thematic areas should be covered within the 3-year program, in terms of their importance in environmental management		
Climate Change Considerations	CC should be included as a major unit within the program and also in relationship with all other program units		
Capacity Building (incl. education) requirements	Identified facilitators (instructors / lecturers) should have suitable tertiary educational experience or undergo professional in-service capacity development in tertiary level education		
Legal & Institutional needs	Links with an appropriate external university with experience of running progressive environmental management courses		
Relevant applicable policies	Education Policy. University of Seychelles Mission Statement, Human Resource Development Policy		
Links to conventions and treaties	Agenda 21, CBD, UNFCCC and other relevant environmental conventions		
Possible sources of funding	Government, University of Seychelles, Sponsors		

Strategic Objective 1(3)	Maintain and strengthen environmental education at all levels of the formal education system from Creche to Tertiary (School-based Initiatives)		
Outcomes	• Support school-based EE initiatives and strengthen the ecoschool movement		
Lead Implementing Agency	Department of Education with Department of Environment, Wildlife Clubs of Seychelles and other partners		
Total Estimated Cost	SCR 2,000,000		
Timeline	Ongoing		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Provide technical support for school based environmental initiatives	Resource persons available to assist schools to implement projects and obtain funding	Department of Environment with other partners like WCS	No. of school based initiatives per year

2. Coordinate theme day activities and events for schools	All schools at all levels participate in environment/ sustainability related theme day activities	Department of Education with partners	No. of theme day events per school
3. Modify eco-school competition according to review recommendations from 2008-2009	All schools at all levels participate in environment/ sustainability related theme day activities	Department of Environment with Department of Education	No. of schools participating Quantity and quality of activities taking place in schools
4. Produce eco-school resource materials	Eco-school handbook and resource pack available and used in all schools	Department of Education with partners	No. of materials produced and disseminated
5. Professional development sessions for teachers	Improved teacher understanding of sustainability	Department of Education with partners No of workshops held No of participants Feedbackfrom participants	No. of workshops held No of participants Feedbackfrom participants
6. Hold awards ceremony annually	Exemplary schools rewarded and nationally recognized	Department of Education with partners	No. of awards given out Media coverage
Cross-Sectoral Linkages	Ecoschool initiative links with many other sectors, e.g. waste, water, energy, biodiversity, climate change, gender, etc.		
Climate Change Considerations	Ecoschool program should make link with climate change mitigation and adaptation more explicite		
Capacity Building (incl. education) requirements	Teacher training needed (inservice). Ecoschool initiative should also be covered in preservice teacher education program		
Legal & Institutional needs	Access to schools for judging		
Relevant applicable policies	Education policy, environmental protection act, rights of the child		
Links to conventions and treaties	Earth Charter, Agenda 21, UNFCCC, CBD		
Possible sources of funding	ETF, UNDP/GEF		

Strategic Objective 1(4)	Maintain and strengthen environmental education at all levels of the formal education system from Creche to Tertiary (EE Support in Schools & Teacher Education)		
Outcomes	• Enhance and support EE in post secondary and tertiary education, including teacher education		
Lead Implementing Agency	Department of Education – Tertiary Education Division with UniSey, STA and other partners		
Total Estimated Cost	SCR 10,000,000		
Timeline	2012-2020		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Establishment of working group	Regular meetings, development of ideas for modules, networking between schools.	S4S with Department of Education	Meeting notes
2. Collaborative development of curricula and teaching/ learning resources	New modules developed, relevant to various fields of study	Schools with support from S4S and other partners	One environmental module per course
3. In-service teacher education and support	Lecturers more confident Interaction between schools	School of Education with support from S4S	Feedback from lecturers One workshop / conference per year
4. Establishment of environment clubs	Youth more environmentally active and vocal	Wildlife Clubs of Seychelles	One club in each school
5. Re-establishment of Ecoschool competition	Schools participate voluntarily in the competition and gain recognition; Support and advice provided to schools	Department of Environment with Department of Education	No. of schools participating in competition No. of eco initiatives undertaken by schools
6. Monitoring and evaluation of programs	Annual report	Schools with support from S4S	Feedback from students and staff Impact on other aspects of school life

Cross-Sectoral Linkages	Curriculum modules should be linked to various sectors of the SSDS
Climate Change Considerations	CC should be addressed as a major theme and focus for EE in all professionals schools
Capacity Building (incl. education) requirements	Post-secondary lecturers will require training in environmental education. Opportunities should be sought for further studies at Masters level.
Legal & Institutional needs	Programs developed should be designed to fit within CBA and other requirements of each school.
Relevant applicable policies	Education Policy
Links to conventions and treaties	Agenda 21 (Chapter 36), UNFCCC
Possible sources of funding	ETF, UNFCCC, UNDP, UNESCO

Strategic Objective 2(1)	Provide lifelong learning opportunities to empower all members of society to adopt and model environmentally sustainable practices at home, work and play (Popular Education)		
Outcomes	• Introduce the concept of popular education in Seychelles and build capacity to use it at national and community levels		
Lead Implementing Agency	NGOs with PECO/DOE		
Total Estimated Cost	SCR 250,000		
Timeline	2012-2013 and ongoing		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Develop a comprehensive training program on popular education techniques	Course materials prepared	PECO, DOE in partnership with NGOs and CBOs	Course materials
2. Deliver short courses for community educators	Courses delivered at regular intervals	University Seychelles (School of Education) and other partners	Reports, Feedback from participants

3. Certify the local course by an international popular education body	Certification provided to participants	Identify and partner with a known body	Reports
Cross-Sectoral Linkages	All sectors will have an education component which will need to link with this theme to inform the public		
Climate Change Considerations	A topic that will surely be a subject for mass dissemination through popular education at community and national level		
Capacity Building (incl. education) requirements	The main focus of this sector is building capacity to effectively implement the goal and for wider dissemination		
Legal & Institutional needs	Local certification of training through ALDEC, UniSey or SIM		
Relevant applicable policies	Community development		
Links to conventions and treaties	Agenda 21 (Chapter 26)		
Possible sources of funding	PECO – DOE budget and Project funds		

Strategic Objective 2(2)	Promote lifelong learning opportunities to empower all members of society to adopt and model environmentally sustainable practices at home, work and play (Empower communities)
Outcomes	• Use popular education methods to empower communities to lead actions for socio-ecological change in their communities
Lead Implementing Agency	NGOs with PECO/DOE and Community Development, Churches, etc.
Total Estimated Cost	SCR 2,000,000
Timeline	2012-2016

Activities	Expected Results	Responsibilities	Objectively Verifiable Indicators
1. Offer popular education workshops for communities through churches, and other groups	An increase in community initiated and managed environmental action projects	NGOs and other partners	No. of workshops and participants, feedback, No. of projects in communities
2. Develop and broadcast innovative media programs focusing on community based initiatives	People engaged and empowered New projects initiated Networking among community groups	PECO with other partners	Public participation in environmental debates, meetings etc.
3. Project funding proposal assistance for community groups	Community groups applying for and receiving funding for environmental action projects	PECO, UNDP/PCU, LUNGOS	No. of projects in communities
4. Organise opportunities for community members to share experiences collaborate	Exchange visits organised Exhibitions to share projects	Community leaders	No. of exchanges done New links established between community groups
5. Organise walks for community members to explore natural and cultural heritage and sites of interest	At least 4 walks organised per year	PECO	Media coverage, photos, report
Cross-Sectoral Linkages	All sectors will have an education component which will need to link with this theme to inform the public		
Climate Change	A topic that will surely be a subject for mass dissemination through popular education at community and national level		
Capacity Building (incl. education) requirements	The main focus of this sector is building capacity to effectively implement the goal and for wider dissemination		
Legal & Institutional needs	None identified		
Relevant applicable policies	Community development		

