CTCN
CLIMATE TECHNOLOGY CENTRE & NETWORK

CTCN Technical Assistance
Request Submission Form

Improving Resilience of Human Settlements in Saint Lucia Upgrading designated emergency shelters for long term and short term climate emergencies

Requesting country or countries:	Saint Lucia
Request title:	**Improving Resilience of Human Settlements in Saint Lucia – ImpResS -** Upgrading designated school emergency shelters for long term and short term climate emergencies
NDE	**Ms. Samanthia Justin**, Acting Chief Technical Officer Ministry of Education, Innovation, Gender Relations and Sustainable Development, Department of Sustainable Development
Request Applicant:	Permanent Secretary Department of Education, Innovation and Gender Relations and the National Emergency Management Organisation

Climate objective: If the Renewable Energy component is included then the combination box can be checked as well

☐ Adaptation to climate change
☐ Mitigation of climate change
☒ Combination of adaptation and mitigation of climate change

Geographical scope:

☒ Community level
☐ Sub-national
☒ National
☐ Multi-country

If the request is at a sub-national or multi-country level, please describe specific geographical areas (provinces, states, countries, regions, etc.).

Problem statement related to climate change (up to one page):

Saint Lucia is a sovereign island country in the West indies in the eastern Caribbean Sea on the boundary with the Atlantic Ocean, with a land area of 617 km^2 and 165,595 inhabitants (2010 census). Saint Lucia has a tropical maritime climate throughout the year with some relief from the high temperatures and humidity being offered by the easterly (trade) winds that blow from the northeast. Precipitation during the wet season comes mainly from tropical waves, depressions, storms and hurricanes, which occur frequently over this region owing to its geographical location within the Atlantic hurricane belt. The tropical cyclone season typically lasts from June until November. Saint Lucia is a Small Island Development State (SIDS), and is highly at risk from climate change, mainly due to its location along the north Atlantic hurricane corridor (six hurricanes during the last 20 years), its small surface area, geographic location in an area exposed to the impact of geological and hydro-meteorological hazards and its economic reliance on tourism and agriculture, which are climate-sensitive sectors. Other factors exacerbate Saint Lucia's vulnerability to climate change, including a high population density, infrastructure in coastal settlements, poor land use and ongoing land and natural resource degradation practices, high levels of unemployment and the country's reliance on imported food and fuel.

The country's limited capacity to reconstruct and reactivate its economy after climate-related shocks renders it highly vulnerable. Because of its small geographic size and dependence on natural resources any extreme weather event can have national implications. According to Saint Lucia's Third National Communications to the United Nations Framework Convention on Climate Change (UNFCCC) , with climate change, Saint Lucia faces the prospects of a multi-level risk: worsening impacts of sea-level rise, more unpredictable climate, drier conditions, heat waves, recurrent drought in the dry season, and torrential rains and flooding in the rainy season, compounded by more frequent and intense hurricanes. These continuously worsening impacts of climate change represent major threats to human life, to national development and economic growth that will increasingly affect every aspect of life on the island if no effective and timely adaptation measures are implemented.

Currently, 87 of Saint Lucia's 103 public schools are designated as emergency shelters along with very few churches and human resource centres. The shelters are deemed insufficient in terms of structural condition as well as in total capacity; moreover, the post-event use of schools as emergency shelters, has shown problems related to the disruption of normal education activities. Therefore, a new concept

for the schools as emergency shelters for the communities is needed that allows (i) the structures to withstand a category 5 hurricane and associated heavy precipitation and (ii) the independent operation of shelter support while ensuring minimum disruption to the population's education system. Another emerging impact, which is forecasted to become more intense, are heat waves, particularly for vulnerable groups. The response efforts of the communities therefore calls for technical support to address the shelter issues emerging in the transition from emergency response to rehabilitation.

