



ADAPTATION FUND

**REQUEST FOR PROJECT  
FUNDING FROM THE ADAPTATION FUND**



Photo of a public school in Saint Lucia



## ADAPTATION FUND

# PROJECT/PROGRAMME PROPOSAL TO THE ADAPTATION FUND

## PART I: PROJECT/PROGRAMME INFORMATION

Project Category:	Regular Project
Countries:	Antigua and Barbuda, and St Lucia
Title of Project/Programme:	Increasing resilience of the education system to climate change impacts in the Eastern Caribbean
Type of Implementing Entity:	Multilateral
Implementing Entity:	United Nations Human Settlements Programme
Executing Entities:	<b>Antigua and Barbuda:</b> Ministry of Education Science & Technology. <b>St Lucia:</b> Ministry of Education, Innovation, Gender Relations and Sustainable Development. <b>Regional:</b> The Organisation of Eastern Caribbean States, and The Caribbean Disaster Emergency Management Agency
Amount of Financing Requested:	US\$13,662,863

### Project Background and Context:

#### Problem statement

Eastern Caribbean countries are similarly exposed to a variety of natural hazards, including hurricanes, floods, landslides, droughts and fires. These hazards have compromised these countries' poverty reduction strategies, hindered development progress and gains, and have negatively impacted various sectors, including the educational systems.

Climate change is causing an increase in the frequency and intensity of these natural hazards, most notably the number of high-intensity tropical storms and hurricanes that make landfall on the small island developing states (SIDS) of **Antigua and Barbuda**, and **St. Lucia**<sup>1</sup>. Historically, the majority of tropical storms that made landfall in these two nations were of relatively low intensity, generally as tropical storms or Category 1—3 hurricanes. Given that category 4 and 5 hurricanes were rare occurrences, and considering fiscal and capability constraints, school buildings were not built to withstand the impacts of category 4 and 5 hurricanes. This designing of school buildings to withstand only up to a Category 3 hurricane was considered sufficient in the past.

#### Context

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<sup>1</sup> The project was originally envisioned to include the Commonwealth of Dominica. However, the concept note and full proposal will only include Antigua and Barbuda, and St. Lucia.

Located in the eastern Caribbean Antigua and Barbuda has a population of ~94,400 people living on the island of Antigua, with a further ~1,600 residing in Barbuda<sup>2</sup> while Saint Lucia has a population of ~184,000.<sup>3</sup> As small island developing states (SIDS), both are among the most vulnerable countries in the world to extreme climate events such as hurricanes and tropical storms.

However, warming conditions over the Atlantic Ocean are resulting in an increased intensity of hurricanes in the Caribbean, with Antigua and Barbuda and St Lucia experiencing their first recorded Category 5 hurricanes – Irma and Maria – both landing in 2017 and causing major damage to housing and infrastructure, and specifically to school buildings. These hurricanes had the additional impact of disrupting education services, amongst other basic services such as health, telecommunication, electricity, water, sewage and waste systems for long periods. The risk posed by these high-intensity storms and powerful hurricanes to infrastructure, buildings and operations is further exacerbated by the limited adaptive capacity of both governments, school systems and communities to prepare for and recover from extreme weather events.

Their vulnerability is compounded by the long-standing macroeconomic and financial challenges faced by both countries. Extreme weather events have significant impacts on the lives, livelihoods and economies of local communities. In particular, damage to critical public infrastructure — including centralised power and water supplies, roads, hospitals, clinics, emergency services, telecommunications and schools — leads to disruptions of economic activity, and significant recovery costs after an event. Moreover, it often takes several months, if not much longer, for each country to recover from such disruptions leading to considerable declines in economic productivity, and quality of life, as well as a loss of normal schooling opportunities for students. Water and energy have taken up to two years to be reestablished in some instances. As such, urgent adaptation measures for Antigua and Barbuda, and St Lucia's school sectors are needed to address the climate change-driven impacts through resilience measures.

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<sup>2</sup> United Nations. World Population Prospects. Available at: <https://population.un.org/wpp/DataQuery/>.

<sup>3</sup> United Nations. World Population Prospects. Available at: <https://population.un.org/wpp/DataQuery/>.

