

Saint Lucia's Portfolio of Project Concept Notes for Resilient Ecosystems 2020–2028

Under the National Adaptation
Planning Process



United States In-Country National Adaptation Plan (NAP) Support Program

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Saint Lucia's Portfolio of Project Concept Notes for Resilient Ecosystems 2020–2028

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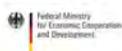
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FOREWORD

Saint Lucia's National Adaptation Plan (NAP) has been defined as a ten (10)-year process (2018-2028), consisting of priority cross-sectoral and sectoral adaptation measures for eight key sectors/areas and a segment on the 'limits to adaptation', complemented, incrementally, with Adaptation Strategies and Action Plans for priority sectors/thematic areas. Priority sectors/thematic areas for adaptation action include: Water; Agriculture; Fisheries; Infrastructure and spatial planning; Natural resource management/Resilient Ecosystems (terrestrial, coastal and marine); Education; Health and Tourism. Other key sectors/thematic areas will be identified through a cyclical, iterative NAP process.

Saint Lucia's NAP process is spearheaded by the Sustainable Development and Environment Division (SDED) of the Department of Sustainable Development (DSD), currently housed within the Ministry of Education, Innovation, Gender Relations and Sustainable Development. The NAP process has benefitted from the inputs of multiple stakeholders, comprising public, statutory, academic and private sector bodies. Indeed, this process has involved State and non-State actors, such as media personnel, who play an important role in helping efforts to positively influence thinking, mould outcomes, change behaviour and instigate action across the populace, at all levels.

Saint Lucia's overarching NAP continues to be supplemented by several documents:

- *Saint Lucia's National Adaptation Plan Stocktaking, Climate Risk and Vulnerability Assessment Report*
- *Saint Lucia's National Adaptation Plan Roadmap and Capacity Development Plan 2018-2028*
- *Saint Lucia's Climate Change Communications Strategy*
- *Saint Lucia's Sectoral Adaptation Strategy and Action Plan for the Water Sector (Water SASAP) 2018-2028*
- *Saint Lucia's Sectoral Adaptation Strategy and Action Plan for the Agriculture Sector (Agriculture SASAP) 2018-2028*
- *Saint Lucia's Sectoral Adaptation Strategy and Action Plan for the Fisheries Sector (Fisheries SASAP) 2018-2028*
- *Saint Lucia's Resilient Ecosystems Adaptation Strategy and Action Plan (REASAP) 2020-2028*
- *Saint Lucia's Portfolio of Project Concept Notes for the Water Sector 2018-2028*
- *Saint Lucia's Portfolio of Project Concept Notes for the Agriculture Sector 2018-2028*
- *Saint Lucia's Portfolio of Project Concept Notes for the Fisheries Sector 2018-2028*
- *Saint Lucia's Portfolio of Project Concept Notes for Resilient Ecosystems 2020-2028*
- *Monitoring and Evaluation Plan of Saint Lucia's National Adaptation Planning Process*
- *Guidelines for the Development of Sectoral Adaptation Strategies and Action Plans: Saint Lucia's experience under its national adaptation planning process*
- *Saint Lucia's National Climate Change Research Policy 2020-2030*
- *Saint Lucia's National Climate Change Research Strategy 2020-2030*
- *Saint Lucia's Private Sector Engagement Strategy under its national adaptation planning process (2019)*
- *Saint Lucia's Climate Financing Strategy under its national adaptation planning process (2019)*

This process also supported a climate change website, an animated video and training for government entities and journalists in communicating about climate change. A NAP Assembly and Donor Symposium were also all made possible under this process, through the support of several entities.

Specifically, the process has benefited from the financial support of the United Nations Development Programme's (UNDP) Japan- Caribbean Climate Change Partnership (JCCCP). Technical and financial support for Saint Lucia's NAP process has also been provided through the United States (U.S.) In-Country NAP Support Programme (NAP-SP), implemented by the International Institute for Sustainable Development (IISD). Technical support for the chapter on the 'limits to adaptation' in the NAP was provided under the IMPACT project, funded by the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB), as part of the International Climate Initiative (IKI). The IMPACT project is jointly implemented by Climate Analytics, the Caribbean Community Climate Change Centre (CCCCC), Secretariat of the Pacific Regional Environment Programme (SPREP) and Charles and Associates (CAA) Inc. The Department extends its thanks to all of the foregoing and takes this opportunity to recognise the consultant, Ms. Clara Ariza, for her work in Saint Lucia's NAP process, under the guidance of SDED.

Saint Lucia looks forward to forging partnerships and alliances that will assist in developing additional adaptation strategies and action plans for key sectors/thematic areas and implementing the measures, programmes, projects and activities outlined in its NAP, adaptation strategies and action plans and other support documents.

Saint Lucia is prepared to welcome support, that is, finance, technology transfer and capacity building, from a variety of sources, including public, private, bilateral, multilateral and alternative sources, all in an effort to help the country build climate resilience and address the seemingly unsurmountable phenomenon of climate change.



Resilient Ecosystems Adaptation Strategy and Action Plan (REASAP) 2020–2028

Saint Lucia's Resilient Ecosystems Adaptation Strategy and Action Plan 2020–2028 (REASAP) seeks to drive the implementation of effective actions to safeguard Saint Lucia's natural capital from the impacts of climate change while harnessing biodiversity, ecosystems, and ecosystem services to reduce vulnerability and build resilience.

Climate change threatens biodiversity, ecosystems, and ecosystem services by inducing rapid changes in the environmental conditions where species survive and thrive. According to their tolerance to the new conditions, species may migrate, stay, or disappear, affecting the composition, structure, and function of ecosystems. More frequent and extreme weather events will test ecosystem resilience. Any decline in ecosystem health will affect the goods and services that they offer and have a profound effect on the well-being, livelihoods, and economy of Saint Lucians. Fresh water, clean air, fertile and stable soils, healthy fisheries, native forest foods, medicines, fibres, and wildlife all depend on healthy ecosystems.

The cost of inaction on climate change in Saint Lucia has been calculated at 12.1% of GDP by 2025, rising to 24.5% by 2050 and 49.1% by 2100.¹

IMPLEMENTATION AND FUNDING

The execution of the REASAP's measures is expected to occur mostly as a consequence of their inclusion in projects and programs funded by both national and international sources, including climate finance for EbA. However, it is also assumed that, over time, adaptation will become immersed in all new development projects in the sector and that the national institutions involved will be able to generate revenue from their regulatory functions (e.g., user fees, royalties, licences, etc.) that can possibly be directed to help supplement other support received for adaptation. **To support fundraising efforts, the REASAP is complemented by a series of project concept notes, incrementally added over time, that reflect prioritized measures.**

STRATEGY

The REASAP consists of **58 measures** considered essential for adaptation and prioritized by national stakeholders. For each measure, the REASAP determines whether its **implementation** should start in the **short term (2020–2023), medium term (2023–2026)**, or long term (2026–2028), according to the measure's level of urgency. As funding becomes available, short-term goals are the most urgent.

The REASAP measures were formulated to:

1. Strengthen national policy and institutional and legislative frameworks (including incentives) to improve natural resource management for securing ecological resilience and ecosystem-based adaptation to climate change.
2. Strengthen environmental research information generation, knowledge management, and monitoring systems for adaptation to climate change.
3. Enhance public awareness and influence behavioural changes on the importance of maintaining healthy ecosystems, their biodiversity, and services for climate change adaptation and mitigation, all while building capacity.
4. Scale up the protection and sustainable management (including the conservation, sustainable use, and equitable sharing of benefits arising from the use of resources) of critical ecosystems for building resilience to climate change.
5. Address the drivers of current and future ecosystem degradation.
6. Accelerate the use of ecosystem-based solutions to climate change-related hazards.

¹ Bueno, R., Herzfeld, C., Stanton, E.A., Ackerman, F. (2008). *The Caribbean and Climate Change: The Costs of Inaction*. Stockholm Environment Institute - US Center, Global Development and Environment Institute, Tufts University, Medford

SAINT LUCIA'S BIODIVERSITY AND ECOSYSTEM CONTEXT

Saint Lucia is rich in terrestrial, coastal, and marine species and ecosystems. Tourism, agriculture, and fisheries—three key sectors to the country's economy and livelihood—heavily rely on this natural capital. The island's numerous beaches, together with the coral reefs, are among the country's most valued tourism products. Indeed, stretching along its coast are highly productive coral reefs, mangrove forests, and seagrass beds. These provide breeding grounds and nursery habitats for marine fisheries and protect the island's coasts and infrastructure from the direct impact of tropical storms and storm surges. Inland, nine types of forests occupy approximately one third of the country's landmass. They regulate water and climate, prevent soil erosion and landslides, and capture carbon. Saint Lucia's ecosystems offer critical habitat to wildlife, as well as endangered and commercial species, and generate a multitude of goods, tourism opportunities, and additional services to the country.

EXPECTED OUTCOMES

1. An enhanced enabling environment for ecosystem-based adaptation and sustainable natural resource management under a changing climate.
2. Enhanced ecosystem integrity for the sustainable supply of essential ecosystem goods and services to society under a changing climate.
3. Strengthened ecosystem-based adaptation and disaster risk reduction.