Links to conventions and treaties	Agenda 21 (Chapter 26)
Possible sources of funding	ETF, PECO – DOE budget and Project funds

Strategic Objective 2(3)	Promote lifelong learning opportunities to empower all members of society to adopt and model environmentally sustainable practices at home, work and play (Promote Green Role Models)		
Outcomes	• Find and promote green role models through award programs and the media programs		
Lead Implementing Agency	Department of Environment		
Total Estimated Cost	SCR 2,000,000		
Timeline	2012-2020		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Establish environmental award programs for various sectors of society	Awards given to youth, senior, individual, businesses, homes, journalist, district, etc.	Department of Environment with EECC	Criteria developed and advertised No. of different awards given No. of nominees annually
2. Secure sustainable funding source for awards / prizes	Awards given annually at national level	Department of Environment with EECC	Prize money or in-kind awards available
3. Media programs on prize winners and their efforts	Publicity given to environmental award winners	Department of Environment with media	No. of programs Feedback from public
4. Develop other media programs focusing on best practices	Increased coverage of best practices	Media	Range of topics covered No. of programs No. of stakeholders involved in development of programs

Cross-Sectoral Linkages	Best practices relate to all other sectoral issues: waste, water, energy, biodiversity, sustainable commerce, etc.
Climate Change	Climate change issues can be integrated into the criteria for best practices and awards.
Capacity Building (incl. education) requirements	Training in environmental journalism for local journalists would enhance impact of media programs
Legal & Institutional needs	None identified
Relevant applicable policies	None identified
Links to conventions and treaties	Agenda 21, Earth Charter, UNFCCC
Possible sources of funding	ETF, UNDP/GEF

Strategic Objective 2(4)	Promote lifelong learning opportunities to empower all members of society to adopt and model environmentally sustainable practices at home, work and play (Arts Community)		
Outcomes	• Expand involvement of arts community in EE		
Lead Implementing Agency	National Arts Council (NAC) with partners from government and NGO community		
Total Estimated Cost	SCR 1,000,000		
Timeline	2012-2014		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Provide workshops on environmental issues for artists (music, drama, fine art, film, photography…)	One workshop per year Artists more aware of environmental issues and their role in bringing about socio-ecological change.	S4S with NAC, DOE and arts associations	Workshop attendance No. of projects initiated by visual and performing artists per year

2. Hold environmental creativity competitions targeting professional artists	One competition every two years on a different environmental theme	DOE with NAC and other partners	No. of participants Quality of work submitted
3. Organise art exhibitions, festivals and performances	One event per year Increased profile of environmental issues More artists focusing on environmental	NAC with other partners	No. of Exhibitions/ performances held Public response
4. Promote community art projects	Artists work in collaboration with community members to produce environmental art/music/drama, etc.	S4S with NAC and other partners	No. of projects No. of people involved in community art projects
Cross-Sectoral Linkages	Competitions, events and other festivals as well as training can focus on pressing issues arising from other areas of the SSDS i.e. water, energy, climate change, biodiversity, etc		
Climate Change	Because of its importance and funding availability, climate change should be one of the first issues addressed		
Capacity Building (incl. education) requirements	Ongoing professional development is required to help artists gain a better understanding of environmental issues and explore their role as agents of change in society		
Legal & Institutional needs	Increased communication between environmental stakeholders, NAC and the arts community		
Relevant applicable policies	Education Policy		
Links to conventions and treaties	Agenda 21 (Chapter 36), UNFCCC, other conventions		
Possible sources of funding	ETF, UNFCCC, UNDP, EU, UNESCO		

Strategic Objective 2(5)	Promote lifelong learning opportunities to empower all members of society to adopt and model environmentally sustainable practices at home, work and play.
Outcomes	• Organize special/cultural events to promote sustainability
Lead Implementing Agency	PECO with other partners

Total Estimated Cost	SCR 10,000,000		
Timeline	2012-2020		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Production and dissemination of a theme days calendar yearly	A theme days calendar	PECO	The printed calendar
2. Organise activities around theme days	At least one major event per year to celebrate sustainability	PECO	No. of theme days
3. Hands on workshops to promote	Encourage more positive practices at home At least one per quarter	PECO and other partners	Newspaper articles and photos
4. Monitoring and evaluation of events	Annual report	PECO	Feedback from participants in the different events
Cross-Sectoral Linkages	Curriculum modules should be linked to various sectors of the SSDS		
Climate Change	CC should be addressed in all major events		
Capacity Building (incl. education) requirements	PECO staff will require training in environmental education. Opportunities should be sought for further studies at Masters level.		
Legal & Institutional needs	Programs developed should be designed to fit within CBA and other requirements of each school.		
Relevant applicable policies	Education Policy		
Links to conventions and treaties	Agenda 21 (Chapter 36), UNFCCC		
Possible sources of funding	ETF, UNFCCC, UNDP, UNESCO		

Strategic Objective 2(6)	Promote lifelong learning opportunities to empower all members of society to adopt and model environmentally sustainable practices at home, work and play (Decision-makers).		
Outcomes	• Hold environmental workshops for decision makers		
Lead Implementing Agency	PECO with SIM and other partners		
Total Estimated Cost	SCR 200,000		
Timeline	2012-2017		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Establish a training plan	Training plan developed in consultation with target participants and other stakeholders	PECO/DOE and partners	Training plan established
2. Implement workshops on different aspects of sustainability for decision-makers	At least 4 workshops per year targeting different groups Workshops delivered in collaboration with government and civil society partners	Sustainability for Seychelles with partners	No. of workshops No. of participants Feedback from participants
3. Media coverage	All workshops covered in local media	Media	Feedback from public
4. Provide ongoing support and \information on environmental sustainability issues for decision-makers	Further integration and application of ideas and practices promoted through workshops	S4S with PECO/DOE and other partners	No. of requests for further assistance or training
Cross-Sectoral Linkages	Workshops may focus on various sectoral issues and link to action plans of other sectors		
Climate Change	CC workshop already held for MNAs – further training can be offered for DA's, business leaders, etc.		
Capacity Building (incl. education) requirements	Training in popular education techniques for facilitators		

Legal & Institutional needs	None identified
Relevant applicable policies	None identified
Links to conventions and treaties	UNFCCC
Possible sources of funding	ETF, UNDP/GEF, MFF, LUNGOS, GEF SGP, GoS