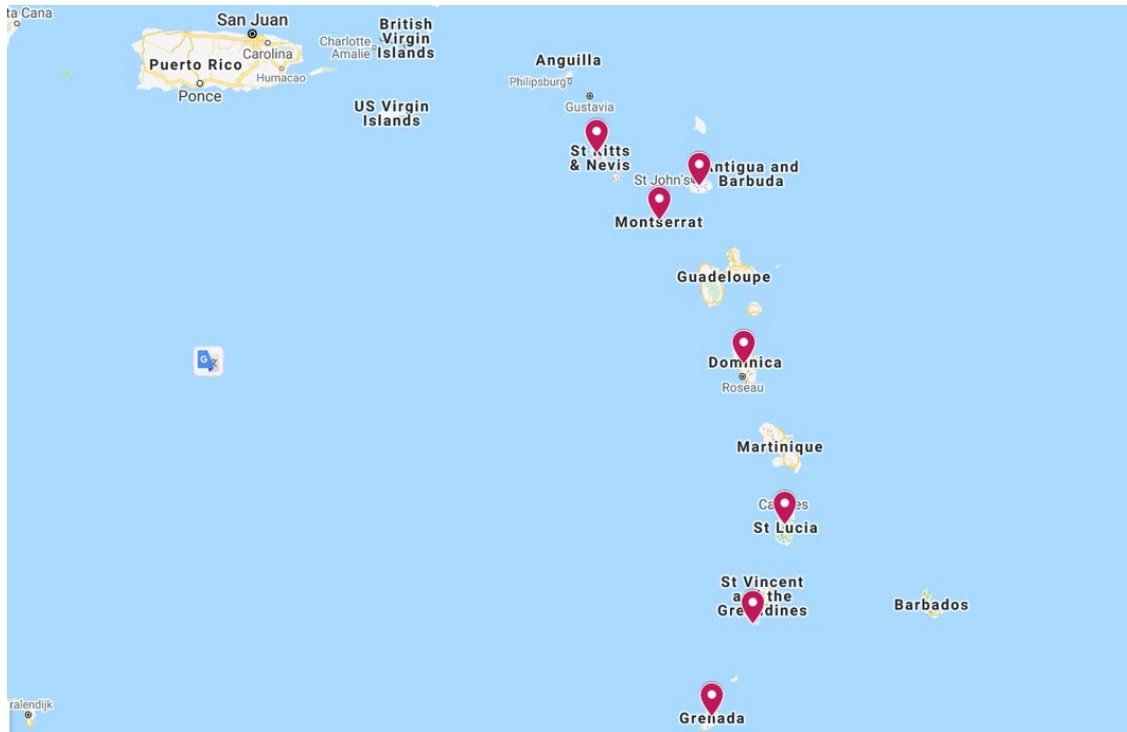


Figure 1 Map of Organization of Eastern Caribbean States Protocol Members

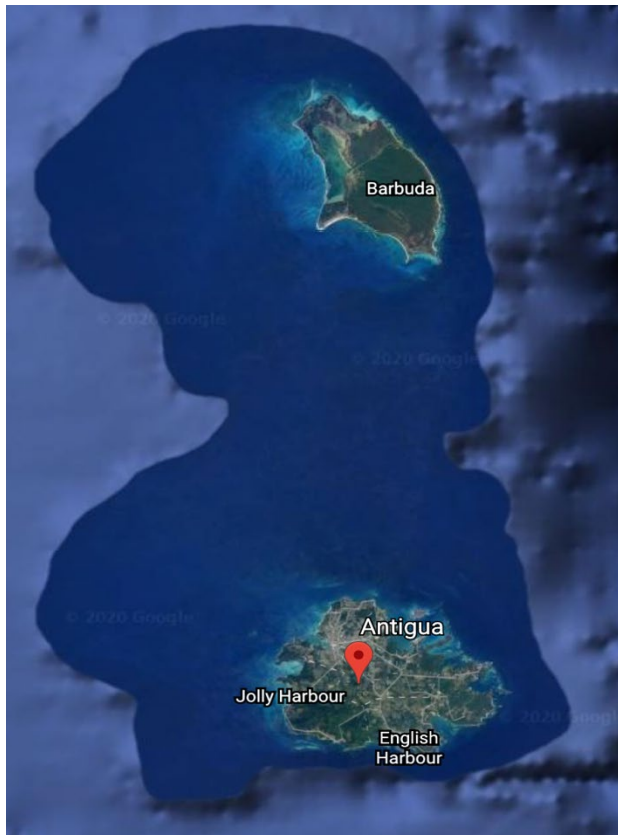


Figure 2 Antigua and Barbuda

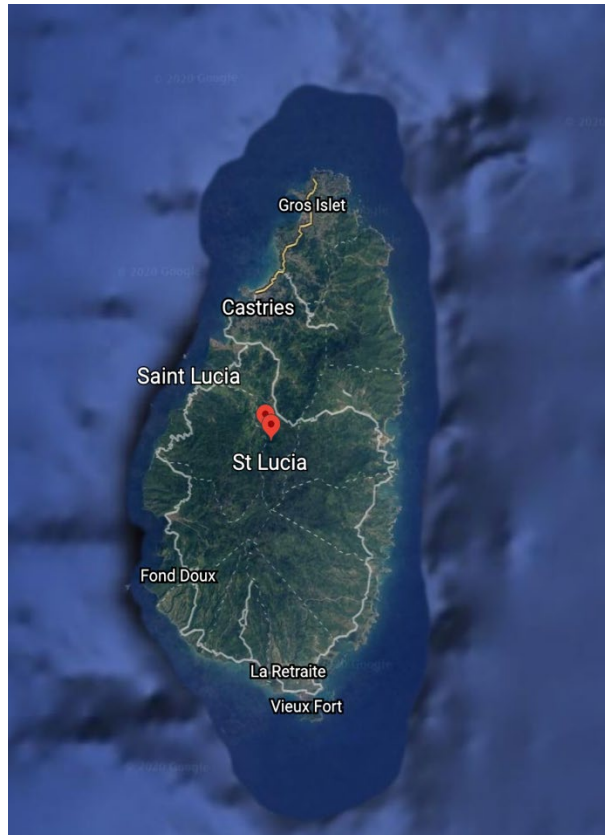


Figure 3 Saint Lucia

## Project Objective:

### Preferred adaptation solution

Despite **that there had been** limited action and knowledge sharing on climate change at the national and regional level **in the past, today the countries are united in their** strong political will commitment to build the resilience of the education sectors **across the Caribbean region with a national and regional approach**. This **commitment was established and formalised** through the Declaration on School Safety and the development of the Caribbean Roadmap on Schools Safety **to which this proposed project is aligned**.

For the **countries of** Antigua and Barbuda, as well as St Lucia to adapt to climate change, it is necessary to strengthen the climate resilience of their educational systems **especially in the face of intensifying and increasing extreme weather impacts in the region**. **Specifically, the** infrastructure of existing school buildings need to be upgraded so as to be able to withstand the impacts of Category 4 and 5 hurricanes, which have sustained wind speeds of over 200km/h. This can be achieved by **strengthening the structural integrity of school buildings** to withstand the wind shear forces, as well as by decentralising power and water supplies to reduce communities' reliance on vulnerable centralised systems, as well as other measures including stronger roofs and shutters. Initial climate-proofing interventions should focus primarily on school buildings that also serve as shelters during storm events. Increasing the resilience of these priority school buildings will lead to critical educational services remaining operational during and after an extreme event, as well as a more rapid recovery.