CHALLENGES TO BIODIVERSITY AND ECOSYSTEMS

1. Destruction of and damage to ecosystems and habitats with more frequent extreme weather events.
2. Changes in species' physiology, including life cycles, breeding patterns, and migration patterns with higher temperatures.
3. Changes in the distribution of species and in the composition, structure, and productivity of ecosystems due to the compounding effects of climate change. Some species will be lost.
4. Higher risk of forest fires with higher temperatures and extended drought periods.
5. Higher risk of terrestrial, freshwater, and marine pest and disease outbreaks with higher temperatures.
6. Reduced availability of food and water for wildlife.
7. Damage to coral reefs and mangroves due to higher temperatures and increased sediment and nutrient deposition (during more frequent flooding events).
8. Physical damage to and reduced abundance of corals and crustaceans with ocean acidification.
9. Food chains affected by the loss of plankton and other species due to ocean acidification.
10. Declining integrity and health of coral reefs and mangroves, leading to the loss of fish nurseries and breeding grounds and loss of coastal defences for land-based resources, communities, and infrastructure.
11. Higher risk of algal blooms with larger amounts of nutrients (from fertilizers and overflow of sewage and greywater) reaching the sea during flooding events.
12. Degradation of beaches, wetlands, and other low-lying ecosystems with sea-level rise.

Saint Lucia's people, identity, culture, and economy are very closely associated with the island's terrestrial, coastal, and marine ecosystems. Meeting the nation's economic growth and development goals in the near, middle, and long terms requires a thorough understanding of existing and emerging challenges to its natural environment. It also requires the collaboration of all relevant stakeholders in strategically planning and implementing urgent actions to minimize environmental degradation and to restore, conserve, and sustainably manage the country's natural capital to build resilience.



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CONTENTS

1. SUMMARY OF CONCEPT NOTES FOR CLIMATE CHANGE ADAPTATION PROJECTS FOCUSING ON SAINT LUCIA'S ECOSYSTEMS AND BIODIVERSITY	1
2. CONCEPT NOTES	7
Project concept 1. Establishing the basis for improved beach management and coastal erosion control under changing climate conditions in Saint Lucia	8
Project concept 2. Economic valuation of coastal erosion and beach management in Saint Lucia	10
Project concept 3. Building ecological and livelihood resilience in Saint Lucia through the establishment of the Iyanola Park Biosphere Reserve	13
Project concept 4. Environmental stewardship for cleaner, healthier and more resilient marine ecosystems in Saint Lucia	15
Project concept 5. Evaluation of shoreline stabilisation technologies in selected vulnerable coastal areas in Saint Lucia	17
Project concept 6: Water quality monitoring for guiding ecological, social and economic resilience-building action in Saint Lucia	19
Project concept 7: Ocean assessment and economic valuation toward climate resilience and sustainable blue economy exploration in Saint Lucia	21
Project concept 8: Enabling ecosystem restoration and management for climate resilience-building.....	23
Project concept 9: Building climate resilience and enhancing livelihood opportunities through improved forest management in Saint Lucia	25
Project concept 10: Solving the die-back of the largest mangrove in Saint Lucia to strengthen the country's climate resilience	27

1. SUMMARY OF CONCEPT NOTES FOR CLIMATE CHANGE ADAPTATION PROJECTS FOCUSING ON SAINT LUCIA'S ECOSYSTEMS AND BIODIVERSITY

The Government of Saint Lucia has formulated a National Adaptation Plan, NAP (2018-2028) and Sectoral Adaptation Strategies and Action plans to ensure that effective steps are taken, in a coordinated and timely manner, to address the challenges posed by climate change and minimise, to the extent possible, damages and losses which could exceed 24.5% of GDP by 2050 and 49.1% by 2100, if no action is taken.

The NAP and associated Sectoral Adaptation Strategies and Action Plans detail adaptation objectives and priority measures; propose activities and timing for the execution of the measures and offer project concept notes for resource mobilisation and implementation. **This document summarises the project concept notes prepared under the guidance of the Department of Sustainable Development, working in collaboration with agencies with responsibility for ecosystem and biodiversity management, towards Saint Lucia's Resilient Ecosystems Adaptation Strategy and Action Plan (REASAP).** By allowing the implementation of the measures in the REASAP, the projects proposed will contribute to building national capacities for adaptation planning and integration, while accelerating the implementation of Ecosystem-based Adaptation (EbA) and risk reduction (Eco-DRR) actions that are critical to safeguarding the country's socioeconomic and environmental systems under a changing climate.

The project concept notes outlined here are a reflection of the prioritised measures contained in Saint Lucia's NAP and REASAP. The project concept notes are not presented in order of priority. They are meant to be indicative only and not meant to reflect the template of any one funding entity. They are expected to be enhanced and elaborated on a case-by-case basis, including amalgamation of several into larger projects and programmes, as appropriate. Implementation of these projects/programmes will be based partially on funder interest and alignment to funding priorities and partially on urgency -short, medium and long-term, as elaborated in the REASAP. Given that these documents are living or organic, it is envisaged that additional project concept notes will be developed/added over time, reflective of priority measures identified. It is also worth noting that there are a number of project concept notes, relevant to EbA, EcoDRR and other topics covered in the REASAP that can be found in the SASAPs for Water, Agriculture and Fisheries. Cross referencing is recommended in the development of amalgamated projects and programmes, as appropriate.

The Department of Sustainable Development is the country's climate change focal point and also the institution in charge of coordinating, mobilising, supporting, enabling and facilitating efforts in environmental management in the country. In this role and in collaboration with key agencies, the Department of Sustainable Development has led the process of formulation of the REASAP, which will serve as a guide for the planning and implementation of programmes, projects and activities related to climate-smart and sustainable natural resource management and EbA, across the public sector, private sector, civil society and academia, in an effort to reduce vulnerability and build resilience. **The REASAP indicates the agencies with the relevant mandates to lead or co-lead each of the prioritised adaptation measures. Multi sectoral adaptation measures will be coordinated and led by one of the agencies with relevant mandates, working in collaboration with the other relevant agencies. When pertinent and/or**

necessary, the Department of Sustainable Development will lead, coordinate or facilitate the implementation of cross-sectoral measures included in the REASAP.

Among the institutions with relevant mandates for and expected to collaborate, partner and/or take leading roles in the implementation the prioritised measures included in the REASAP are: the Forest and Lands Division, the Department of Fisheries, the Water Resources Management Agency, agencies working on ecosystem and biodiversity-dependent sectors, as well as the Ministry with responsibility for Physical Planning and Development, the Ministry with responsibility for Renewable Energy, the Ministry with responsibility for Infrastructure, the Ministry with responsibility for Agriculture, the Ministry with responsibility for Tourism, the Ministry with responsibility for Economic Planning and Development, and the Ministry with responsibility for Finance. In addition, strong communications and collaboration with the National Climate Change Committee (NCCC), the multi-sectoral institution in charge of overseeing the implementation of the NAP, will help support and track activities conducted by other public-sector agencies that are relevant and that contribute to achieving the objectives and outcomes of this Adaptation Strategy and Action Plan. It is the intention that, further to the collaborative process undertaken to date, this document will be shared and discussed with partner agencies and awareness will be raised on its objectives and planned activities to gain high level buy-in and facilitate the inclusion of the REASAP priorities in cross-sectoral and sectoral policies and budgets, as appropriate.

No.	Title	Summary	Indicative Beneficiaries	Indicative Cost	Private sector involvement	Duration
1*	Establishing the basis for improving beach management and coastal erosion control under changing climate conditions in Saint Lucia	Coastal erosion, beach loss, landward transgression and their associated damages and costs are affecting Saint Lucia and expected to worsen with climate change. This project proposes the assessment of these processes along Saint Lucia's beaches and the identification and implementation of suitable and ecologically-sound beach stabilisation and restoration interventions in a pilot site, with potential for scaling-up to other vulnerable sites.	Coastal communities in Saint Lucia exposed to coastal erosion	USD 2,550,000	No	4 years
2	Economic valuation of coastal erosion and beach management in Saint Lucia	The project strengthens ocean governance in Saint Lucia by providing new and reliable information on the value of goods and services associated with marine ecosystems and resources. The information will enhance decision-making for adaptation and bolster the incentives for better coastal resource management.	Decision makers and natural resource managers in the country.	USD 1,556,000	No	3 years
3*	Building ecological and livelihood resilience in Saint Lucia through the establishment of the Iyanola Park Biosphere Reserve	The Iyanola region is biologically important for Saint Lucia and increasingly threatened by drought, saltwater intrusion and extreme weather events. related disasters (high winds, torrential rains). This initiative will establish a Biosphere Reserve responding to the recommendations of a Land Use Plan recently developed through widespread consultations, to meet the residents need, and ensure the long-term provision of ecosystem services.	Residents of the North East Coast; traditional knowledge holders; ecotourists; researchers and society at large.	USD 1,500,000	No	4 years