Past and on-going efforts to address the problem (up to half a page):

Cognizant of this challenge, the Government of Saint Lucia has taken decisive measures to address the climate change phenomenon, to adapt to its causes and, notwithstanding its tiny share in GHG emissions, to mitigate its impacts.

- Saint Lucia ratified the United Nations Framework Convention on Climate Change (UNFCCC) in June 1993 and the Kyoto Protocol in August 2003.
- A National Climate Change Committee (NCCC), a multi-sectoral advisory body, comprising governmental, non-governmental, community-based and private sector entities, was established from 1998 and continues to guide climate action today.
- Saint Lucia developed its first Climate Change Adaptation Policy in the early 2000s and the Cabinet of Ministers further adopted a revised version in 2015.
- Saint Lucia submitted its Initial National Communication to the Conference of the Parties in 2001, and its Second National Communication (SNC) in 2012.
- In its Nationally Determined Contribution (NDC) submitted to the UNFCCC in November 2015, and in the country's Third National Communication (TNC), published in August 2017, Saint Lucia confirmed its dedication to fight climate change and to build up a climate resilient country.
- Saint Lucia has prepared a Country Document for Disaster Risk Reduction of 2014.
- Saint Lucia's National Adaptation Plan (NAP), adopted by the Cabinet of Ministers in 2018, has been defined as a 10-year plan (2018 to 2028), consisting of both cross-sectoral and sectoral measures, to enable and stimulate climate change adaptation in all development sectors and areas and at all levels of society.
- Saint Lucia's Cabinet of Ministers has also adopted Sectoral Adaptation Strategies and Action Plans (SASAPs) in Water, Agriculture and Fisheries in 2018, together with a Climate Change Communications Strategy and a NAP Monitoring and Evaluation Plan.
- In 2018, the Cabinet of Ministers adopted a National Energy Transition Strategy (NETS).
- A Nationally Appropriate Mitigation Action (NAMA) for Schools was completed in 2018.
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- Saint Lucia has and continues to implement a number of projects aimed at enhancing climate resilience, some of which can be found here: https://climatechange.govt.lc/project-profiles/

The protection of life and property against extreme weather events and the alleviation of suffering and hardships that can occur as a result, are recognized as the fundamental responsibility of the Government of Saint Lucia. The Government has therefore established and implemented a programme for disaster preparedness and response with the National Emergency Management Organisation (NEMO) holding responsibility for coordinating all disaster management activities.

Saint Lucia's Nationally Determined Contribution (NDC) and Climate Change Adaptation Policy (CCAP) provide a framework for addressing the impact of climate change in an integrated manner. Priority actions for climate change adaptation facilitation and implementation include:
- Climate Resilience Measures in Critical Buildings (including Energy (renewable energy and energy efficiency);

- Technology Transfer;
- Public Education and Outreach;
- Human Resource Capacity Building.

Specific technology[1] barriers (up to one page):

There are clear gaps in the critical infrastructure sector regarding inadequate capacity and tools for the assessment of climate risk and periodization and implementation of proposed measures for climate change adaptation. Specific issues regarding the use of ***schools as emergency shelters,*** *include:*