Strategic Objective 3(1)	Promote research in EFS and ongoing monitoring and evaluation of all EFS programs and campaigns (Research & monitoring)		
Outcomes	• Promote and support research in environmental education and awareness as well as monitoring of programs		
Lead Implementing Agency	University of Seychelles with partners		
Total Estimated Cost	SCR 2,000,000		
Timeline	Ongoing		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Conduct a survey to determine environmental knowledge, values and practices among population	Survey conducted in 2012, 2016 and 2020, data analysed and reports written and circulated	University of Seychelles with PECO / DOE and interested partners from civil society	3 Survey reports circulated
2. Promote action research in EE	Increase in EE action research projects in schools and other contexts	Department of Education with UniSey, NGOs and other partners	No. of action research projects Research reports
3. Monitor and evaluate all EE projects	Data collected regarding project impacts Report written and circulated	PECO/DOE	No. of project evaluation reports circulate
4. Share research results	Reports gathered and information disseminated	PECO/DOE	All reports available on DOE website
Cross-Sectoral Linkages	The content of the survey should reflect other priority areas of the SSDS.		
Climate Change	Small studies in climate change and disaster awareness have already been produced and can be used as background		

Capacity Building (incl. education) requirements	People will require training in survey design, analysis and report writing. Training workshops on action research should be offered to teachers, student teachers and other community environmental educators who might use it as a methodology.
Legal & Institutional needs	None identified
Relevant applicable policies	None identified
Links to conventions and treaties	Agenda 21
Possible sources of funding	EU, ETF, UNDP, GEF

Strategic Objective 3(2)	Promote research in EFS and ongoing monitoring and evaluation of all EFS programs and campaigns (documentation centre)		
Outcomes	• Strengthen the DOE documentation centre and its role as an information hub and storage centre for all EFS programs and materials developed by all stakeholders.		
Lead Implementing Agency	PECO		
Total Estimated Cost	SCR 2, 000, 000		
Timeline	2012-2020		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable Indicators**
1. Production of a catalogue of existing books in the documentation centre	Easy access to information	PECO	Digital catalogue
2. Install computers for internet and for viewing digital information	Easy access to information	DOE	Set up of at least 5 computers
3. Initiate school talks & public talks on subjects of interest as well as film shows	More informed citizens	PECO and other divisions in the DOE	PPPs and photos

4. Produce a bank of audio visual materials for use in schools	Available resources for teaching of EE	PECO in collaboration with SBC and National Archives	The materials produced
5. Networking with other documentation centers in the country	Acquire new skills and knowledge for effective running of the documentation centre	PECO, National Library, SBS, Ministry of Education, Ministry of Health, SIM, SBC	Reports
6. Production of exhibits	Revive the doc centre and make it more user friendly	PECO and other partners	The exhibits
7. Relaunch and update DOE website	Website up to date and user friendly	PECO	DOE website active
Cross-Sectoral Linkages	All thematic sector is concerned		
Climate Change	Have a well-established section on CC in the doc centre		
Capacity Building (incl. education) requirements	Training in managing the Doc centre for new staff, training in website management for PECO staff, librarian training for PECO staff		
Legal & Institutional needs	Rules for borrowing documents and copy rights		
Relevant applicable policies	None identified		
Links to conventions and treaties	None identified		
Possible sources of funding	ETF, UNFCCC, UNDP, UNESCO		

Strategic Objective 4	Enhance and support networking between different stakeholders in Education for Sustainability (Networking)
Outcomes	Enhance networking and support between different stakeholders in EfS
Lead Implementing Agency	PECO/DOE
Total Estimated Cost	SCR 2,000,000
Timeline	2012-2013 and ongoing

Activities	Expected Results	Responsibilities	Objectively Verifiable Indicators
1. Establish a national EfS working group	Terms of reference established Working group established Bimonthly meetings held Monitoring of EfS programs done on a regular basis	PECO/DOE with Ministry of Education and other partners	Minutes No. of organisations/ individuals participating
2. Establish an email listserv to facilitate communication between EfS stakeholders	Listserv established Improved communication and collaboration between EfS stakeholders	PECO/DOE	Active use by members
3. Relaunch Enviro-News as an EfS newsletter for formal and informal education	e-copies distributed hard copies to schools and districts	PECO with partners	No. of issues per year Contributions from diverse stakeholders
4. Hold EfS conferences to facilitate exchange of experience and networking	Conference held every three years	PECO/DOE with partners	Conference proceedings No. of participants Media coverage
5. Participate in international networks for information sharing and funding	Increased participation in international conferences and networks	DOE	No. of participation of international conference and networks
Cross-Sectoral Linkages	EfS working group will be focal point for any educational initiatives arising from other sectors		
Climate Change	Climate change can be thematic area for discussions, newsletters, and conferences		
Capacity Building (incl. education) requirements	Training in communications / marketing for newsletter and listserv management needed for PECO staff		
Legal & Institutional needs	None identified		
Relevant applicable policies	None identified		
Links to conventions and treaties	Agenda 21		
Possible sources of funding	ETF, SADC-REEP, UNDP/GEF		

13.7 Cross-Sectoral Issues

• Tertiary education in environmental management is needed to increase local capacity to plan and implement environmental projects in all sectors

• People working in different environmental sectors need ongoing opportunities for professional development to help them plan, implement and manage SSDS projects

• Publicity and awareness campaigns are needed for environmental projects arising from the various sectors of the SSDS, i.e. legislation, new procedures for waste management, energy and water conservation, invasive species, organic agriculture, etc

• Ongoing and targeted training/awareness programs will need to be provided for decision-makers (politicians, senior government officials, business leaders, etc.) to ensure that they are aware and supportive of SSDS projects from different sectors

• Projects arising from other sectors of the SSDS will need to ensure that the environmentally sustainable technologies and services being promoted through education programs are actually locally available

• Enforcement of environmental legislation must become more fair and consistent in order to show people that the laws are effective and convince them to comply

13.8 Measurement of Progress

Education for Sustainability is very fluid, open-ended and responsive to emerging issues. It also intersects with almost every other sector in this plan. Both of these factors will make it somewhat challenging to measure concrete progress in the domain. The ultimate measure of progress lies not in whether the action plans have been implemented, but whether they have achieved their intended effect of inspiring a shift towards more environmentally and socially sustainable behaviours and practices at all levels of society. This has been addressed in the third strategic objective which is concerned with putting in place more structured systems for undertaking research to both measure the impacts of specific action plans but also to try and measure actual changes in behaviour in Seychellois society. A study should be undertaken, using appropriate qualitative and quantitative methods, to try and measure the proportion of the population (different target audiences) engaged in sustainable practices at the beginning and end of the period covered by this strategy.

Monitoring and evaluation has been built in to each action plan including in this the matic indicators will provide some measure of success as to whether the overall goal and strategic objectives of this thematic sector have been achieved:

• No of Education for Sustainability initiatives implemented

• Range of issues addressed through programs – touching on all dimensions of sustainability – ecological, social, environmental, and cultural.