No.	Title	Summary	Indicative Beneficiaries	Indicative Cost	Private sector involvement	Duration
4	Environmental stewardship for cleaner, healthier and more resilient marine ecosystems in Saint Lucia	Marine litter is an international problem affecting biodiversity and reducing ecological resilience to climate change. This project aims to promote environmental stewardship and good practices to control the indiscriminate littering of coastal zones through widespread sensitisation, education and on-the-ground actions (in communities). It includes the development of public education and awareness campaigns to change mind-sets and behaviours.	Coastal communities and all marine-resource dependent actors	USD 296,000	No	24 months
5*	Evaluation of shoreline stabilisation technologies in selected vulnerable coastal areas in Saint Lucia	Climate change will aggravate coastal erosion processes in Saint Lucia. This project will foster the assessment, adoption and implementation of small-scale infrastructure and ecosystem-based-adaptation solutions to stabilise shorelines, enhance attractiveness of the beach environment and protect coastal ecosystems and livelihoods.	Coastal communities in Saint Lucia exposed to coastal erosion	USD 373,000	No	12 months
6	Water quality monitoring for guiding ecological, social and economic resilience building action in Saint Lucia	With more intense rainfall events and increased runoff, climate change could compromise the quality of Saint Lucia's freshwater and marine water and affect people and ecosystems. This project aims at implementing the Water Quality Monitoring and Analysis Programme (WQMAP), designed as the first structured approach to water quality monitoring in the country, and as the means to generate evidence for improved land, water and ecosystem management decisions.	Government departments, water resource and land use planners, the private sector and society at large	USD 740,500	No	5 years
7*	Ocean assessment and economic valuation toward climate resilience and sustainable blue	Strengthening Saint Lucia's information on its ocean and marine resources is urgently needed to improve its ocean governance capabilities and initiate concrete actions towards the transition to a "blue economy". To support the transition to this economic	Ocean resource users, government agencies	USD 7,885,000	No	5 years

No.	Title	Summary	Indicative Beneficiaries	Indicative Cost	Private sector involvement	Duration
	economy exploration in Saint Lucia	model which will help preserve biodiversity and ecosystem services under climate change this project will: a) work on the demarcation of Saint Lucia's maritime boundaries; b) conduct an assessment of coastal, marine and offshore habitats; c) conduct an assessment of ocean environment-associated livelihoods and d) pilot-test new sustainable livelihood options.				
8*	Enabling ecosystem restoration and management for climate resilience-building	Forests and wetlands offer invaluable ecosystems services to Saint Lucia. In view of climate change, this project seeks to restore, protect and improve the management of prioritised critical ecosystems to minimise soil erosion, reduce the risk of landslides and halt the degradation of freshwater resources that is expected with more intense tropical storms and longer dry periods in the coming decades. The project also seeks to establish a comprehensive management plan for the country's wetlands.	Local communities, farmers, fishers, business community – (small, medium, large), hoteliers, and public institutions	USD 1,500,000	No	3.5 years
9*	Building climate resilience and enhancing livelihood opportunities through improved forest management in Saint Lucia	Saint Lucian Forests offer key ecosystem services and goods to the country. The GoSL intends to expand the area of its forest reserves, integrating recently acquired parcels of land and forested crown lands. Physical boundary markers are required to ensure the management of the reserves is effective. This project seeks to ensure the long-term sustainability of the forest reserves by demarcating their boundaries and implementing sustainable forest use programs for rural communities.	Local communities, farmers, fishers, business community – (small, medium, large), hoteliers, and public institutions	USD 2,200,000	Yes	4 years

No.	Title	Summary	Indicative Beneficiaries	Indicative Cost	Private sector involvement	Duration
10	Solving the die-back of the largest mangrove in Saint Lucia to strengthen the country's climate resilience	A die-back has affected approximately 10 percent of the Mankòté Mangrove, the most important and largest remaining mangrove in Saint Lucia. Despite large reforestation efforts, the problem remains. Research is urgently needed to identify the causes of the die-back and provide solutions to avoid widespread destruction of the mangrove. This will help ensure this ecosystem continues functioning, being a source of livelihoods and providing protection from tropical storms and storm surges.	fishers, tour operators, sustainable charcoal producers and the country population at large.	USD 500,000	No	3 years

2. CONCEPT NOTES

The project concept notes outlined here are a reflection of the measures contained in Saint Lucia's National Adaptation Plan and in Saint Lucia's Resilient Ecosystems Adaptation Strategy and Action Plan. They are not presented in order of priority. They are meant to be indicative only and not meant to reflect the template of any one funding entity. They are expected to be enhanced and elaborated on a case-by-case basis, including amalgamation of several into larger projects and programmes, as appropriate. Implementation of these projects/programmes will be based partially on funder interest and alignment to funding priorities and partially on urgency -short, medium and long-term, as elaborated in the REASAP. Given that these documents are living or organic, it is envisaged that additional project concept notes will be developed/added over time, reflective of priority measures identified..

The Department of Sustainable Development is the country's climate change focal point and also the institution in charge of coordinating, mobilising, supporting, enabling and facilitating efforts in environmental management in the country. In this role and in collaboration with key agencies, the Department of Sustainable Development has led the process of formulation of the Resilient Ecosystems Adaptation Strategy and Action Plan, which will serve as a guide for the planning and implementation of programmes, projects and activities related to climate-smart and sustainable natural resource management and EbA, across the public sector, private sector, civil society and academia, in an effort to reduce vulnerability and build resilience. The REASAP indicates the agencies with the relevant mandates to lead or co-lead each of the prioritised adaptation measures. Multi sectoral adaptation measures will be coordinated and led by one of the agencies with relevant mandates, working in collaboration with the other relevant agencies. When pertinent and/or necessary, the Department of Sustainable Development will lead, coordinate or facilitate the implementation of cross-sectoral measures included in the REASAP

It is also worth noting that there are a number of project concept notes, relevant to Ecosystem-based adaptation, ecosystem-based disaster risk reduction and other topics covered in the REASAP that can be found in the Sectoral Adaptation Strategies and Action Plans (SASAPs) for Water, Agriculture and Fisheries. Cross referencing is recommended in the development of amalgamated projects and programmes, as appropriate. For ease of reference, these have been listed in Annex 1 of the REASAP.

PROJECT CONCEPT 1. ESTABLISHING THE BASIS FOR IMPROVED BEACH MANAGEMENT AND COASTAL EROSION CONTROL UNDER CHANGING CLIMATE CONDITIONS IN SAINT LUCIA

PROJECT CONCEPT 1	
Project title	Establishing the basis for improving beach management and coastal erosion control under changing climate conditions in Saint Lucia
Objective(s)	To build the ecological resilience of Saint Lucia’s beaches to combat coastal erosion and protect coastal livelihoods and economies.
<p>Rationale:</p> <p>With climate change, more intense tropical storms, sea level rise, warmer seawater temperatures, ocean acidification and other processes are expected to increasingly impact Saint Lucia’s coastal zone in the coming decades. Sea level rise and coastal erosion put important tourism properties, the island’s two airports, beaches and ports, public facilities, and the livelihoods of those employed in fisheries, water-sports operators, tour guides and other tourism-related activities at risk. In fact, over the years, the country’s coastal communities have progressively experienced severe erosion, beach loss, landward transgression and their associated damages and costs. This is a major social and economic concern, as climate change is also rapidly affecting the ecosystems that act as buffers and protect the country’s coastline.* Urgent attention must therefore be paid to addressing coastal stability and ecological resilience to the ongoing and anticipated impacts of climate change on noted vulnerable coastlines. This project addresses these issues through a series of interventions designed to cover key existing information and capacity gaps that impede the GoSL, coastal communities and other stakeholders from making appropriate management decisions to control erosion and ecological decline with climate change.</p> <p>The activities proposed include: designing and implementing a pilot project in which suitable and ecologically-sound beach stabilisation and restoration interventions for Saint Lucia will be identified, with the intention of scaling them up to other vulnerable beaches; establishing a demonstration site in Vigie Beach; completing the assessment of vulnerable beaches in the country; developing a National Beach Management Strategy and Zoning plan; elaborating guidelines for effective beach management and launching a program to encourage communities and the private sector to co-manage beaches sustainably.</p>	
<p>Beneficiaries: Coastal communities in Saint Lucia exposed to coastal erosion and other direct and indirect climate change-related impacts.</p>	
<p>Activities and Tasks:</p> <p>Short list:</p> <ul style="list-style-type: none"> • Establish a Project Advisory Committee (PAC). • Procure Coastal Engineering Contractor/ Consultant (6 months). • Conduct a comprehensive assessment of selected vulnerable beaches in Saint Lucia. • Develop a National Beach Management Strategy and Zoning Plan (including guidelines for effective beach management in Saint Lucia). • Develop a training programme, and facilitate training to improve capacity and allow representatives of public and private sector agencies, and communities to effectively monitor selected sites to measure the effectiveness of coastal stabilisation measures. • Design and facilitate the establishment and launch of an ‘Adopt a Beach’ programme in Saint Lucia to encourage community and private sector ownership and co-management of beaches. • Prepare a site restoration and rehabilitation plan for Vigie Beach. • Implement site restoration and rehabilitation plan. • Develop an appropriate environmental monitoring plan (to facilitate long-term monitoring and evaluation of beach management interventions). 	