In addition to climate-proofing school buildings, an **enabling environment** needs to be established for implementing the Caribbean Roadmap for School Safety with three pillars: 1) safe learning facilities (including standardised school safety assessment), 2) school disaster management (incl. multi-hazard school safety plans and guidance documents) and 3) risk reduction and resilience education (including curricula and trainings on disaster risk management). The approach will ensure that the school facilities, which also serve as emergency shelters, will be **fully prepared**, accessible to all, particularly for persons who are differently-abled, and assure the **dual** functioning as education facilities and shelters during emergencies.

Furthermore, **locally**, the **capacity** of students and parents, **nationally**, school administrators and staff, as well as **regionally**, suppliers, contractors and installers of climate resilience and renewable energy products and services should be enhanced to improve understanding of climate risks and resiliency measures, **and improve market conditions for innovative technology solutions**.

The objective of the proposed project concept is to advance climate-resilient sustainable development in both countries by enhancing the resilience of their respective educational systems to extreme climate events. The proposed approach will shift these countries' educational sector away from reactive development — involving costly recovery actions after an extreme climate event — towards a proactive approach.

The proactive approach is centred on three components:

1. Establish the enabling environment for adaptation planning within the educational systems to support national implementation of Safe School Policies.
2. Strengthen the capacity of schools, businesses, communities and households to both understand climate risks and adaptation options, as well as plan and implement adaptation measures.