- ***Structural reinforcement for hurricanes.*** *The school buildings' structures and Disaster Risk and Emergency Protocols and Equipment are not yet systematically assessed and monitored as to their structural capacity to withstand a CAT5 Hurricane and their location and appropriateness for immediate emergency, and beyond, for medium term sufficiency. Critical elements include walls, windows and door strengthening, roof reinforcement and basic drainage on compounds.*
- ***Retrofitting for heat wave sheltering.*** *The school buildings require improvement in order to be utilized more efficiently as heat wave emergency shelters, particularly for vulnerable groups. This includes appropriate indoor ventilation and outdoor shaded areas including potential for nature based solutions.*
- ***Energy subsidence and efficiency for resilience.*** *Increasing the energy resilience is fundamental to maintaining basic sheltering functions and communication during extreme weather events, particularly when central systems break down. This has occurred during the last 3 extreme weather events. Retrofitting schools with renewable energy systems, coupled with improved energy efficiency of the buildings, will enhance community resilience to climate change and generate co-benefits for climate change, such as reduced GHG emissions.*
- ***Water efficiency, storage and treatment****. Rainwater harvesting systems can increase the resilience of buildings during and after an extreme weather event, such as hurricane, or even during slow on-set extreme weather, such as long-term drought. Rainwater harvesting can also prevent and reduce the impact of flooding, increasing the overall resilience of the schools. The sanitary treatment of residual water is also essential to increase the resilience of schools as emergency shelters.*
- ***Awareness raising and training.*** *The technical intervention to increase the resilience of schools as emergency shelters can be coupled with specific educational activities, targeting in particular the pupils, regarding awareness raising and training in disaster risk management to respond to emergency situations and to enhance preparedness.*
- ***Capacity building and vocational training.*** *The structural, energy and water technologies and solutions to improve the resilience of schools as emergency shelters will require the capacity of the work force to be built through vocational training, which can generate co-benefit in terms of employment and economic growth.*
- ***Emergency planning.*** *The retrofit of schools as emergency shelters needs to be paired with the revision of emergency planning against multiple hazards (including heat waves, drought,*

[1] *"**any equipment, techniques, practical knowledge and skills** needed for reducing greenhouse gas emissions and adapting to climate change" (Special Report on Technology Transfer, IPCC, 2000)*

hurricane, flash floods) in order to increase the climate resilience of local communities.

- ***Dual use compatibility**. The schools shall be able to increase the sheltering capacity during and beyond the immediate emergency, avoiding the disruption of the educational function and activities. For example, through the use of deployable scissor structures, permanent and/or temporary.*

Sectors: Due consideration should be given to including water, energy efficiency, renewable energy and waste management, as they all contribute to enhancing climate resilience and reducing risks to disasters.

Please indicate the main sectors related to the request:

☒ Coastal zones	☐ Early Warning and Environmental Assessment	☐ Human Health	☒ Infrastructure and Urban planning
☐ Marine and Fisheries	o Water	☐ Agriculture	☐ Carbon fixation
☐ Energy Efficiency	☐ Forestry	☐ Industry	☐ Renewable energy
☐ Transport	☐ Waste management		

Please add other relevant sectors:

Cross-sectoral enablers and approaches:

Please indicate the main cross-sectoral enablers and approaches

☒ Communication and awareness	☐ Economics and financial decision-making	☒ Governance and planning	o Community based
☒ Disaster risk reduction	☐ Ecosystems and biodiversity	o Gender	

Technical assistance requested (up to one page):

- Overall objective

The main aim of the technical assistance is to enable the Government of Saint Lucia to strategically assess the climate risk of school emergency shelters and appraise improvement measures that will allow the Government to submit a funding proposal to potential funding sources to implement these measures.

The objective of this action is to improve resilience of local communities and human settlements to climate change by assessing and planning the implementation of technology and design options for the improvement of critical infrastructure, focusing specifically on the use of schools as emergency shelters for short and medium term multi-hazard risk cycle phases, and reducing dual use conflicts. Immediate emergency improvements will be achieved through strengthening and deepening elements for climate resilience by structural reinforcements of the schools, the rehabilitation phase usability by self-sufficiency installations and community multi-use strategies.

The technical assistance will deliver the following activities:

- *Conduct a technical assessment of distribution, location and state of up to 12 preidentified school emergency shelters. The technical assessment will identify the detailed structural interventions needed to make the schools more resilient to the impacts of climatic events, including extreme weather events such as a category 5 hurricane, flooding and drought.*
- *Cost the technological and soft interventions necessary to increase the resilience of the 12 schools as emergency shelters.*
- *Prepare a consolidated concept note to deploy the interventions identified and upscale the activities across the country as well as delivering recommendations for policy and standards(such as building codes) to increase resilience of schools toward multiple disasters.*

- The 12 schools to be assessed are :Fond Assau Combined School, Corinth Secondary School, Ave Maria Infant School,Vieux-Fort Primary School, Ave Maria Primary School,Patience Combined School, Micoud Primary School, Desruisseaux Combined School, Balata Combined School, Bexon Primary School, Vieux-Fort Infant School and the Saltibus Combined School.
- These 12 schools were selected because they were recently upgraded.