* Peterson et al. (2002) cited in Murray, P.A. (2010) Adaptation for Climate Change in the Coastal Sector of Saint Lucia – a key sector analysis, UNDP

PROJECT CONCEPT 1	
Project title	Establishing the basis for improving beach management and coastal erosion control under changing climate conditions in Saint Lucia
Main outputs/products: <ul style="list-style-type: none"> • Comprehensive beach assessment of selected vulnerable beaches in Saint Lucia • National Beach Management Strategy and Zoning Plan established (including guidelines for effective beach management in Saint Lucia) • Improved capacity on beach profiling, monitoring, management effectiveness, coastal stabilisation measures, etc • 'Adopt a Beach' programme designed and launched in Saint Lucia • Improved community and private sector ownership and co-management of beaches. • Site Restoration and Rehabilitation Plan • Demonstration activities (Vigie Beach) • Environmental Monitoring Plan (to facilitate long-term monitoring and evaluation of beach management interventions) 	
Implementation: Leading agency: Department of Sustainable Development Partner institutions: SLASPA, SLNT, NCA and DoF Indicative cost: USD 2,550,000.00	
Duration: 4 years	
Additional information: This project is aligned with the REASAP's measures 8, 9, 13, 15, 16, 29, 30, 34, 35, 36 and 56 and can contribute to implementing measures 3, 4, 5, 6, 7, 11, 18, 20, 25, 40, 42, 43 and 46.	
*Through ecological restoration practices, tested and adopted, the project will have mitigation co-benefits	

PROJECT CONCEPT 2. ECONOMIC VALUATION OF COASTAL EROSION AND BEACH MANAGEMENT IN SAINT LUCIA

PROJECT CONCEPT 2	
Project title	Economic valuation of coastal erosion and beach management in Saint Lucia
Objective(s)	To improve ocean governance in Saint Lucia by providing new, reliable information key to decision makers on the value of goods and services associated with marine ecosystems and resources, and to build capacity at multiple scales (local, national, regional) to develop and use this information for climate change adaptation.
<p>Rationale:</p> <p>Saint Lucia is vulnerable to natural and anthropogenic hazards, which negatively impact development sectors and revenue, further affecting population, the economy and the natural environment. With the high dependence on ocean ecosystems, coastal attractiveness and associated infrastructure for socioeconomic growth, and with the vulnerability of systems being marked as high, urgent action is required to better manage coastal and marine ecosystems, to promote their ecological resilience and to benefit from their services for addressing negative climate impacts. Ocean governance and coastal zone management fall under the remit of Sustainable Development Goal (SDG) 14 and others, and require effective management, as the GOSL accepts the need to contribute to the global mitigation effort, but is aware of the fundamental significance of adaptation.</p> <p>Given the importance placed on ocean governance at the global and regional levels, and the priority given to ensuring the sustainable use of the oceans’ resources at the national level (including for maritime boundary delimitation; management of fisheries and other living marine resources; protection of the marine environment; marine scientific research; customs, immigration and maritime enforcement; maritime administration, etc.), the Government of Saint Lucia (GoSL) is aware of the need to continually spearhead work to effectively manage and conserve Saint Lucia’s marine resources. This has been demonstrated through commitments made by Saint Lucia to the international and regional development agenda, including those related to the Eastern Caribbean Regional Ocean Policy and Strategic Action Plan, the Small Island Developing States Accelerated Modalities of Action (SAMOA) Pathway, the Paris Agreement, and the SDGs.</p> <p>The project aims to improve ocean governance in Saint Lucia by providing new, reliable information key to decision makers on the value of goods and services associated with marine ecosystems and resources, and to build capacity at multiple scales (local, national, regional) to develop and use this information for climate change adaptation. This will guide management decisions and support priority setting and investment. It will also bolster the incentives for better coastal resource management by illustrating the economic losses resulting from poor management under changing climatic conditions and identify management solutions (strategies) based on these economic valuations. The project will be undertaken to achieve the following outcomes:</p> <p>Outcome 1: Increased capacity in the modelling of threats to oceans and coastal ecosystems and resources in Saint Lucia - Activities will include enhancing capacity in the collection, management, use and analysis of GIS data for economic valuation and, conducting training in spatial threat analysis using GIS.</p> <p>Outcome 2: Applied valuation of ecosystem goods and services and knowledge and use of economic valuation and its associated techniques - Activities will include conducting training in the concept; and direct use of economic valuation methodologies.</p> <p>Outcome 3: Integration of ecosystem values into policy decisions in Saint Lucia - Activities will include use of the methodology to estimate the value of the goods and services of oceans and coastal ecosystems and resources in Saint Lucia, with spatial threat analysis to map economic consequences of different scenarios. The methodology and results will be presented at meetings of policy makers.</p>	

PROJECT CONCEPT 2	
Project title	Economic valuation of coastal erosion and beach management in Saint Lucia
Beneficiaries: Main beneficiaries will be decision makers and natural resource managers in the country.	
Activities and Tasks: Short list: <ul style="list-style-type: none"> • Identify and bring together partners interested in researching and using the valuation of goods and services associated with Saint Lucia’s beaches and shoreline • Determine specific locations where the methodology and estimates can be implemented through meetings and collaborations with partners, where applicable • Assess the methodology to use for evaluating the economic values for coastal erosion and beach management • Provide targeted training in GIS techniques, spatial threat analysis, and economic valuation techniques to key stakeholders • Integrate economic data with the physical, social and environmental information in a GIS format, in order to interpret and extrapolate valuation estimates • Develop a short summary pamphlet and longer materials for the Internet summarising the project findings, including economic valuation methodology and results • Conduct targeted meetings with key stakeholders to disseminate the economic valuations and management recommendations in Saint Lucia • Guide global dissemination and uptake efforts through presentation of the economic valuation methodology and estimates at intergovernmental and international scientific and economic meetings 	
Main outputs/products: <ul style="list-style-type: none"> • Increased capacity of governments and NGOs in performing ecosystem valuation and using those estimates in planning and decision-making • Increased capacity of governments and NGOs in spatial threat analysis and the integration of economic valuation with spatial threat analysis • Increased awareness of the project findings, including economic valuation methodology and results and management recommendations in Saint Lucia • Improved capacity in the use of GIS techniques, spatial threat analysis, and economic valuation techniques 	
Implementation: Responsible agency: Department of Sustainable Development Potential partners: National Conservation Authority, the Department of Fisheries, and other key stakeholders.	
Indicative cost: USD 1,556,000 <i>Estimated total cost by Outcome:</i> Outcome 1: USD 375,000 (including USD 100,000 in-kind contribution) Outcome 2: USD 150,000 (including USD 125,000 in-kind contribution) Outcome 3: USD 200,000 (including USD 180,000 in-kind contribution) Evaluation: USD 250,000 (including USD 175,000 in-kind contribution)	
Duration: 3 years	

PROJECT CONCEPT 2

Project title	Economic valuation of coastal erosion and beach management in Saint Lucia
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Additional information:

This project is aligned with the REASAP's measures 8, 11, 16, 18, 20, 23, 32 and 35 and can contribute to implementing measures 3, 4, 5, 7, 9, 15, 19, 21, 22, 25, 26, 35, 36 and 54.

The project directly contributes to Ocean governance and coastal zone management, which fall under the remit of Sustainable Development Goal (SDG) 14.

PROJECT CONCEPT 3. BUILDING ECOLOGICAL AND LIVELIHOOD RESILIENCE IN SAINT LUCIA THROUGH THE ESTABLISHMENT OF THE IYANOLA PARK BIOSPHERE RESERVE

PROJECT CONCEPT 3	
Project title	Building ecological and livelihood resilience in Saint Lucia through the establishment of the Iyanola Park Biosphere Reserve
Objective(s)	To improve ecosystem integrity and enhance environmental health and livelihood resilience in the Iyanola region of Saint Lucia
<p>Rationale:</p> <p>Protected areas play major roles for humankind. They conserve species, ecosystems and genetic resources, provide essential ecological, social, and economic services – such as clean water, carbon storage, genetic reservoirs, disaster mitigation, and soil stabilisation – and help preserve our cultural heritage. Well managed and connected protected areas can buffer catastrophic events physically and ecologically, and can offer connections across landscapes that allow plants and animals to move. Protected areas are recognised therefore as important tools for sustainable development and climate change adaptation and their relevance is heightened in countries like Saint Lucia that are small, biologically rich and highly exposed and vulnerable to climate change impacts.</p> <p>The Iyanola region consists of varied ecosystems including tropical rainforest, deciduous forests, scrublands, marine and coastal areas, mangroves and coral reefs is one of the last strongholds for endemic species of plants, birds and reptiles in Saint Lucia. It is also historically important and a key site to the many species of migratory turtles that use the coastal areas for laying their eggs. Persons residing in the Iyanola region utilise the biological resources and cultural amenities to generate livelihoods through fishing, farming, craft making and touristic activities. Their reliance on these biological resources provides an independent source of income and niche services such as Latanye brooms, mangrove honey and essential oils.</p> <p>However, this region is increasingly exposed to drought, saltwater intrusion and extreme weather-related disasters (high winds, torrential rains) resulting from climate change. Long dry spell periods have seen an increased use of agro chemicals (pesticides and fertilisers) leading to a marked increase in surface runoff, which has affected both marine and riverine ecosystems, resulting in river pollution and negative impacts on coral reefs. Implementing a land use plan supported by the establishment of a biosphere reserve would ensure that the endemic and sensitive ecosystems and species found there are not adversely impacted by such activities.</p> <p>Through funding received by the Global Environment Facility during its fourth replenishment, significant advances were made to conserve and manage the unique biodiversity found in the Iyanola region. After widespread community consultations, there was an observed need to implement the Land Use Plan so that sensitive climate resilience crops could be conserved, livelihoods protected and valuable lands managed in an integrated and sustainable manner in the coming years, as climate change progresses.</p> <p>This initiative will establish a biosphere reserve responding to the recommendations of the Land Use Plan and the needs of residents and users of the natural resources. It will include an inventory of plant and animal species in the area, engagement with key stakeholders, development of management plans for the Iyanola region and operationalising of the Iyanola Biosphere reserve.</p>	
Proposed location: Northeast Coast Iyanola region	
Beneficiaries: Residents of the northeast coast, traditional knowledge holders and enthusiasts as well as ecotourists, ecologists and researchers and the future generations.	
<p>Activities and Tasks:</p> <p>Short list:</p> <ul style="list-style-type: none"> • Review the Iyanola Land Use Plan • Conduct assessments of biophysical resources in the area • Prepare a map of the policy areas and resources found therein 	