3. Retrofitting selected existing school buildings to withstand up to category 5 hurricanes as well as align as appropriate to the upcoming OECS Guidelines for the Locating and Designing of Disaster Resilient Schools.

This proactive approach will facilitate the eventual upscaling and replicating of these interventions across all school buildings in both countries, and ideally across the Eastern Caribbean region.

Project Component Area	Problem	Sub-objective
Enabling Environment	There are issues of institutional dysconnectivity and a diversity of policies, procedures and standards across the countries with respect to the climate change and disaster resilience and the use of schools as shelters.	Strengthen a regional and national institutional enabling framework that supports increasing the resilience of the education system, including replication across these countries and regions.
Risk reduction and Resilient Education Schools	Limited skills and knowledge at school and community level related to climate resilience activities and behaviours.  Lack of climate change adaptation / disaster management and measures plans, especially in the education sector.	Increase school and community level awareness, knowledge and ownership of adaptation planning and measures.
Safe Learning Schools	Children are at risk because the schools are not safe, school materials are lost, buildings are damaged and are unable to function as a school.	Increase the resilience of school buildings including the provision of renewable energy and water access.

## Project Components and Financing:

Project Components	Expected Concrete Outputs	Expected Outcomes	Amount (US\$)
1. Strengthen the enabling environment for adaptation planning within the education sector at the national and regional level.	Bi-annual regional and national meetings to align policies and plans, and share lessons learned.	Regional and national policy and planning on building climate resiliency within each country's education sector will be improved.	1.7 million  (1 m for regional activities and \$350 k for each country)
	A tool to assess school building conditions in alignment with and support the Model Safe School Program toolkit and OECS's Guidelines for the Locating and Designing of Disaster Resilient Schools.	Countries/school systems will understand the climate resiliency of their school buildings enabling better planning for climate resiliency investments and improved cost efficiencies.	

	<p>The Model Safe School Policy improved to include climate change resilience design, how to function as temporary shelters, upscaling options, and fully integrate the OECS Design Guidelines where applicable.</p>	<p>An enhanced Model Safe School Policy is being used by GoAB and GoSL to build climate resiliency within their education sector. The MSSP is being utilised in the other Eastern Caribbean States.</p>	
	<p>A joint report from the OECS and CDEMA capturing the data and lessons learned for replicating and upscaling across the OECS states.</p>	<p>The joint report informs policymakers and planners of Eastern Caribbean States on how to plan and implement climate resiliency and adaptation efforts in their countries based on the experiences of Antigua and Barbuda, and St Lucia.</p>	
<p>2. Strengthen the capacity of schools, businesses, communities and households to understand climate risks and adaptation options, and cope with socio-emotional impacts.</p>	<p>Conduct capacity building workshops and produce information products that educate the students, teachers and communities on the risks of climate change-related hazards and how to react in case of a disaster.</p>	<p>Students, teachers and members of the community are informed about the risk of climate change and know how to react when faced with extreme weather events. With this knowledge these groups are more resilient.</p>	<p>1.3 million  (650 k per country)</p>
	<p>Conduct capacity building workshops and produce information products to enable students, parents, and teachers to perform a self- assessments of climate resiliency of their homes and buildings.</p>	<p>Stakeholders conduct self-assessments of their homes and other community assets enabling them to act to address deficiencies, build climate resiliency of the structures and be less depending on the schools for shelters when an extreme weather event occurs.</p>	
	<p>Conduct capacity building workshops with students, parents, teachers, and <b>school personnel</b> to help them cope with the social-emotional impacts caused by extreme weather events including hurricanes. These</p>	<p>Stakeholders, especially children and school personnel, <b>are better prepared and equipped to socially and emotionally cope</b> with the impacts and trauma of extreme weather events. Leading to better performance in school and better community members.</p>	
<p>3. Climate-proofing interventions implemented in select school buildings to improve resilience to, and recovery from,</p>	<p>Safe School assessments conducted with adaptation needs and maintenance plans costed.</p>	<p>Government planners are informed about the specific needs and costs for climate-proofing select schools <b>leading to more efficient planning, budgeting and replication of actions in other schools.</b></p>	<p>8.5 million  (4.25 m per country)</p>