• No and diversity of stakeholders involved in the development and implementation of EfS programs

• Diversity of strategies used (methods, different audiences, issues, monitoring & follow-up)

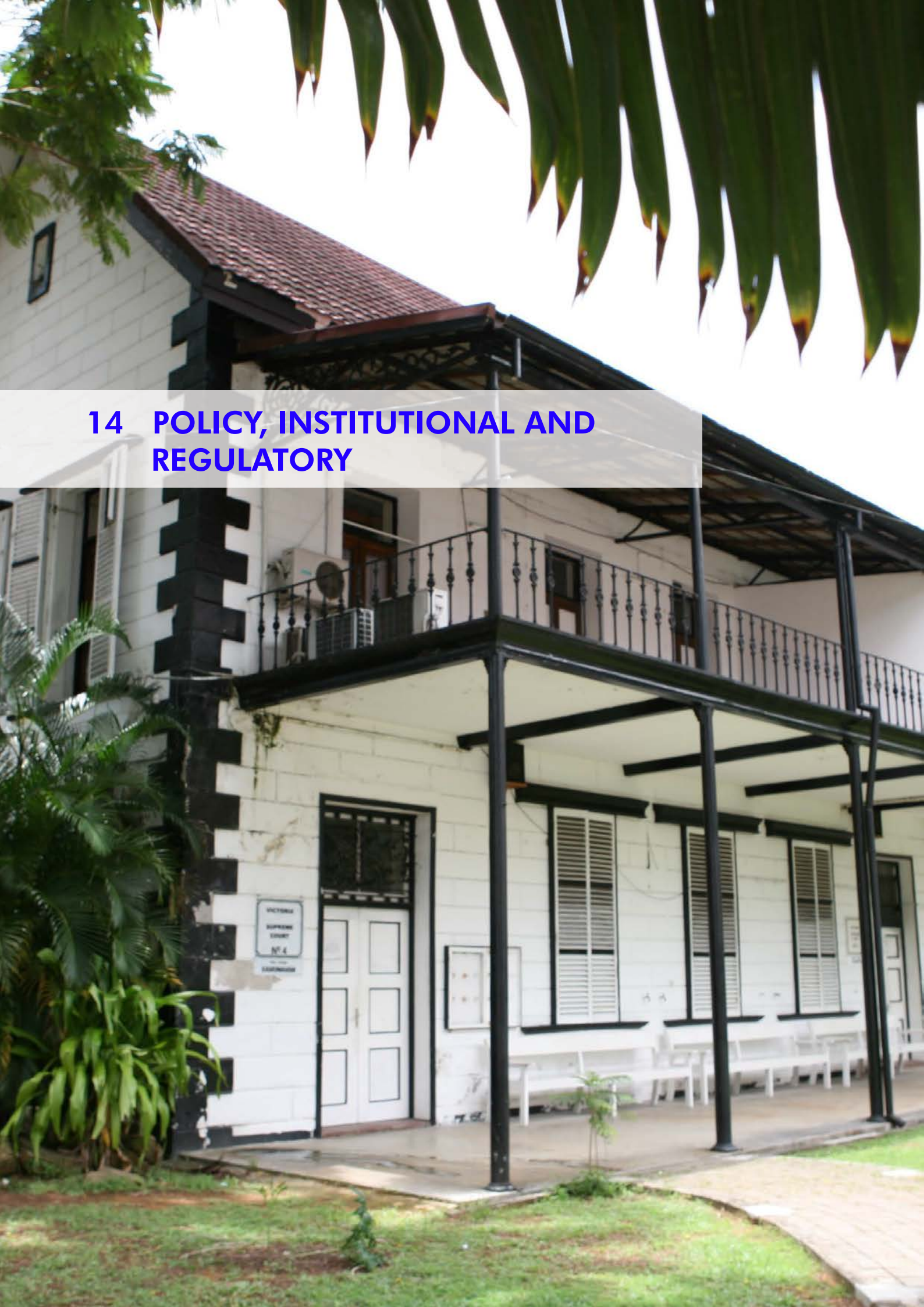
• Public participation in environmental debates, events, actions, meetings, etc.

The SSDS Steering Committee will have the ultimate responsibility for monitoring progress but it is strongly recommended that an Education for Sustainability working group be established.

Thematic sector: Education for sustainability

Goal 1 Provide life-long learning experiences to empower all levels of society to adopt environmentally sustainable practices.

Strategic objectives	Estimated costs	Notes
1. Maintain and strengthen environmental education at all levels of the formal education system from Creche to Tertiary level.	(1) SCR 2,000,000	Try to access UNESCO funding through Decade of Education for Sustainable Development, NGOs may be able to access small grant funds to assist
	(2) SCR 10,000,000	GEF capacity building project funding
	(3) SCR 2,000,000	Try to access UNESCO funding through Decade of Education for Sustainable Development, also SADC-REEP
	(4) SCR 10,000,000	Try to access UNESCO funding through Decade of Education for Sustainable Development, also SADC-REEP
2. Promote lifelong learning opportunities to empower all members of society to adopt and model environmentally sustainable practices at home, work and play.	(1) SCR 250,000	Could be led by civil society group with grant funding
	(2) SCR 2,000,000	With support from MFF and GEF small grants
	(3) SCR 2,000,000	ETF
	(4) SCR 1,000,000	ETF, UNESCO grants through culture
	5) SCR 10,000,000	ETF, UNESCO grants through culture
	(6) SCR 200,000	Could be led by civil society group with grant funding
3. Promote research in EFS and ongoing monitoring and evaluation of all EFS programs and campaigns	(1) SCR 2,000,000	With involvement of NGOs and other partners, integrated into monitoring of all EE related projects
	(2) SCR 2,000,000	GEF capacity building
4. Enhance and support networking between different stakeholders for EFS	(1) SCR 2,000,000	GEF capacity building
	SCR 45,450,000	



14 POLICY, INSTITUTIONAL AND REGULATORY

14.1 Introduction

Central to this plan is the framework for the development of appropriate policies, effective institutions to implement those policies, and appropriate regulations to ensure the rule of law. The various international conventions that Seychelles signed acceded to or ratified partly also sets the conditions for the management of the environment and the implementation of sustainable development in the country. These relate, in particular, to biodiversity; climate change/ protection of the ozone layer and pollution and waste and those pertaining to the relevant sectors of the SSDS.

Article 38 of the Constitution of Seychelles states that it is the right of every person to live in and enjoy a clean, healthy and ecologically-balanced environment. The State undertakes to put in place measures to promote the protection, preservation and improvement of the environment; to ensure sustainable socio-economic development by judicious use and management of resources and to promote public awareness of the need to protect, preserve and improve the environment. Similarly, under Article 40, the constitution makes it a duty of every citizen to protect, preserve and improve the environment. Environmental legislation exists in the following fields: control of pollution; control of development; conservation of certain plant and animal species; mining and drilling, protection against fire; protection against pests and protected areas.

Whilst an extensive legislative and policy framework is in place for environmental management in the Seychelles covering all sectors, most of the legislation is outdated and the penalties are very lenient. It is therefore imperative that they are amended to reflect the present national conditions and to take into account the country's international obligations. Violations occur and a great number of them are either not prosecuted or settled out of court, the latter of which should be promoted. This is due to weak institutional capacity and with insufficient tools to enforce the law.

Guiding Principles

A number of principles underpin the policy, institutions and regulation theme, namely:

Honoring the Seychelles Constitution: States the basic right of the individual and also our responsibility towards each other, the future generation and the natural environment.

Rule of law – boundaries ofenvironmental law should expand to include access to justice, defence & enforcement of environmental rights.