PROJECT CONCEPT 3	
Project title	Building ecological and livelihood resilience in Saint Lucia through the establishment of the Iyanola Park Biosphere Reserve
	<ul style="list-style-type: none"> • Draft an implementation plan for the management of the biosphere reserve • Review/develop indicators to monitor the implementation of the initiative • Develop a package of incentives to support of the recommendations from the Management Plan for Voluntary Protection proposed under the Iyanola Project
	<p>Main outputs/products:</p> <p>Environmental Monitoring Plan (to facilitate long-term monitoring and evaluation of beach management interventions)</p> <ul style="list-style-type: none"> • Management plan for Iyanola Biosphere Reserve • Implementation schedule for operationalising the Reserve • Communications plan for engaging stakeholders • Voluntary protection agreements between the Government and landowners who choose to voluntarily protect their private lands • Package of incentives for landowners who choose to voluntarily protect their private lands
	<p>Implementation:</p> <p>Potential partners: Main project partners include the Department of Sustainable Development, Ministry of Agriculture (Department of Agriculture, Fisheries Division, Forest and Lands Division, Marketing Unit) and the Department of Physical Planning. This initiative will also be supported by Biodiversity and Protected Areas Management Program (BIOPAMA) and IUCN.</p> <p>Responsible agency/partners: Department of Sustainable Development, Forest and Land Resources Division, Ministry of Agriculture, Department of Physical Planning.</p>
	<p>Indicative cost: USD 1,500, 000</p> <p>Management Plan development USD 50,000 Establishment of the Biosphere Reserve USD 250,000 Management of the Biosphere Reserve USD 400,000 Development and implementation of communication strategy including website USD 100,000 Finalisation of Voluntary Protection Agreement USD 25,000 Incentive packages for private sector partners USD 75,000 Monitoring and enforcement of the Management Plan USD 600,000</p>
	<p>Duration: 4 years</p>
	<p>Additional information:</p> <p>This project is aligned with the REASAP's measures 16, 34, 35, 37 and 49 and can contribute to implementing measures 3, 6, 8, 9, 14, 15, 18, 29, 39 and 43.</p> <p>* This project has clear mitigation co-benefits.</p>

PROJECT CONCEPT 4. ENVIRONMENTAL STEWARDSHIP FOR CLEANER, HEALTHIER AND MORE RESILIENT MARINE ECOSYSTEMS IN SAINT LUCIA

PROJECT CONCEPT 4	
Project title	Environmental stewardship for cleaner, healthier and more resilient marine ecosystems in Saint Lucia
Objective(s)	To promote environmental stewardship and good practices for reducing the negative effects of marine litter on Saint Lucia’s ecosystems and support ecological resilience
<p>Rationale:</p> <p>Marine physical, chemical and biological conditions are changing at a very fast and possibly irreversible pace due to ocean acidification, increased sea temperatures and changes in oxygen concentrations, among other climate change-related effects. These changes exacerbate the damage other human activities such as the indiscriminate littering of coastal zones have caused to marine biodiversity and ecosystems and reduces their capacity to survive and thrive in the future, with detrimental consequences for all of the livelihoods and activities that depend on them.</p> <p>Marine debris, or marine litter, has been touted as a global environmental problem that negatively impacts the coastal and marine environments, human and animal health, livelihoods, and economies, to name a few. In small island States like those of the wider Caribbean Region, marine litter has emerged as a significant pollution issue, as it damages valuable natural resources like wildlife and coastal habitats, affects the quality of life of inhabitants and visitors, and negatively affects the economies and sustainability of the developing nations (UNEP 2005^a; UNEP 2006^b). Other impacts include impairment of aesthetic beauty and enjoyment, and proliferation of health and safety hazards. Based on historical beach and underwater data collected across the Caribbean during the annual International Coastal Clean-up championed by the Ocean Conservancy, the predominant source of marine litter is attributed to land-based sources, with plastics being the leading material found^{c,d,e}.</p> <p>Saint Lucia acknowledges the many impacts resulting from marine litter, and, in the past, has successfully implemented public awareness initiatives, stakeholder consultations and clean-up activities (including the UNEP-supported pilot project for the Regional Action Plan for the Management of Marine Litter targeting Bananes Bay in 2008 (Economic Assessment of the Impact of Marine Litter on the Livelihood of Fishers)). Building on this, and other success stories, the Department of Sustainable Development, through the Coastal Zone Management Unit, is gearing up to face the continuing challenges and ameliorate the associated issues.</p> <p>Action taken must be taken in collaboration with several agencies responsible for environmental conservation initiatives, and many other civil society organisations that operate on the ground. Conservation of marine and terrestrial biodiversity significantly impacts the optimal performance of these key sectors and industries, which rely on a healthy supply of plants, animals and microorganisms, to generate economic activity and stimulate national Gross Domestic Product.</p>	

^a United Nations Environment Programme (UNEP). 2005. *Marine Litter, an analytical overview*

^b United Nations Environment Programme (UNEP). 2006: *Marine Litter in the Wider Caribbean*

^c <http://www.cep.unep.org/publications-and-resources/marine-and-coastal-issues-links/solid-waste-and-marine-litter> (Accessed March 4, 2015)

^d <http://marine-litter.gpa.unep.org/facts/facts.htm> (Accessed March 4, 2015)

^e *Ocean Conservancy, 1989-2005 ICC Data Reports*. [http:// www.oceanconservancy.org/ICC](http://www.oceanconservancy.org/ICC) (Accessed March 12, 2015)

PROJECT CONCEPT 4	
Project title	Environmental stewardship for cleaner, healthier and more resilient marine ecosystems in Saint Lucia
<p>As many of the environmental conservation initiatives are structured as projects, with a 2 to 5-year implementation timeframe, there is usually a decline in public interest upon closure of these projects, resulting in an eventual return to the destructive behaviours which threaten biodiversity and the ecosystems where they are found.</p> <p>The key to sustaining any progress made by these agencies through their conservation initiatives is the development of public education and awareness campaigns that aim to change mindsets and behaviours. It has been tested and proven that the most impactful initiatives first describe to the audience the status of biodiversity and local resources, the causes of stress that degrade the resources and the activities which can be taken to rectify the situation. This project aims to promote environmental stewardship and good practices through widespread sensitisation, education and on-the-ground actions.</p>	
Beneficiaries: Coastal communities and all marine-resource dependent actors	
<p>Activities and Tasks: Short list:</p> <ul style="list-style-type: none"> • Map hotspots • Select two hotspots • Conduct a Knowledge Attitudes and Practices (KAP) survey in two communities • Develop communication strategy • Implement pilot actions from the communication strategy with the communities at the hotspots • Undertake national coastal clean-up to collect, sort and analyse garbage using an approved methodology 	
<p>Main outputs/products:</p> <ul style="list-style-type: none"> • Selected hotspots of marine litter using stakeholder consultations and field assessments using Caribbean Public Health Agency methodology • Public awareness outreach programme • Media toolkit (Daily planner/ calendar /photo competition where students depict marine litter) • Education Toolkit (Curriculum development plan, active learning, field trips; demonstration to schools and other stakeholders- Infuse into primary and secondary schools) • Environmental Monitoring Plan (to facilitate long-term monitoring and evaluation of beach management interventions) • Media campaign (media coverage of pilot project activities, Public Service Announcements (PSAs), documentary, radio and television interviews, social media blasts; collaborations with Dive Saint Lucia and Calabash TV, call for footage of good and bad sites from divers, Saint Lucia Air and Sea Ports Authority (SLASPA), cruise ships, etc) • PSAs, news stories, and interviews 	
Implementation:	
Responsible agency/partners: DoF, SLSWMA, SMMA, SLHTA, DSD, DoFL, CYEN, NYC/NSC and SALCC (DASGS: Environmental Science and Biology students)	
Indicative cost: USD 296,000 (including USD 96,000 in-kind contribution)	
Duration: 24 months	
Additional information:	
<p>This project is aligned with the REASAP's measures 13, 34 and 48 and can contribute to implementing measures 11, 15, 18, 24, 25, 35 and 44.</p> <p>A detailed budget for this project is available.</p>	