extreme climate events.			
	Structural integrity of priority buildings will be strengthened through several adaptation interventions, including the installation of hurricane shutters and using hurricane straps to secure roofs	At least schools 12 schools in each country (min total of 24) are climate proofed via upgrades and retrofitting providing protection to students and local communities from hurricanes and preserving facilities.	
	Install decentralized climate-resilient renewable energy and water harvesting solutions at each school to ensure school buildings maintain uninterrupted power and water supply when centralized supply is disrupted during an extreme weather event.	Targeted schools can maintain normal operations and provide shelter to others during extreme weather events as they have a continuous supply of energy and water.	
	Climate-resilient bunkers within school sites will be constructed to store food and critical supplies such as building materials, food and medicine required during and after an extreme event.	Targeted schools can sustain themselves after an extreme weather event that causes damages to supply and logistics providing a critical window of time while recovery operations are undertaken.	
	Infrastructure of school premises improved including as appropriate drainage works to prevent flooding and earth stabilizing works to prevent landslides to improve resilience and minimize climate impacts.	Schools, in addition to being resilient to category 5 hurricanes are also resilient to the associated and cascading impacts of extreme weather such as flooding and landslides.	
4. Total components			11,500,000
5. Project Execution cost			1,092,500
6. Total Project Cost			12,592,500
7. Project Cycle Management Fee charged by the Implementing Entity (if applicable)			1,070,363
<b>Amount of Financing Requested</b>			<b>13,662,863</b>

**Projected Calendar:**

Milestones	Expected Dates
Start of Project/Programme Implementation	June 2021
Project Closing	June 2024
Terminal Evaluation	August 2024



## PART II: PROJECT / PROGRAMME JUSTIFICATION

### A. Project components

The Caribbean region benefits from some experiences in regional collaboration on adaptation, through regional organisations such as the Caribbean Community Climate Change Centre (CCCCC) and regional bodies such as the Organisation of Eastern Caribbean States (OECS) and its Council of Ministers of Environment and CDEMA on DRR. These experiences provide a basis for advancing regional level planning, the setting of joint policies and standards, knowledge sharing and implementation of adaptation measures<sup>11</sup> through this project.

The advancing of adaptation activities at the regional level is innovative in the context of the Caribbean region, especially in the education sector. Moreover, locally, the innovation would be to ensure that model schools (those that will be supported) are 'green', i.e. use sustainable energy and manage water efficiently, and are safe from hurricanes for children and other users, including teachers and community members. In doing so, school interruptions will be minimised as well as damages from extreme weather events. The proposed project concept aims to develop a practice of conducting regular assessments of schools and increased compliance to standards (i.e. building codes, national and OECS guidelines, etc.).

The proposed project will support an innovative approach to student- and community learning with the purpose to increase their resilience and that of the communities where they live: each beneficiary school/community will develop facility and community climate change resilient / DRR management plans which will be updated annually. This will allow the schools and communities to track their progress on how 'resilient' they are and to identify measures to increase their resilience.

Additionally, the beneficiary schools will develop education campaigns as part of the curriculum, that will include ways to reduce risk, increase resilience, and prepare for climate change hazards. To reduce the burden on individual schools and to ensure consistency in education across all schools, the campaign will be designed at the regional level and disseminated to each school by designated officers in each country. The campaigns could include both practical actions as well as education by creative expressions by students.

The objective of the proposed project concept is to advance climate-resilient sustainable development in both countries by enhancing the resilience of their respective educational systems to extreme climate events. Component 1 seeks to strengthen the enabling framework for adaptation planning in the education sector, while Component 2 seeks to build the capacities and knowledge of those involved in the education sector including students, parents, school faculty. Component 3 entails the retrofitting and upgrading of school buildings to make them physically resilient to high-intensity storms and hurricanes. The objective is aligned the Adaption Fund Results Frameworks

#### **Component 1. Strengthen the enabling environment for adaptation planning within the education sector at the national and regional level.**

This component will contribute to AF Outcome 1, 2 and 7 by creating a national and regional enabling environment for existing school building infrastructure to be upgraded to withstand the impacts of Category 4 and 5 hurricanes – which have sustained wind speeds of over 200km/h – as well as for all future development of school buildings to be equipped to withstand these impacts. While this project is aimed at two countries, it is expected to serve as a model in which these resiliency measures are duplicated across all schools in both countries and then regionally to all the Eastern Caribbean states.