Good governance – well-functioning institutions, indiscriminate law enforcement, strong financial ethics and accountability, freedom of expression, strong judiciary, anti-corruption laws, and governments are also bound by the rule of law.

International environmental governance – countries commit to put in place measures to protect individual rights, support for the poor, reduce pollution and over-exploitation and protect the natural environment.

14.2 Thematic Outlook 2012-2020

Whilst there is a legislative and policy framework for environmental management within the Seychelles, several weaknesses will need to be addressed. This can be undertaken by various means. For example, environmental and sustainable development considerations will need to be reflected in sectoral policies. The emergence of "framework legislation", such as the Environment Protection Act, will eliminate fragmentation in existing laws. New legislation currently being proposed such as the Protected Areas Bill and the Biodiversity Bill, if enacted, will harmonise and update certain conservation-related legislation in Seychelles.

Integration of key international obligations and sustainable development principles into the strategic policies and laws are essential. Capacity of enforcement agencies, particularly that of the enforcement

Guiding Principles (cont.)

Human right to exist - states that the notion of the indivisibility and interdependence of all human rights underpins the links between the right to development and the right to a healthy and safe environment.

Equity - represents a belief that there are some things which people should have, that there are basic needs that should be fulfilled. That burdens and rewards should not be spread too divergently across the community and that policy should be directed with impartiality, fairness and justice towards these ends.

Participatory Decision-making - government, private companies and other oganizations must be inclusive, responsive and accountable in their decision-making. Increasing people's ability to participate in public decision-making not only improves development outcomes, but also is itself a key component of human development.

Ethics - In the same way that there are internationally recognised ethical principles valuing human rights, there can and must be ethical principles avowing the value of the natural environment.

unit within the Department of Environment needs to be further strengthened to effectively enforce relevant laws and increase the number of convictions. Collaboration between other enforcement agencies, including the private sector and civil society, also needs to be further promoted. However, in view of capacity limitations, citizens' roles in seeking redress and compensation for environmental damage should be promoted. In this line, it will also be useful to explore other regulatory approaches and conflict resolution mechanisms.

There is an increasing trend for more open government, with greater accountability and transparency. This is expected to be further strengthened. Enforcement agencies should seek to modernise their data access and hence progress on cases may be available and subject to public scrutiny.

14.3 Policy Framework

The policy framework for this thematic area covers the national and international dimensions. Seychelles derives its international obligations from several international conventions and agreements.

UN Agenda 21 (1992): a programme of actions under the United Nations related to sustainable development to be implemented globally, locally and nationally, touching all areas which impact on the environment, including social and economic activities and capacity building.

Rio Declaration on Environment & Development (1992): seeks to achieve sustainable development with environmental protection as an integral part of the development process particularly the following - Principle 4: environmental protection an integral part of the development process; Principle 10: citizens' participation in decision making processes including effective access to judicial and administrative proceedings; Principle 11: states' obligation to enact effective environmental legislation; and Principle 13: states to develop national law on liability and compensation for the victims of pollution and other environmental damage.

The Convention on Biological Diversity (CBD) 1992: Art. 6 of the Convention require State Parties to develop national strategies, plans or programs for the conservation and sustainable use of biological diversity. Related legislation include Breadfruit and Other Trees (Protection) Act 1917; State Land and River Reserves Act 1903; Birds Eggs Act 1933; Wild Animals and Birds Protection Act 1961; National Parks and Nature Conservancy Act 1969; Town and Country Planning Act 1972; Fisheries Act 1987; Environment Protection Act (EPA) 1994; Environment Protection (EP) Environmental Impact Assessment (EIA) Regulations 1996.

Main Challenges

- Need to build capacity: institutional, equipment, training & promote awarness
- Need to integrate environmental considerations in cross-sectoral policies
- Need modern legislation reflecting international obligations & country's priorities
- Need to promote networking/ communication between sectors/ agencies
- Need to build-in mechanisms to promote sustainability of projects
- Insufficient knowledge/ awareness of stakeholders involved in EMPS and those implementing as well as enforcers and public of international conventions/laws and polices
- Lack of capacity i.e. qualified personnel (govt. and NGOS); equipment
- Research (scientific data and technical advice) lacking to justify legislation, policies
- Legislation out dated and fragmented and not addressing up to date evolving issues
- Weak enforcement of legislation

The United Nations Framework Convention on Climate Change (UNFCCC) through the Kyoto Protocol, 1992, provides for legally-binding measures requires state parties to reduce global warming hence tackling climate change. Further to its obligations under the UNFCCC, Seychelles has prepared its Second National Communications, including its National Climate Change Strategy for mitigation and adaptation in 2009. UN Convention to Combat Desertification (UNCCD), 1992 addresses desertification, drought, and promotes sustainable land management practices. The National Action Plan has been developed under the GEF Sustainable Land Management project. Related legislation include Breadfruit and Other Trees (Protection) Act 1917; State Land and River Reserves Act 1903; National Parks and National Parks and Nature Conservancy Act 1969; Town and Country Planning Act 1972; EPA 1994 and the EP EIA Regulations 1996.

Millennium Development Goals - UN (2000), a UN led international development initiative which covers 8 goals including environmental sustainability. Goal 7 seeks to ensure that environmental sustainability is met. MD Goal + 7 seek to improve the quality of life factors for comprehensive environmental health of the population and to reduce national environmental impacts of socio-economic activities.

Mauritius Strategy for the Further Implementation of the Programme of Action for Sustainable Development of SIDS (2004) which provides a holistic approach to sustainable development, which although dependent on national efforts, provides opportunities for increased cooperation with other nations in the process. Seychelles is in the process of negotiating its accession to the World Trade Organisation (WTO). With respect to trade and environment, members can adopt trade-related mesures aimed at protecting the environment provided a number of conditions to avoid the misuse of such measures for protectionist ends are fulfilled.

The Nairobi Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region, 1985 and the Protocols concerning Protected Areas and Wild Fauna and Flora in the Eastern African Region and Co-operation in Combating Marine Pollution in Cases of Emergency in the Eastern African Region constitute the current regional legal framework for the protection of marine and coastal resources. The Protocol on Land based Sources and Activities (LBSA) was adopted in 2010 although not yet come into force and a Protocol on ICZM is being developed for adoption in 2012. In line with this a Strategic Action Programme for the Protection of the Coastal and Marine Environment of the Western Indian Ocean from Land-based Sources and Activities (2009) (WIOLAB SAP) has been developed to address problems and causes of degradation of the coastal and marine environment in the WIO region, with special emphasis on land-based sources and activities. It promotes sustainable approaches for the management of their common marine and coastal ecosystems and assists governments in the WIO Region to build capacity for addressing the

Nairobi Convention Secretariat (2009) " Strategic Action Programme for the Protection of the Coastal and Marine Environment of the Western Indian Ocean from Land-based Sources and Activities", Nairobi, Kenya coastal and marine environment. Strategic components include: Protecting, Restoring and Managing Critical Coastal Habitats; Ensuring Water Quality & Managing River Flows wisely; & Strengthening Governance and Awareness. The National Capacity Self Assessment (NCSA) conducted in 2005 assessed national capacity for implementing Seychelles' obligations under the UNFCCC, CBD & UNCCD. The following are themes of the Action Plan for Environmental Capacity Development: International Environmental Conventions, projects Management and Financing; National Environmental Management Framework; Research and Development and Human Resources, Public Awareness and Stakeholder Involvement.