PROJECT CONCEPT 5. EVALUATION OF SHORELINE STABILISATION TECHNOLOGIES IN SELECTED VULNERABLE COASTAL AREAS IN SAINT LUCIA

PROJECT CONCEPT 5	
Project title	Evaluation of shoreline stabilisation technologies in selected vulnerable coastal areas in Saint Lucia
Objective(s)	To identify and implement appropriate measures to stabilise the shorelines and reduce the rate of coastal erosion for selected vulnerable coastal areas in Saint Lucia through community involvement
<p>Rationale:</p> <p>With climate change, more intense tropical storms, sea level rise, warmer seawater temperatures, ocean acidification and other processes are expected to increasingly impact Saint Lucia’s coastal zone in the coming decades. Sea level rise and coastal erosion put important tourism properties, the island’s two airports, beaches and ports, public facilities, and the livelihoods of those employed in fisheries, water-sports operators, tour guides and other tourism-related activities at risk. In fact, over the years, the country’s coastal communities have progressively experienced severe erosion, beach loss, landward transgression and their associated damages and costs. This is a major social and economic concern, as climate change is also rapidly affecting the ecosystems that act as buffers and protect the country’s coastline.* Urgent attention must be therefore paid to enhancing coastal stability and ecological resilience to ongoing and anticipated impacts of climate change.</p> <p>In response to these concerns, this project will foster the assessment, adoption and implementation of small-scale infrastructure and ecosystem-based-adaptation solutions to reduce coastal erosion, build adaptive capacity, enhance the naturalness and attractiveness of the beach environment, protect coastal ecosystems and livelihoods and stabilise the shorelines.</p> <p>Sites will be selected based on their demonstrated coastal erosion and evidence of additional climate impacts, their availability to support livelihoods, easy access for monitoring and measurement, the frequent use by residents and visitors for recreational activities and the presence of adjacent residential and commercial infrastructure, among other criteria.</p> <p>In making progress toward coastal stabilisation, the success rates of the various measures will be explored. A study of the selected sites will be undertaken and will result in recommendations for the procurement and installation of soft engineering and ecosystem-based coastal stabilisation measures, such as replanting, sand fencing, dune improvement, use of geotextile sandbags to stabilise the coast and prevent further coastal erosion, which threatens infrastructure located in coastal areas, among others. In addition, the <i>Pterocarpus officinalis</i> species, noted for its ability to prevent shoreline erosion, may be propagated and transplanted upstream in a selected watershed, with requisite monitoring.</p>	
<p>Beneficiaries: Vulnerable coastal communities in Saint Lucia facing coastal erosion and other direct and indirect climate change-related impacts</p>	
<p>Activities and Tasks:</p> <p>Short list:</p> <ul style="list-style-type: none"> • Establish Project Advisory Committee (PAC) • Procure a Coastal Engineer • Assess the status of selected coastal areas (Anse Ger, Cul de Sac, Fond d’Or and Roseau) and identify specific areas for stabilisation • Assess options for stabilisation of Anse Ger, Cul de Sac, Fond d’Or and Roseau coastal ecosystems, including beaches, coastal wetlands, riverbanks and estuaries. 	

*Peterson et al. (2002) cited in Murray, P.A. (2010) Adaptation for Climate Change in the Coastal Sector of Saint Lucia – a Key Sector Analysis, UNDP.

PROJECT CONCEPT 5	
Project title	Evaluation of shoreline stabilisation technologies in selected vulnerable coastal areas in Saint Lucia
<ul style="list-style-type: none"> • Propagate <i>Pterocarpus</i> sp as a species for replanting along riverbanks and estuaries to stabilise coasts. • Design and publish a coastal stabilisation plan. • Design monitoring and evaluation plan. To observe and record effectiveness of the soft engineering stabilisation methods employed. • Conduct training sessions for community residents in monitoring and evaluation. • Procure and install soft engineering coastal stabilisation measures in collaboration with local residents/communities. • Conduct quarterly monitoring of the interventions, following the monitoring and evaluation plan. • Publish a report on the effectiveness of coastal protection measures (highlighting challenges, successes and adjustments made to the employed methods, among others). 	
Main outputs/products:	
<ul style="list-style-type: none"> • Climate resilience and disaster risk management activities • Small-scale infrastructure implemented to reduce climate change and disaster-induced losses 	
Implementation:	
<p>Responsible agency/partners: Coastal Zone Management Unit (CZMU), Sustainable Development and Environment Division (SDED), Department of Sustainable Development, Ministry of Education, Innovation, Gender Relations and Sustainable Development</p> <p>The Department of Sustainable Development will not be partnering with other organisations for the implementation of project activities. Instead, the Department expects to collaborate with a number of Governmental Departments, Statutory Bodies, Non-governmental Organisations and Community Organisations (including the Department of Fisheries, the Division of Forest and Lands Resources, the National Conservation Authority, the Saint Lucia National Trust, the Caribbean Youth Environment Network, etc)</p>	
Indicative cost: USD 373,000 (includes USD 111,000 in-kind contribution)	
Duration: 12 months	
Additional information:	
<p>This project is aligned with the REASAP's measures 5, 9, 17, 25, 33, 37, 39 and 58 and can contribute to implementing measures 3, 4, 7, 11, 15, 18, 19, 23, 34, 43 and 55.</p> <ul style="list-style-type: none"> • The Coastal Stabilisation Plan will use a community approach to test the various stabilisation options identified, and will detail the soft engineering methods to be used such as, but not limited to, replanting, sand fencing, dune improvement, use of sandbags and geotextiles. While no hard engineering structure will be erected or tested under this project, areas requiring hard engineering solutions will be identified in the stabilisation plan and recommendations for these areas will be included, including conceptual designs. Detailed engineering designs will not be included. • The report proposed on the effectiveness of coastal protection measures will clearly indicate which methodologies were effective and the characteristics of the areas where they were effective. The report will also detail lessons learnt and make recommendations for improvement and/or future/further deployment. 	
* This project provides mitigation co-benefits	

PROJECT CONCEPT 6: WATER QUALITY MONITORING FOR GUIDING ECOLOGICAL, SOCIAL AND ECONOMIC RESILIENCE-BUILDING ACTION IN SAINT LUCIA

CONCEPT NOTE 6	
Project title	Water quality monitoring for guiding ecological, social and economic resilience building action in Saint Lucia
Objective(s)	<p>Main objective: To enhance the contribution to economic and social development of coastal and marine resources in Saint Lucia</p> <p>Specific objective: To implement a comprehensive Water Quality Monitoring and Analysis Programme (WQMAP) to improve management decisions under changing climatic conditions in Saint Lucia</p>
<p>Rationale:</p> <p>Saint Lucia’s coastal and marine ecosystems and associated waters have traditionally been important to coastal communities for economic development, culture and as a source of food and for recreation. In recent years, coastal tourism activities such as SCUBA diving and snorkeling and increased fishing effort to support the seafood activities now being held in a number of communities, have contributed significantly to the island’s economy. However, Saint Lucia’s coastal and marine natural systems, like those of most of the countries within the wider Caribbean Region, have suffered degradation due to a number of land-based pollutants that continue to compromise the quality of fresh and coastal waters and pose significant threats to human health.</p> <p>It is expected that with climate change, Saint Lucia’s coastal and marine ecosystem degradation processes will intensify, and the country’s fragile resources will dwindle, as recent climate projections indicate that with time, annual precipitation will decrease, evaporation will increase, and rainfall will become more erratic. With the prospect of water scarcity, accelerated environmental degradation and their combined impacts, the sustainable management of water resources and the reduction in current sources of water pollution are priorities for adaptation to the changing climate.</p> <p>Government agencies and non-government organisations have undertaken water quality monitoring initiatives in Saint Lucia over the years. However, the generated data were inadequately managed and used and the loss of sustained access to funds on project termination affected the sustainability of the programmes. Nonetheless, advances have been made to cover the need for a structured approach to water quality monitoring and in terms of the institutional and regulatory framework for the management of freshwater and marine water resources. This, along with the ratification of the LBS Protocol on land-based sources of marine pollution in 2008 (which seeks to respond to the protection of the marine environment from land-based point and non-point sources of marine pollution by outlining the types of control and management responses required for addressing land-based issues) and the development of Recreational Water Quality Standards in 2010, resulted in the design of a comprehensive Water Quality Monitoring and Analysis Programme (WQMAP) between 2014 and 2015. The WQMAP design involved a literature review of previous and ongoing initiatives and the design and delivery of a training and awareness component in water quality monitoring. However, the WQMAP programme still needs to be executed to initiate the continuous monitoring of water quality in the country, which is needed for decision making and action on the ground.</p> <p>Building on the progress made until now with external and national funding, this project intends to initiate the execution of WQMAP.</p>	
Beneficiaries:	Government Departments (Water Resources Management Authority), other government agencies, private sector entities and NGOs/community-based organisations
<p>Activities and Tasks:</p> <p>Short list:</p> <ul style="list-style-type: none"> • Develop training and capacity development interventions for data collection and analysis of water quality, including in relevant field operations, sampling and sample management 	