To facilitate the building of this enabling environment, bi-annual regional and national meetings will be held to align policies and plans and to share lessons learned. An assessment tool to assess school building conditions in alignment with the Model Safe School Program toolkit and **OECS's Guidelines for the Locating and Designing of Disaster Resilient Schools** which is informed by the ongoing work of the Climate Technology Centre and Network (CTCN) Technical Assistance Response Plan will be formalized for use across the region.

A tool to assess school building conditions in alignment with and support the Model Safe School Program toolkit and **OECS's Guidelines for the Locating and Designing of Disaster Resilient Schools**.

The Model Safe School Policy will be enhanced and improved to include climate change resilience design elements, including measures that enable schools to function as temporary shelters, details on upscaling options, and, where applicable, fully integrate the OECS Design Guidelines.

To build the information base for adaptation planning and replicating and upscaling across the Eastern Caribbean, a joint report from the OECS and CDEMA will be produced that captures the data and lessons learned from the project. The joint report will inform policy-makers and planners of Eastern Caribbean States on how to plan and implement climate resiliency and adaptation efforts in their countries based on the experiences of Antigua and Barbuda, and St Lucia.

**Component 2: Strengthen the capacity of schools, businesses, communities and households to understand climate risks and adaptation options, and cope with socio-emotional impacts.**

This component will contribute to AF Outcome 2 and 3 by building the capacity of stakeholders to adapt to climate change. To ensure the sustainability and upscaling potential of climate-proofing measures implemented under Component 3, training programmes will be developed with partner organisations. These training programmes be designed for and delivered to the targeted schools and their stakeholders including students, parents, teachers, administrators and the local community.

The training programmes will educate these stakeholders on:

- the risks of climate change-related hazards
- how to react in case of a disaster
- how to cope with the social-emotional stress caused by hurricanes and other disasters.
- How to conduct self-assessments of climate resiliency of homes and structures
- how to appropriately apply the regulations of the building code during the design, installation and monitoring of climate change adaptation measures
- how to install, operate and maintain climate-resilient RE and water harvesting solutions.

**To contribute to the uptake of these capacity-building interventions by all members of the community, including the most vulnerable and marginalized, gender-sensitive awareness-raising campaigns will be designed and conducted to promote participation in capacity development activities.** The campaigns will promote the availability of training on climate change adaptation measures for schools and residential buildings. as well as on the benefits of implementing these measures. This will maximise the adaptation benefits delivered by these solutions and ensure their sustainability beyond the project lifetime.

### **Component 3: Climate-proofing interventions implemented in select school buildings to improve resilience to, and recovery from, extreme climate events.**

This component will contribute to AF Outcome 4 by climate-proofing select school buildings to withstand the adverse impacts of Category 4 and 5 hurricanes and safeguarding critical basic supplies. To achieve this, the structural integrity of priority school buildings will be **assessed and** strengthened through several adaptation interventions, including the installation of hurricane mitigating window shutters, roof straps to maintain roofs in place, as well as drainage works to prevent flooding, and earth stabilisation works to prevent landslides. These interventions will physically protect buildings, thereby reducing damages and maintaining the operability of critical services during and directly after an extreme event.

The climate-resilience of critical services will be further enhanced through the decentralisation of power and water supplies to priority buildings. Decentralising power and water supplies will reduce the dependence of critical services on vulnerable central systems which are often disrupted for a prolonged period both during and after an extreme climate event. This will ensure that school buildings and the important services they support maintain an uninterrupted power and water supply when centralised systems are disrupted.

To decentralise power supply, renewable energy (RE) systems will be installed on the selected school comprising of solar PV panels and battery packs. The installation of solar panels accounts for site-specific requirements, including exposure to climate hazards and the energy requirements of the building. Specifically, solar panels will be installed using hurricane-proof clamps, that will secure panels during periods of extreme winds, while allowing for easy removal before extreme winds to prevent damage from flying debris. Maintenance staff at school buildings, along with teams from the Ministry of Education will be trained to safely remove and store panels prior to a Category 4 or 5 hurricane making landfall. To ensure continued power supply during the period that the panels are removed, the storage capacity of battery packs will be sufficient to meet basic electricity demands of priority buildings for 24–48 hours.

Furthermore, this activity will also build a climate-resilient bunker within the schools to serve as a central location to store supplies required by during and immediately after an extreme event.

Detailed school-specific upgrading plans including all the works required and to be conducted will be provided in the full proposal. This will be informed following the school assessments that are being conducted by the Improving Resilience of Human Settlements in Saint Lucia and Antigua and Barbuda project of the CTCN.