The Human Resources Development Plan of Seychelles (HRDP) 2010-2014 accepts that on-going development, particularly in the tourism, construction and manufacturing sectors as well as the impacts of climate change, requires human resources for effective environmental management. The plan also reflects needs in the environment sector, which seeks to address the capacity issues raised in thematic chapters within the SSDS.

14.4 Stakeholder Framework

Several institutions are involved in the regulatory and policy aspect of environmental management within the Seychelles. Traditionally, government was the primary institution in the formulating of laws and policies, and as well as enforcement. In the recent year, stakeholders, in particular NGOs and private institutions are increasingly becoming more involved in this field, in particular in communication, advocacy and enforcement. More emphasis is required in promoting this networking. Community-based groups: Involvement of local communities in policy and decision-making is often restricted to periodic, district consultations on topical issues and as required by law for environment impact assessment reports and for the declaration of a national park or protected areas. Enforcement at community level is rare and should be further promoted.

Government Agencies: All of the government agencies and some public bodies – designated as 'authorities' implement government policy, apply the law and engage in the enforcement of these laws. Cabinet of Ministers and the National Assembly support legislative and policy reviews. Further involvement of stakeholders needs to be extended to decision making. Several government institutions are also involved in imparting knowledge through dissemination and sensitisation, for example the Department of Education, Department of Environment. This needs to be further strengthened and promoted.

Non-Governmental Organisations (NGO's): NGO's are mainly involved in awareness and advocacy work. They organise various campaigns aimed at influencing public opinion and also government position on certain issues. Various stakeholder workshops are also organised where NGO's and other groups are consulted on policy matters, however this needs to be further improved.

Private Sector: The private sector is also consulted on policy matters through their various representative bodies. Greater participation of private sector representatives on government decision-making bodies has increased significantly over the last few years.

Other Groups: Other important stakeholders include the media and faith based organisations as they can both play an active role in influencing policies as well as promoting understanding of the roles and responsibilities of each citizen in promoting environmental responsibility and respecting the law.

14.5 Goals and Strategic Objectives

Goal 1 To improve legislative and policy framework for sustainable development

The aim of this goal is to establish an enabling legislative and policy framework to promote and mainstream sustainable development across all sectors. This will ensure that legal obligations are complied with an increased accountability. This will be further enhanced by education and awareness of society as a whole.

	Strategic Objectives
1	To harmonise & streamline national and international obligations into relevant legislation & policies, ensuring cross referencing with other sectors
2	To improve the enforcement of environmental legislation
3	To increase awareness and knowledge of our obligations to improve compliance
4	To investigate and establish alternative approaches to promote compliance to environmental obligations

Goal 2 To effectively manage the implementation of international conventions

The aim of this goal is to enhance Seychelles' participation in the international fora in order to prioritise, streamline and mainstream our international commitments.

	Strategic Objectives
1	To participate efficiently and effectively in international conventions and meetings
2	To develop and implement a government-approved strategy for all conventions

Goal 3 To strengthen capacity to effectively manage the environment of Seychelles and to establish an effective environmental information management system

The aim of this goal is to effectively manage the environment of Seychelles by having sufficient and trained professionals working in the sector, sufficient financial resources and by strengthening the mechanism for implementing, evaluating and monitoring sustainable development across all sectors. Also, to ensure that environmental information and data is used effectively for environmental management and decision making.

	Strategic Objectives
1	To strengthen the institutional mechanism for implementing, evaluating and monitoring sustainable development across all sectors
2	To develop competent human resources for effective environmental management
3	To seek financial mechanisms
4	To strengthen mechanisms for information management and sharing across all sectors

14.6 Action Plan

Goal 1: To improve legislative and policy framework for sustainable development

Strategic Objective 1	To harmonise & streamline national and international obligations into relevant legislation & policies, ensuring cross referencing with other sectors		
Outcomes	• Legal and policy frameworks reflect national and international commitments		
Lead Implementing Agency	Department of Environment		
Total Estimated Cost	SCR 7,488,000		
Timeline	2012-2015		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable indicators**
1. Undertake a coordinated review of existing policy and legislative frameworks	National and International obligations are prioritised	Parent Ministries/ institution for each thematic areas	Legislative and policy framework integrating sustainable development in place
2. Update legislative and policy frameworks integrating international obligations & national priorities across sectors. (Cross reference with specific legislative and policy requirements from thematic areas)	International obligations and national priorities are mainstreamed across sectors	Parent Ministries/ institution for each thematic areas	Legislative and policy framework integrating sustainable development in place

Strategic Objective 2	To improve the enforcement of environmental legislation
Outcomes	• Legal obligations are being met and complied with, with increased accountability
Lead Implementing Agency	Department of Environment
Total Estimated Cost	SCR 408,000

Timeline	2012-2015		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable indicators**
1. Establish and implement a standardised procedure for reporting of cases	A standardised and coordinated mechanism in place for processing cases	DOE, AG's Chambers Police	No. of cases successfully prosecuted
2. Recruit and train enforcement officials	Trained officers	Parent Ministry, and enforcement institutions	No. of trained enforcement officials (in convention areas)
3. Increase collaboration between enforcement institutions	Responsibilities are appropriately allocated between enforcement institutions	Parent Ministry and enforcement institution	No. of institutions allocated specific functions. No. of successful cases

Strategic Objective 3	To increase awareness and knowledge of our obligations to improve compliance		
Outcomes	• Greater willingness to comply and implement obligations		
Lead Implementing Agency	Department of Environment		
Total Estimated Cost	SCR 264,000		
Timeline	2012-2015		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable indicators**
1. Undertake sensitisation programmes and training to promote awareness and knowledge of laws for different target groups (public, policy makers, legislators, enforcement agencies)	Enhanced knowledge and will to comply and enforce national and international obligations	Department of Environment, Ministry of Foreign Affairs, Ministry of Education and relevant takeholders, AG's Chambers, Police, NGOs	Number of campaigns disseminated and trainings undertaken

Strategic Objective 4	To investigate and establish alternative approaches to promote compliance to environmental obligations		
Outcomes	• Voluntary compliance with legal obligations		
Lead Implementing Agency	Department Of Environment		
Total Estimated Cost	SCR 1,200,000		
Timeline	2012-2015		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable indicators**
1. Develop and implement appropriate policy frameworks promoting financial and non-financial incentives to encourage and support best practices across all sectors (link to Environmental Economics thematic area	Environmental best practices integrated across sectors and in particular the tourism and development sector	Min of Finance/DOE/ STB	No. of business adhering to environmental best practices
2. Promote Environmental Management Systems to help organizations and businesses to comply with international standards and best practices	Greater number of businesses have an EMS	SBS/DOE/Ministry of Industry	No. of business EMS certified
Cross-Sectoral Linkages	Land use, coastal zone and urbanization; Tourism & aesthetics; Economics of sustainability		
Climate Change Considerations	To be taken into account in the development policies and laws		
Capacity Building (incl. education) requirements	Awareness and Training needs for ratified conventions (policy making, legal drafting)		