CONCEPT NOTE 6	
Project title	Water quality monitoring for guiding ecological, social and economic resilience building action in Saint Lucia
<ul style="list-style-type: none"> • Undertake hotspot assessments, sampling and analyses to identify sampling locations • Identify and procure consumables and the equipment required for water quality monitoring and analysis • Develop and implement data acquisition, storage, security and sharing modalities 	
Main outputs/products: <ul style="list-style-type: none"> • Capacity and capabilities for water quality management, data collection and analysis built • Sampling locations identified for water quality analysis in Saint Lucia • Equipment and resources identified, procured and allocated for effective water quality data collection and laboratory support • Water quality data available and accessible 	
Implementation: Responsible agency: Water Resources Management Agency (WRMA)	
Total indicative cost: USD 740,500 (including USD 250,000 in-kind contribution)	
This includes: Training and capacity development: USD 185,000 (including USD 74,000 in-kind contribution) Selection of sampling locations: USD 92,500 (including USD 74,000 in-kind contribution) Procurement of consumables and equipment: USD 370,500 (including USD 74,000 in-kind contribution) Design and development of secure storage mechanism: USD 92,500 (including USD 28,000 in-kind contribution)	
Duration: 60 months	
Additional information: <ul style="list-style-type: none"> • This project is aligned with the REASAP's measures 10, 14, 24, 25, 26, 28, 29, 30 and 31 and can contribute to implementing measures 9, 11, 12, 15, 19, 21, 32, 33, 34, 37, 38, 39, 41, 43, 45 and 46. • The design of the WQMAP was funded by the Inter-American Development Bank and the United Nations Environment Programme, under the Global Environment Facility Caribbean Revolving Fund for Wastewater Management 	

PROJECT CONCEPT 7: OCEAN ASSESSMENT AND ECONOMIC VALUATION TOWARD CLIMATE RESILIENCE AND SUSTAINABLE BLUE ECONOMY EXPLORATION IN SAINT LUCIA

CONCEPT NOTE 7	
Project title	Ocean assessment and economic valuation toward climate resilience and sustainable blue economy exploration in Saint Lucia
Objective(s)	To reduce vulnerability to climate change in Saint Lucia’s Exclusive Economic Zone (EEZ) by building adaptive capacity and resilience in all sectors and at all levels and fostering a transition toward a ‘blue economy’ economic model by 2030.
<p>Rationale:</p> <p>Saint Lucia’s socioeconomic development heavily depends on its coastal and marine resources. However, the long-term sustainability of these resources and their benefits under a changing climate, require knowledge of ecosystem processes and well-planned and effective governance and management structures.</p> <p>Saint Lucia has joined other States in collectively recognising that oceans and seas face tremendous challenges, and pledged to protect and restore the health, productivity and resilience of their ecosystems, as well as maintain their associated biodiversity. As a party to the United Nations Convention on the Law of the Sea (UNCLOS), the country has progressed in the delimitation of its Exclusive Economic Zone (EEZ) and other maritime zones to facilitate, <i>inter alia</i>, border protection, living and non-living marine resource management, fisheries regulation, exploration of energy sources, and the regulation of shipping. In 2017 and applying the principle of equidistance, Saint Lucia signed Maritime Boundary Delimitation (MBD) agreements with Barbados and Saint Vincent and the Grenadines.</p> <p>Having formally agreed to maritime boundary delimitation with neighbouring States, Saint Lucia can now better plan and contribute to the successful implementation of Sustainable Development Goal 14 (Conserve and sustainably use the oceans, seas and marine resources for sustainable development), and the associated activities aiming at reducing climate change impacts on ocean and marine resources within its EEZ. However, this requires, strengthening the country’s information on its ocean and marine resources, improving its ocean governance capabilities, raising awareness, and initiating concrete actions to foster a transition towards a ‘blue economy’ economic model, to preserve biodiversity and ecosystem services while unlocking the economic potential of Saint Lucia’s marine space. To advance in this direction, this project will work on five areas that seek to:</p> <ol style="list-style-type: none"> 1. Ensure the legal formality, demarcation and communication (to stakeholders at all levels of involvement and decision making) of Saint Lucia’s maritime boundaries. To this aim, the project will build on the preliminary work of the Commonwealth Secretariat and use marine spatial plans developed under the OECS Caribbean Regional Oceanscape Project (CROP). 2. Conduct an ocean habitat assessment (including coastal, marine and offshore biodiversity) within the marine space under national jurisdiction. 3. Estimate the value of the goods and services of oceans and coastal ecosystems and resources under Saint Lucia’s jurisdiction and conduct spatial threat analysis to map economic consequences of plausible scenarios. To this aim training will be conducted on economic valuation and associated techniques for Government officials and, the results of the analyses will be communicated to policy makers. 4. Conduct an ocean-environment associated livelihood assessment to identify new and appropriate livelihoods, as well as strengthen current sustainable livelihoods in Saint Lucia. 5. Pilot-test new sustainable livelihood options, set up demonstration projects and provide training, continuous technical support and equipment to Saint Lucians interested in engaging in them. 	

CONCEPT NOTE 7	
Project title	Ocean assessment and economic valuation toward climate resilience and sustainable blue economy exploration in Saint Lucia
Beneficiaries:	Resource users (fishers, tour guides, households and communities dependent on the ocean ecosystem and resources)
Activities and Tasks: Short list:	<ul style="list-style-type: none"> • Demarcate boundaries • Assess habitats • Undertake economic valuation • Assess sustainable livelihoods • Pursue demonstration projects / livelihood support through capacity development and training and provision of technical support and equipment • Promote public awareness • Undertake project administration and management
Main outputs/products: Short list:	<ul style="list-style-type: none"> • Maps • Signage • Reports • Tools • Legislative instruments • Training/capacity building • Public service announcements, advertisements, etc.
Implementation:	
Responsible agency/partners:	Department of Sustainable Development, SLASPA, Fisheries Department
Indicative cost:	USD 7,885,000 (including USD 2,160,000 in-kind contribution)
<i>Estimated total cost by outcome:</i>	<p>Outcome 1: USD 1,825,000 (including USD 325,000 in-kind contribution)</p> <p>Outcome 2: USD 3,150,000 (including USD 875,000 in-kind contribution)</p> <p>Outcome 3: USD 650,000 (including USD 300,000 in-kind contribution)</p> <p>Outcome 4: USD 160,000 (including USD 60,000 in-kind contribution)</p> <p>Outcome 5: USD 1,100,000 (including USD 100,000 in-kind contribution)</p> <p>Project Management and Administration: USD 1,000,000 (including USD 500,000 in-kind contribution)</p>
Duration:	60 months
Additional information	This project is aligned with the REASAP's measures 25, 27, 32, 33 and 36 and can contribute to implementing measures 7, 10, 13, 14, 21, 22, 24, 25, 28, 29, 30, 37, 55 and 56.

PROJECT CONCEPT 8: ENABLING ECOSYSTEM RESTORATION AND MANAGEMENT FOR CLIMATE RESILIENCE-BUILDING

PROJECT CONCEPT 8	
Project title	Enabling ecosystem restoration and management for climate resilience-building
Objective(s)	To rehabilitate and establish the basis for improving the management of critical forests and wetlands to ensure the provision of ecosystem services under a changing climate
<p>Rationale:</p> <p>More intense tropical storms, longer dry periods, higher temperatures, ocean acidification, sea level rise and other climate change-related processes threaten Saint Lucia’s biodiversity and the invaluable goods and services the country’s ecosystems provide. This is of great concern as Saint Lucians depend on healthy ecosystems for their lives and livelihoods.</p> <p>The country’s forests are key habitats for wildlife, including pollinators and seed dispersal agents. They protect and regulate water sources; protect populations from flooding; support soil formation and nutrient cycling; store carbon, thus supporting climate change mitigation, and prevent soil erosion and landslides. At the same time, coastal zone ecosystems, including wetlands, are the backbone of Saint Lucia’s culture and fisheries. Terrestrial and coastal natural systems offer physical protection against climate hazards, including storms, high winds and storm surges. They also provide recreation and tourism opportunities.</p> <p>The restoration and rehabilitation of degraded forests and wetlands enhance their resilience to climate shocks. It also helps ensure these ecosystems will continue to sustainably provide the services Saint Lucia relies upon under a changing climate and promotes sustainable livelihoods. This project seeks to restore, protect and improve the management of prioritised critical ecosystems on the island to minimise soil erosion, reduce the risk of landslides and halt the degradation of freshwater resources. The project also aims to establish a comprehensive management plan for the country’s wetlands, which is a critical missing element.</p>	
<p>Beneficiaries: Local communities, farmers, fishers, the business community – (small, medium and large), hoteliers, and public institutions</p>	
<p>Activities and Tasks:</p> <p>Short list:</p> <ul style="list-style-type: none"> • Rehabilitate degraded riverbanks within priority watersheds • Undertake surveillance activities to protect upper catchments, especially above current and future reservoirs. • Undertake rehabilitation activities to protect slopes in vulnerable areas especially where important infrastructure is located. • Establish and maintain forest corridors and treescapes through urban and developed areas. • Promote and initiate sustainable agroforestry initiatives to support livelihoods and conservation • Demarcate and in some instances re-align forest reserve boundaries • Continue assessments and develop a management plan for wetlands, including marine reserves 	
<p>Main outputs/products:</p> <ul style="list-style-type: none"> • Restored and rehabilitated critical ecosystems • A comprehensive management plan for wetlands 	
<p>Implementation:</p> <p>Responsible agency/partners: Division of Forest and Lands Resources, with technical support from the Water Resources Management Agency and the Department of Fisheries.</p>	
<p>Indicative cost: USD 1.5 million</p>	

PROJECT CONCEPT 8

Project title	Enabling ecosystem restoration and management for climate resilience-building
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Duration: 3.5 years

Additional information:

This project is aligned with the REASAP's measures 8,11,18,21,29,30,32,36,38,39,40,41,43,44,45,46,52 and 68 and can contribute to implementing measures 5,6,10,12,19,26,27,33,42,47,50 and 51.