The expected outcomes of the technical assistance are:

- *The Government of Saint Lucia possesses a consolidated concept note in order to access large scale climate financing mechanisms to implement the identified measures that will enhance the resilience of local communties.*
- *Schools are resilient against category 5 hurricanes and retain capacities to provide shelter as well as the local (school) administration to take post hazard-action for the community.*

Expected timeframe:

9 months.

Anticipated gender and other co-benefits from the technical assistance:

Please describe the activities with gender linkages as well as the anticipated gender and other co-benefits (e.g. biodiversity, economic, social, cultural, etc.) that are likely to be generated as a result of the technical assistance.

- *Contribution to SDGs 3, 4, 5, 6, 7, 9, 11, 13, 16, 17*

Gender Linkages
The project activities will ensure that issues relating to gender inequality are addressed by ensuring full and equal access to men and women in particular relating to the capacity building and awareness raising activities. The design of retrofitting activities will also take gender considerations into account, particularly relating to the internal layout of emergency shelters, access to facilities such as toilets and allowing safe spaces for vulnerable groups, which would include women, youth, elderly and those with special needs.

Anticipated Co-benefits
The project will provide the following co-benefits:

- Enhanced community resilience through better access to community shelters and their services during and immediately after extreme events would include the most vulnerable groups
- Contribute towards reduced emissions through renewable energy and energy efficient technologies and will provide social and economic co-benefits to communities accessing the emergency shelters
- Integrated awareness raising in disaster preparedness and climate change adaptation
- Reduction in utility costs for the schools gained through the use of more efficient lighting systems

For more information you can find guidelines on the CTCN's website here:
https://www.ctc-n.org/technologies/ctcn-gender-mainstreaming-tool-response-plan-development

Further reading on gender can be found on the CTCN website here:
https://www.ctc-n.org/technology-sectors/gender

Key stakeholders:

Internally:

- *Department of Education, Innovation, Gender Relations and Sustainable Development*
- *Department of Sustainable Development*
- *National Emergency Management Organisation*
- *Department of Finance*
- *Department of Economic Development*
- *Department of Infrastructure*
- *Department of Planning*
- *Department of Equity, Social Justice and Empowerment*

The proposed project will be co-led by the Department of Education, Innovation, Gender Relations and NEMO, in collaboration with the Department of Sustainable Development, Department of Finance , Department of Economic Development, Department of Planning and Department of Equity.

Stakeholders	Role to support the implementation of the technical assistance
National Designated Entity	Department of Sustainable Development.
Department of Education, Innovation & Gender Relations	Proponent of Technical Assistance
National Emergency Management Organisation (NEMO)	Proponent of Technical Assistance

Alignment with national priorities (up to 2000 characters including spaces):

The proposed request aligns with the priorities identified in national planning documents that relate to both climate change adaptation and mitigation. These include:

- National Adaptation Plan outcomes defined for key priority sectors, including infrastructure and spatial planning, water ,education and health.
- First NDC targets and outcomes defined in the NDC Partnership Plan to reduce GHG emissions through an increase in the penetration of renewable energy technologies islandwide and an increase in energy efficient buildings and appliances
- Priorities in the Medium-Term Development Strategy relating to energy, adaptation for environmental sustainability and climate change and disaster vulnerability reduction
- Green Schools Nationally Appropriate Mitigation Action (NAMA) which targets increased RE and EE technologies in the education sector