Legal & Institutional needs	Empowering and educating sectors to respond to various obligations
Relevant applicable policies	Relevant thematic policies
Links to conventions and treaties	CBD, UNCCD, UNFCCC, WTO, WIOLAB SAP and all relevant thematic conventions and agreements
Possible sources of funding	GEF, (CSP) CI, WWF

Goal 2 To effectively manage the implementation of international conventions

Strategic Objective 1	To participate efficiently and effectively in international conventions and meetings		
Outcomes	• Successful participation of convention requirements (e.g. meetings, reporting)		
Lead Implementing Agency	Department of Environment and Ministry of Foreign Affairs		
Total Estimated Cost	SCR 420,000		
Timeline	2012-2013		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable indicators**
1. Develop a mechanism to ensure timely reporting to international conventions.	Seychelles meets its reporting obligations.	Parent Ministries in close collaboration with relevant stakeholders.	Reporting Mechanism in place for each convention
2. Develop a roster of experts in and outside of govt.	Experience sharing, knowledge sharing, country representation stronger and reputable	National Focal Point/ Parent Ministries/ institutions	Number of non-government representatives taking part/attending international forums.
3. Ensure the needs of sectors are reflected in negotiations	Trained experts in "multi" negotiating skills	Parent Ministries and national focal point	Number of trained experts in negotiation

Strategic Objective 2	To develop and Implement a government-approved strategy for all conventions		
Outcomes	• International commitments are prioritised, streamlined and mainstreamed		
Lead Implementing Agency	Department of Environment and Ministry of Foreign Affairs		
Total Estimated Cost	SCR 180,000		
Timeline	2012-2013		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable indicators**
1. Review international commitments in order to propose possible prioritisation, streamlining, synergies and withdrawal to better match national capacity	International commitments matching national needs and capacity	SSDS secretariat and committee (multi thematic)	The strategy is in place
Cross-Sectoral Linkages	All thematic sectors are concerned		
Climate Change Considerations	Increasing integration of CC considerations in other international treaties		
Capacity Building (incl. education) requirements	Training needs for Convention Focal points, negotiators Funding for participation at meetings, especially for non govt. experts		
Legal & Institutional needs	Empowering and educating sectors to respond to various obligations		
Relevant applicable policies	Relevant thematic policies		
Links to conventions and treaties	CBD, UNCCD, UNFCCC, WTO, WIOLAB SAP and all relevant thematic conventions and agreements		
Possible sources of funding	GEF, (CSP) CI, WWF, etc.		

Goal 3 To strengthen capacity to effectively manage the environment of Seychelles and to establish an effective environmental information management system

Strategic Objective 1	To strengthen the institutional mechanism for implementing, evaluating and monitoring sustainable development across all sectors		
Outcomes	• Effectively management of the environment		
Lead Implementing Agency	Department Of Environment		
Total Estimated Cost	SCR 408,000		
Timeline	2012-2015		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable indicators**
1. Improve the capacity of the SSDS Secretariat to effectively monitor and evaluate the SSDS action plans	SSDS being efficiently mainstreamed and monitored for each sector	SSDS Secretariat/DOE/ Stakeholders	No. SSDS actions effectively implemented
2. Increase and sustain effective stakeholder participation in environmental decision making and management	Stakeholder involvement and ownership in environmental Management	SSDS Secretariat/DOE/ Stakeholders	No. of NGOs and private institutions on SSDS Steering Committee

Strategic Objective 2	To develop competent human resources for effective environmental management
Outcomes	• Sufficient trained professionals working in the environment sector and related fields
Lead Implementing Agency	National Human Resources Development Council
Total Estimated Cost	SCR 2,880,000
Timeline	2012-2015

Activities	Expected Results	Responsibilities	Objectively Verifiable indicators
1. Develop an environmental HRD Strategy to increase quantity and quality of environmental professionals and integrate this within the National HRD Plan	Needs of environmental related sectors identified and MET	NHRDC/DOE and related sectors	Environmental HRD Strategy developed & implemented
2. Conduct training within government. and NGOs to respond effectively to the HR needs of the environmental and related sectors, including specialised training	Increased ability to respond to the needs of environmental sectors HR capacity of environmental professionals enhanced	NHRDC/DOE and related sectors	No. of needs addressed
3. Introduce incentives to retain qualified environmental professionals within government. and Seychelles and integrate this within the National HRD Plan	Seychelles has a sufficient pool of environmental professionals to rely on	NHRDC/DOE and related sectors	Presence of incentive scheme

Strategic Objective 3	To seek financial mechanisms
Outcomes	• A sustained and strategic financial flow for environmental management (including implementation of the SSDS action plans)
Lead Implementing Agency	Department Of Environment/ SSDS Secretariat
Total Estimated Cost	SCR 90,000
Timeline	2012-2015

Activities	Expected Results	Responsibilities	Objectively Verifiable indicators
1. Identify financial weaknesses of SSDS mechanisms	Shortcomings identified	DOE/ SSDS Secretariat	Areas which lacked financial support identified
2. Identify sustainable methods of financing to secure SSDS mechanisms of implementation	A continuous and reliable source of income for SSDS implementation	DOE/ SSDS Secretariat	No. of areas improved by financial support

Strategic Objective 4	To strengthen mechanisms for information management and sharing across all sectors		
Outcomes	• Environmental information and data are used effectively for environmental management and decision making		
Lead Implementing Agency	Department Of Environment		
Total Estimated Cost	SCR 48,000		
Timeline	2012-2015		
Activities	**Expected Results**	**Responsibilities**	**Objectively Verifiable indicators**
1. Develop and implement appropriate policy frameworks promoting financial and non-financial incentives to encourage and support best practices across all sectors (link to Environmental Economics thematic area	Environmental best practices integrated across sectors and in particular the tourism and development sectors	Min of Finance/DOE/ STB	No. of business adhering to environmental best practices
Cross-Sectoral Linkages	All thematic sectors are concerned		
Climate Change Considerations	None identified		

Capacity Building (incl. education) requirements	Training, funding, Monitoring & Evaluation; Data collection, analysis, dissemination, management
Legal & Institutional needs	SSDS institutional mechanism in place
Relevant applicable policies	Financial policies in place, NHRDC Plan
Links to conventions and treaties	CBD, UNCCD, UNFCCC, WTO, WIOLAB SAP and all relevant thematic conventions and agreements
Possible sources of funding	GEF, (CSP) CI, WWF

14.7 Cross-Sectoral Issues

- Education and awareness and training is required on legislation for both the public and the enforcement agencies
- Capacity building, human, training and equipment, is required for effective enforcement
- Integrate sustainable development in all related legislation and policies in a coordinated manner
- Effectively manage the implementation of our international obligations
- Ensure a sustainable flow of financial resources to effectively implement SSDS activities
- Mechanism for the timely collection and retention of data
- Research
- Monitoring and Evaluation

14.8 Measurement of Progress

This will be addressed primarily through the in-built monitoring and evaluation in each SSDS action plan which will be carried out by the SSDS Secretariat on a regular basis.

This will be further strengthened by increased and effective stakeholder participation in environmental decision making and management through their involvement in the SSDS Steering Committee.