* This project provides mitigation co-benefits

PROJECT CONCEPT 9: BUILDING CLIMATE RESILIENCE AND ENHANCING LIVELIHOOD OPPORTUNITIES THROUGH IMPROVED FOREST MANAGEMENT IN SAINT LUCIA

PROJECT CONCEPT 9	
Project title	Building climate resilience and enhancing livelihood opportunities through improved forest management in Saint Lucia
Objective(s)	<ul style="list-style-type: none"> • To strengthen institutional capacity to adequately manage the island’s forest reserves • To enhance the capacity for production of biodiversity friendly goods and services for sustainable livelihoods • To strengthen local and national understanding and support for forest biodiversity conservation
<p>Rationale:</p> <p>Saint Lucia’s forests offer goods and essential services to the country. They protect water sources and play a major role in the regulation of water flows and thus, in reducing the risk of flooding. Forests support soil formation and nutrient cycling. These ecosystems store carbon, contributing to climate change mitigation, and stabilise soils, reducing the risk of soil erosion and landslides. Forests represent a physical barrier to tropical storms and high winds, are major habitats for wildlife and are an important source of livelihoods, recreation and tourism opportunities.</p> <p>In view of climate change, the long-term provision of ecosystem services by Saint Lucian forests depends on the protection, restoration, rehabilitation and appropriate management and use of forest areas. It is the intention of the Government of Saint Lucia to expand its forest reserves, which currently include around one third of the island’s forests. In this effort, the Government has acquired parcels of land that it plans to incorporate as part of forest reserve, together with forested Crown lands. However, the effective management of the reserves requires permanent and visible boundary markers. This is necessary for the new areas to be incorporated and for existing boundary markers to be restored where these markers existed, but were destroyed during the past ten years by landslides and land slippage caused by extreme weather events.</p> <p>With the understanding that a purely protectionist regime for all forests is impractical, the Division of Forest and Lands Resources has a policy to work with partners to enable regulated and sustainable use of defined forest areas for supporting local livelihoods and economies, while maintaining forest biodiversity environmental services. To this aim, the Division will develop and promote carefully designed and monitored sustainable use programmes, based on sound science and participatory principles, in defined areas of the Forest Reserve and on privately owned forests.</p>	
<p>Beneficiaries: Local communities, farmers, fishers, the business community – (small, medium and large), hoteliers, and public institutions</p>	
<p>Activities and Tasks:</p> <p>Short list:</p> <ol style="list-style-type: none"> 1. To increase areas of natural forest for maintaining the integrity of the Government Forest Reserves, securing watersheds for increasing the country’s freshwater supplies, protecting biodiversity, and preserving ecosystem functions and services: <ul style="list-style-type: none"> • Establish several hectares of plantation forest through restoration efforts • Maintain these plantation forests • Survey and demarcate lands that have been recently acquired • Build capacity to enhance surveillance and enforcement • Conduct appropriate research and monitoring to capture carbon emissions • Develop forest management plans • Strengthen the Forest, Soil and Water Conservation Act • Restore access routes • Increase habitat for wildlife 	

PROJECT CONCEPT 9	
Project title	Building climate resilience and enhancing livelihood opportunities through improved forest management in Saint Lucia
<p>2.To enhance the capacity for production of biodiversity friendly goods and services for sustainable livelihoods:</p> <ul style="list-style-type: none"> • Continue and extend the current project on sustainable lansan tree harvesting • Work with local groups in the design and implementation of projects that promote and enable sustainable use of other products (e.g. latanye, mauby, cut flowers, mushrooms, essential oils). <p>3. Strengthen local and national understanding and support for forest biodiversity conservation:</p> <ul style="list-style-type: none"> • Conduct pre and post awareness surveys • Develop and execute an environmental awareness plan 	
Main outputs/products:	
<ul style="list-style-type: none"> • Extension of forest reserves • Boundaries demarcated for recently acquired lands • Marketing assessment for biodiversity friendly goods and services • New projects for the sustainable and participatory use of forest goods and services • Enhanced institutional capacity for surveillance and enforcement • Environmental awareness plan 	
Implementation:	
Responsible agency/partners: Division of Forests and Lands Resources.	
Indicative cost: USD 2.2 million	
Duration: 4 years	
Additional information:	
<p>This project is aligned with the REASAP's measures 8,11,18,19,22,25,29,38,39,40,41,43,44,46,50,52 and 68 and can contribute to implementing measures 5,6,10,21,24,26,32,33,34,36,42,47,51 and 55.</p> <p>* This project provides mitigation co-benefits</p>	

PROJECT CONCEPT 10: SOLVING THE DIE-BACK OF THE LARGEST MANGROVE IN SAINT LUCIA TO STRENGTHEN THE COUNTRY'S CLIMATE RESILIENCE

PROJECT CONCEPT 10	
Project title	Solving the die-back of the largest mangrove in Saint Lucia to strengthen the country's climate resilience
Objective(s)	To identify the cause of and to implement solutions to the die-back that progressively affects the Mankòté Mangrove, to ensure it continues providing critical ecosystem services under a changing climate.
<p>Rationale:</p> <p>Mangroves play a fundamental role in sustaining biodiversity and livelihoods and in fighting climate change in the Caribbean region. These ecosystems offer spawning grounds for fish and shellfish, including many commercial species; they are habitat to a number of endangered mammals, reptiles, amphibians, and birds; they trap sediments and thus protect coral reefs, seagrass beds, and shipping lanes from siltation and improve water quality. Mangroves sequester carbon and also guard shorelines, coastal populations and assets against the impacts of water currents, waves, wind and hurricanes, which are expected to grow in intensity with climate change.</p> <p>Stretching over 40 hectares, the Mankòté Mangrove is the most important and largest remaining mangrove in Saint Lucia. It is a Ramsar site and also a marine reserve, used by nearshore fishers, and tour operators for bird-watching tours. However, this mangrove and the ecosystem services it provides are currently threatened by a progressive die-back, which affects approximately 12 acres (about 10 percent of the mangrove area). Although recent attempts have been made to restore the die-back area with upwards of 4,000 plants being planted, the problem persists.</p> <p>In view of the limited success of the reforestation efforts conducted thus far, research is urgently needed to determine the cause of the die-back and to suggest appropriate measures to avoid its spread into other areas, which could result in the widespread deterioration of the mangrove.</p> <p>The implementation of immediate remedial action after the problem is diagnosed, along with monitoring, is expected to prevent the destruction of the island's largest mangrove system and to help restore it. Saint Lucia needs a healthy Mankòté Mangrove to protect its communities, livelihoods and infrastructure from climate change impacts.</p>	
<p>Beneficiaries: Community groups that use the Mankòté Mangrove (fishers, tour operators, sustainable charcoal producers) and the country's population at large.</p>	
<p>Activities and Tasks:</p> <p>Short list:</p> <ul style="list-style-type: none"> • Conduct the necessary research to identify the causes of and solutions to the die-back • Prepare a plan to implement the solutions identified to the cause of the die-back • Implement the identified solutions • Prepare a rehabilitation plan for the mangrove areas affected by the die-back • Prepare nursery material to rehabilitate the areas affected by the die-back • Establish baselines and a monitoring and evaluation plan for biodiversity and carbon sequestration in the mangrove • Develop and execute an environmental awareness plan for the mangrove, including pre and post awareness surveys. 	
<p>Main outputs/products:</p> <ul style="list-style-type: none"> • Research project report with a diagnostic of the cause of the die-back and solutions • Mangrove area affected by the die-back rehabilitated • Increased carbon sequestration • Strengthened awareness of the importance and value of the mangrove to Saint Lucia 	

PROJECT CONCEPT 10

Project title	Solving the die-back of the largest mangrove in Saint Lucia to strengthen the country's climate resilience
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Implementation:

Responsible agency/partners: Division of Forest and Lands Resources, in partnership with Fisheries Department, the Saint Lucia National Trust, the Department of Sustainable Development and community groups which currently utilise the mangrove.

Indicative cost: USD 500,000

Duration: 3 years

Additional information:

Initial research and restoration were attempted under the Eastern Caribbean Marine Managed Areas Network (ECMMAN) project. However, more in-depth research is needed for effective and lasting solutions.

This project is aligned with the REASAP's measures 8,18,21,22,25,29,32,34,36,38,39,40,41,43,44,46 and 68 and can contribute to implementing measures 5,6,10,11,14,19,24,26,27,28,33,37,45,47,50,51 and 52.

* This project provides mitigation co-benefits