Reference documents (please include date of document)	**Extract** (please include chapter, page number, etc.). • Climate Change Adaptation Policy, 2015 • National Adaptation Plan, including subsections on water, infrastructure and education, 2018 • Nationally Determined Contribution to the UNFCCC, 2015 • Saint Lucia's National Appropriate Mitigation Action for Schools, 2018 • Medium Term Development Strategy (priority sectors identified-product under development) • Nationally Determined Contribution Partnership Plan, 2018 • Refer to 'Past and on-going efforts to address the problem' in relevant section above. See also resources tab under: https://climatechange.govt.lc/

Development of the request (up to 2000 characters including spaces):

The process was initiated by the Ministry of Education, Innovation, Gender Relations and Sustainable Development. The development of the above-mentioned instruments, consistent with the objectives of this initiative, was developed through intensive consultations over time, including the involvement of the National Climate Change Committee (NCCC) and other key organisations.

It is worth noting that the Education Sector emerged among priority sectors identified for climate action, through the NAP and NAMA processes undertaken between 2017 and 2018.

As part of Saint Lucia's national adaptation planning process, the Government presented its NAP at a NAP Donor Symposium in 2018, where it was well-received.

The stakeholders consulted in the development of Saint Lucia's NAP have been included as an annex in the NAP. In addition, below is the composition of the NCCC, the technical advisory body for climate action in Saint Lucia.

Composition of Saint Lucia's National Climate Change Committee (technical advisory role)

A process is underway, as part of Saint Lucia's GCF readiness project, for strengthening the NCCC, including examination of membership and Terms of Reference.

Background documents and other information relevant for the request:

- Stocktaking of schools document of Gov't of ST. Lucia
- Laws and decrees of relevance
- NDC

- National Energy Policy, 2010
- National Energy Transition Strategy, 2018
- Nationally Determined Contribution Partnership Plan 2019

See also resources tab under: https://climatechange.govt.lc/

Please indicate if this request has been developed with the support of the CTCN Request Incubator.

- No

OPTIONAL: Linkages to Green Climate Fund Readiness and Preparatory Support

The CTCN is collaborating with the GCF in order to facilitate access to environmentally sound technologies that address climate change and its effects, including through the provision of readiness and preparatory support delivered directly to countries through their GCF NDA. These actions are in line with the guidance of the GCF Board (Decision B.14/02) and the UNFCCC, particularly paragraphs 4 and 7 of 14/CP.22 that addresses Linkages between the Technology and the Financial Mechanisms[2].

[2] Please see:
https://unfccc.int/files/meetings/marrakech_nov_2016/application/pdf/auv_cop22_i8b_tm_fm.pdf

The CTCN is therefore implementing some of its technical assistance using GCF readiness funds accessed via the country's NDA. Any application for GCF support, including the amount of support provided, is subject to the terms and conditions of the GCF and should be developed in conjunction with the NDA.

Please indicate whether this request has been identified as preliminarily eligible by the NDA to be considered for readiness support from the GCF.

☐ Initial engagement: The GCF NDA of the requesting country has been engaged in the design of this request and the NDA will be involved in the further process leading to an official agreement for accessing GCF readiness support.

☐ Advanced engagement (preferred): The GCF NDA of the requesting country has been directly involved in the design of this request and is a co-signer of this request, the signature indicating provisional agreement to use readiness national funds to support the implementation of the technical assistance.

NDA name:

Date:

Signature:

Monitoring and impact of the assistance:

By signing this request, I affirm that processes are in place in the country to monitor and evaluate the technical assistance provided by the CTCN. I understand that these processes will be explicitly identified in the CTCN Response Plan and that they will be used in the country to monitor the implementation of the technical assistance following standard CTCN procedures.

Signature:

NDE name: Samanthia Justin

Date: October 16, 2019

Signature: Justin

THE COMPLETED FORM SHALL BE SENT TO THE CTCN@UNEP.ORG

The CTCN is available to answer all questions and provide guidance on the application process.