Thematic Sector: Policy, Institutional and Regulatory

Goal	Estimated Cost	Notes
1. To develop an integrated and coordinated legislative and policy framework for sustainable development	SCR 9,360,000	
2. To honour international obligations and effectively manage their implementation	SCR 600,000	
3. To strengthen capacity to effectively manage the environment of Seychelles and to establish an effective environmental information management system	SCR 3,426,000	

Abbreviations

ACP	African Carribean Pacific group
AFDB	African Development Bank
AG	Attorney General
AIS	Alien Invasive Species
ASCLME	Agulhas Current Large Marine Ecosystem
AU	African Union
BATNEEC	Best Available Technology Not Entailing Excessive Cost
BPOA	Barbados Programme of Action for Small Island States
Bsc	Bachelors degree
CAADP	Comprehensive Africa Agriculture Development
CBD	Convention for Biological Diversity
CBO	Community Based Organisation
CBS	Central Bank of Seychelles
CDM	Clean Development Mechanism
CI	Conservation International
CMS	Convention on Migratory Species
COMESA	Common Market for Eastern & Southern Africa
CPU	Consumer Protection Unit
DA	District Administrator
DBS	Development Bank of Seychelles
DCCs	District Coordinating Council
DCD	Department of Community Development
DNA	Designated National Authority
DNR	Department of Natural Resources
DOE/ED	Department Of Environment/ Environment Department
DPA	Department of Public Administration
DRDM	Division of Risk Disaster Mangement
DSM	Demand Side Management
EE	Economic Instrument
EEZ	Exclusive Economic Zone
EIA	Environment Impact Assessment
EIB	European Investment Bank
EMPS	Environment Management Plan of Seychelles
ENGO	Environmental Non Governmental Organization
EPA	Economic Partnership Agreement
ETF	Environment Trade Fund
EU	European Union
EV	Economic Valuation
FAO	Food & Agriculture Organisation
FDI	Foreign Direct Investment
GATS	General Agreement on Trade & Services
GATT	General Agreement on Tariff & Trade
GDP	Gross Domestic Product
GEF	Global Environment Facility
GHGs	Greenhouse Gases
GIS	Global Information System
GoS	Government of Seychelles
GST	Goods and Services Tax
IAEA	International Atomic Energy Agency

ICT	Information Communication and technology
ICZM	Integrated Coastal Zone Management
IDC	Island Development Company
IFREMER	Institut Français de Recherche pour l'Exploitation de la Mer
IMF	International Monetary Fund
IOC	Indian Ocean Commission
IOT	Indian Ocean Tuna Company
IOTC	Indian Ocean Tuna Commission
IPCC	Intergovernmental Panel on Climate Change
IRD	Institut de Recherche et de Developement
IUU	Illegal Unregulated Unreported
JICA	Japanese International Cooperation Agency
LBSA	Land Based Sources & Activities
LDDB	La Digue Development Board
LTD	Land Transport Division
LUNGOS	Liaison Unit for Non-Governmental Organisations in Seychelles
LUP	Land Use Plan
LWMA	Landscape & Waste Management Agency
MARPOL	International Convention for the Prevention of Pollution From Ships
MCDYS	Ministry of Community Development Youth and Sports
MCS	Monitoring Control Surveillance
MDG	Millennium Development Goals
MHAETE	Ministry of Home Affairs, Environment, Transport & Energy
MEEHRD	Ministry of Education, Employment and Human Resources Development
MFA	Ministry of Foreign Affairs
MFF	Mangroves For the Future
MoF	Ministry of Finance
MINRI	Ministry of Investment Natural Resources & Industry
MLUH	Ministry of Land Use & Habitat
MNR	Ministry of Natural Resources
MoH	Ministry of Health
MSA	Ministry of Social Affairs
Msc	Masters degree
MSDC	Ministry of Social Development & Culture
MTC	Maritime Training Centre
NATCOF	National Consumer Association
NAC	National Arts Council
NAMA	Nationally Appropriate Mitigation Actions
NBGF	National Botanical Gardens Foundation
NBSAP	National Biodiversity Strategic Action Plan
NCSA	National Capacity Self Assessment
NDC	National Disaster Committee
NEPAD	New Partnership for Development of Africa
NGO	Non-government Organization
NHDRC	National Human Resource Development Council
NNDP	National Development Plan
NS	Nature Seychelles
NSB	National Statistics Bureau
NSC	National Sports Council

NSPC	National Strategy for Plant Conservation
NTA	National Traders Association
OECD	Organisation for Economic Corporation & Development
PA	Protected Areas
PCA	Plant Conservation Action group
PDF	Praslin Development Fund
PET	PolyEthyelene Terepthalate
PUC	Public Utilities Corporation
REDD+	Reducing Emissions from Deforestation and Forest Degradation
SAA	Seychelles Agriculture Agency
SADC	Southern African Development Community
SAHTC	Seychelles Agricultural and Horticultural Training Centre
SBS	Seychelles Bureau of Standards
SCCI	Seychelles Chamber of Commerce
SCHOA	Seychelles Car Hire Operators Association
SCR	Seychelles Rupees
SDD	Social Development Department
SEC	Seychelles Energy Commission
SENPA	Small Enterprise Promotion Agency
SeyFa	Seychelles Farmers Association
SEYPEC	Seychelles Petroleum Company
SFA	Seychelles Fishing Authority
SFMC	Seychelles Farmers Marketing Cooperative
SHTA	Seychelles Hotel & Tourism Association
SIB	Seychelles Investment Bureau
SIBA	Seychelles International Business Authority
SIDS	Small Island Developing States
SIF	Seychelles Island Foundation
SIM	Seychelles Institute of Management
SLA	Seychelles Licensing Authority
SME	Small Medium Enterprise
SMSA	Seychelles Maritime Safety Agency
SNCCC	Seychelles National Climate Change Committee
SNCCS	Seychelles National Climate Change Strategy
SNPA	Seychelles National Parks Authority
SOLAS	International Convention for Safety of Life At Sea
SPA	Seychelles Ports Authority
SSDS	Seychelles Sustainable Development Strategy
STA	Seychelles Tourism Association
STB	Seychelles Tourism Board
STC	Seychelles Trading Company
SWAC	Solid Waste and Cleaning Agency
SWIOFC	South Western Indian Ocean Fisheries Commission
TCPA	Town and Country Planning Authority
TESS	Eco-Tourism Society of Seychelles
TOE	Tons of Oil Equivalent
TRASS	Terrestrial Restoration Action Society of Seychelles
UN	United Nations
UNCCD	United Nations Convention to Combat Desertification

UNCED	United Nations Conference on Environment & Development
UNCLOS	United Nations Convention on the Law of the Sea
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNGA	United Nations General Assembly (UNGA)
UNFCCC	United Nations Framework Convention on Climate Change
USD	United States Dollars
UNISEY	University of Seychelles
UNWTO	United Nations World Trade Organisation
WB	World Bank
WEEE	Waste Electronic & Electrical Equipment
WGII	Working Group two
WHO	World Health Organization
WIOMSA	Western Indian Ocean Marine & Science Association
WMO	World Meteorological Organization
WSSD	World Summit on Sustainable Development
WWF	World Wildlife Fund