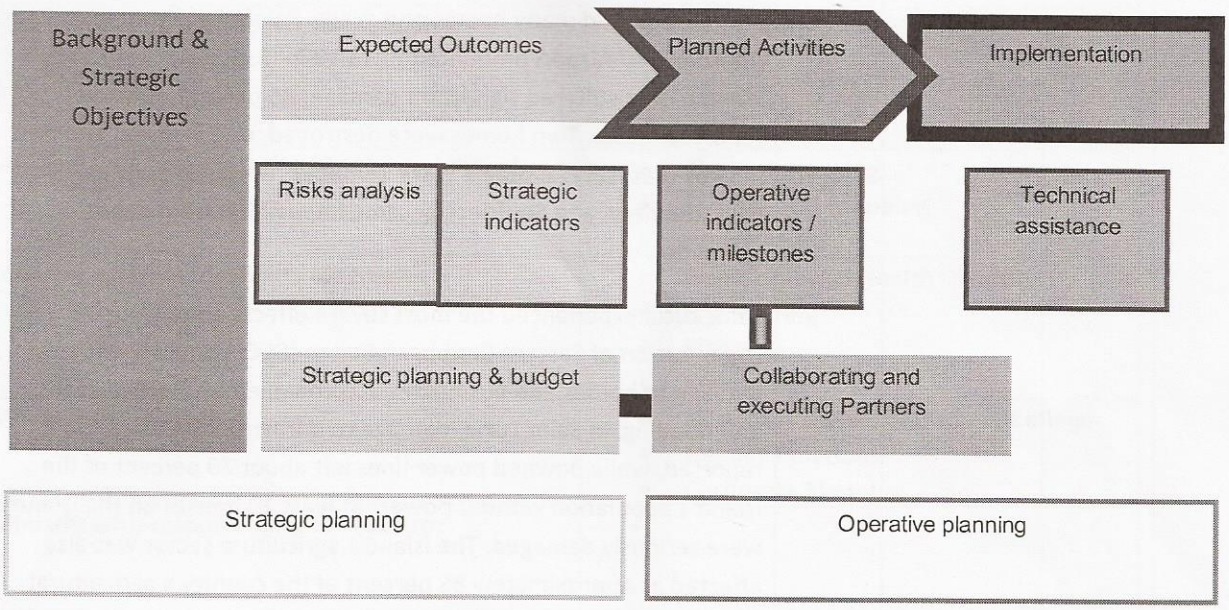
Annex 1

Estimated Total Budget –USD$ 4,720,000

The proposed project can be split into two phases being (i) writing an Adaptation Fund (AF) proposal and (ii) implementation of the project. Funding for writing the proposal will be applied for at the Climate Technology Centre and Network (CTCN) while funding for implementation and technical assistance will be aspired from the AF. In total, the table below illustrates the estimated budget:

Donor	Year 1 (2018-19)	Year 2 (2019-20)	Year 3 (2020-21)	Year 4 (2021-22)
CTCN	220			
AF		1,5 M	1,5 M	1,5 M

Strategic Plan:



Annex 2 – Damages caused in recent extreme weather events

Table 1: Damages caused in recent extreme weather events

Year	*Event*	*Deaths*	*Estimated Economic Impact*	*Other relevant info (i.e. use of tmp shelter, disruption to schools)*
2001	*Hurricane (Ivan)*	*0*	*2.6 million*	
2010	*Hurricane (Tomas)*	*8*	*336 million USD*	
2013	*Trough*	*5*	No data available. Saint Lucia has suffered massive infrastructural damage and large parts were inaccessible for a number of days as a result of this 'freak storm'. Several parts of the island were ravaged by landslides and flash floods caused by unseasonal heavy rains and overflowing rivers that burst their banks. There was	

			widespread flooding in Central Castries and the villages of Anse-La-Raye and Canaries along the west coast, as well as in Bexon, Dennery and Micoud on the east coast, and further south in the towns of Vieux Fort and Soufriere. https://caribbeanbookblog.wordpress.com/2013/12/27/freak-storm-devastates-saint-lucia-dominica-and-st-vincent-on-christmas-eve/
2016	*Hurricane (Matthew)*	1	Hurricane Matthew's strong winds in excess of 60 mph (97 km/h) downed many trees and power lines in St. Lucia, leaving roughly 70 percent of the island without power. Landslides and flooding, the result of more than 10 in (250 mm) of rain accompanying the storm, damaged many homes and roads. Rainfall at Hewanorra International Airport amounted to 13.19 in (335 mm). The nation's banana crop suffered significant damage; 85 percent of farms reported losses. Two homes were destroyed, one in Bisee, and one in Gros Islet; several others were damaged. Roads in Castries, Gros-Islet, Dennery, and Soufriere became impassable from debris or landslides. Saint Lucia experienced the most severe effects among Organisation of Eastern Caribbean States (OECS) nations, with damage to homes and businesses accompanied by blocked roads and flooding. In Saint Lucia, damage to infrastructure was reported, while downed power lines left about 70 percent of the island's population without power. At least 10 houses on the island were seriously damaged. The island's agriculture sector was also affected as approximately 85 percent of the country's agricultural producers reported damage as up to 13.2 inches (335 millimetres) of rain fell. This mainly impacted banana plantations. The government received an XCD10.2 million (USD3.8 million) payout from the Caribbean Catastrophe Risk Insurance Facility (CCRIF) parametric insurance coverage. According to the Prime Minister, the majority of the payout will be used to rebuild the country's agriculture sector. http://thoughtleadership.aonbenfield.com/Documents/20170424-ab-if-hurricane-matthew-recap.pdf

Annex 3

Composition of Saint Lucia's National Climate Change Committee (technical advisory role)

Organisation[3]	Key Department, Division, Section, Unit Engaged from Organisation
Ministry with responsibility for Sustainable Development	• Sustainable Development and Environment Division[4] (Secretariat) • Renewable Energy Division • Protected Areas Management
Ministry with responsibility for Agriculture	• Agriculture • Fisheries • Forestry • Water
Ministry with responsibility for Physical Planning	• Physical Planning • Surveys and Mapping • Architecture
Ministry with responsibility for Health	• Environmental Health Division • Engineering • Planning • Education
Ministry for Education	• Sir Arthur Lewis Community College • Gender Relations • Corporate Planning
Ministry with responsibility for Tourism	-
Ministry with responsibility for Finance	-
Office of the Prime Minister	• Policy Administration • National Emergency Management Organisation
Ministry with responsibility for Infrastructure	• Meteorological Services Department • Project Planning/Design
National Insurance Council of Saint Lucia	-
Saint Lucia Bankers Association	-
National Conservation Authority	-

[3] Nomenclature of Ministries have changed over the years.

[4] Includes staff directly from the Climate Change team, but also, as needed, from Coastal Zone Management, Chemicals, Biodiversity and Small Island Development States (SIDS) Development agenda.

Organisation[3]	Key Department, Division, Section, Unit Engaged from Organisation
Saint Lucia Electricity Services Limited	-
Saint Lucia Solid Waste Management Authority	-
Saint Lucia Air and Sea Ports Authority	• Technical • Maritime Affairs
Water and Sewerage Company	-

The following are co-opted members, not on original listing, but who customarily invited and participate.

- Department of Economic Development (previously part of Ministry with responsibility for Finance, but now separated; Saint Lucia's NDA under GCF)
- Department of External Affairs
- Department of Equity, Social Justice and Empowerment
- Saint Lucia National Trust (SLNT)
- Soufriere Marine Management Association (SMMA)
- Caribbean Youth Environment Network (CYEN)
- Saint Lucia Development Bank (SLDB)
- Organization of Eastern Caribbean States (OECS) Commission
- Caribbean Public Health Agency (CARPHA)
- Department of Commerce /Chamber of Commerce