## **B. Economic, social and environmental benefits**

The proposed project will contribute towards achieving nine of the 17 UN Sustainable Development Goals (SDGs), including: SDG 3 — Good health and well-being; SDG 4 — Quality education; SDG 5 — Gender equality; SDG 6 — Clean water and sanitation; SDG 7 — Affordable and clean energy; SDG 9 — Industry, innovation and infrastructure; SDG 11 — Sustainable cities and communities; and SDG 13 — Climate action. In addition, numerous environmental, social and economic co-benefits will be achieved through project interventions as described below.

### **Economic benefits**

Project interventions will increase the resilience of select school buildings and critical services, resulting in improved climate-responsive planning and early action. These factors will lead to reduced economic losses from extreme climate events and provide several significant economic co-benefits, as listed below.

- Employment opportunities will be created through the implementation of innovative climate-proofing technologies on select school buildings. These opportunities include construction work for installing, operating, monitoring and maintaining climate change adaptation technologies, including decentralised renewable energy, climate-resilient water harvesting solutions and other resiliency measures. The creation of such employment opportunities will enhance the sustainability of project interventions beyond the project lifetime and will help stimulate critical economic activity which covid-19 has severely reduced.
- The cost to repair school infrastructure after extreme climate events such as hurricanes will be reduced through as schools included in the project will incur no or less damage from extreme weather events.
- As retrofitting activities will be designed to according to regional guidelines, damages and and required repairs from category 5 hurricanes will inform similar regional wide efforts and therefore support cost-efficiency at regional scale
- Increasing the climate resilience of select school buildings will decrease the time required for some segment of the economy to become operational and for communities to recover immediately following extreme climate events. This will reduce economic inactivity after a storm.
- Using decentralized (at sight) renewable energy will reduce energy usage costs, allowing for additional funds to be made available for maintenance of the systems.

### **Social benefits**

Climate-proofing of select school buildings will increase the resilience of vulnerable communities to extreme climate events and provide several social co-benefits, which are described below.

- Climate-proofing of select school buildings will reduce the exposure of these buildings to high-intensity storms. This will contribute significantly to reducing the risk of injuries and loss of life during such events.
- Installing decentralised (at sight) renewable energy technologies on select school buildings will ensure the continued provision of energy during and immediately following extreme climate events. As a result, communication networks will continue to be operational, and businesses will be able to resume operations after an extreme event sooner than would be possible in the absence of decentralised power.
- Installing climate-resilient water storage measures on select school buildings will lead to continued sanitation services as well as the improved provision of and access to clean drinking water during and immediately following extreme climate events. This will have considerable health benefits for all users of these buildings and reduce the risk of waterborne diseases such as hepatitis A, cholera and typhoid fever that often result from storm or flood events.
- Increasing the water storage capacity of select school buildings will increase national water supply during drought events and therefore reduce the adverse impacts of such events on vulnerable communities.
- Strengthening the technical and institutional capacity of the local workforce on how to support the installation, operation and maintenance of climate change adaptation solutions that will be installed on select school buildings will contribute to new technical skills, the growth of the RE and EE sector, and increased job security. This will, in turn, contribute to improved livelihood

security as well as enable these individuals to apply similar interventions at scale in their private capacity, which will further increase national/company/household resilience to the impacts of high-intensity storms and hurricanes.

- Climate change knowledge products disseminated to all user groups will lead to improved preparedness before the onset of extreme climate events.

### **Environmental benefits**

Increasing the climate resilience of priority school buildings through implementing climate-resilient water harvesting and renewable energy measures will yield several environmental co-benefits. These are listed below.

- Increasing the water harvesting capacity of school buildings will provide an additional source of freshwater for local communities. This will alleviate pressure on natural water resources by reducing the need for extraction from groundwater and surface reserves.
- Improving the water harvesting capacity of school buildings will reduce stormwater runoff from school buildings. This will result in reduced peak flow volume and velocity of stormwater runoff, therefore, contributing to reduced flood impacts and erosion.
- Currently, electricity is supplied by fuel oil-powered plants on Antigua and St Lucia and by diesel generators in Barbuda. The installation of rooftop solar PV systems as an alternative renewable energy source in select school buildings will consequently reduce dependency on fossil fuel energy sources and minimise the overall emission of GHGs.

### **Gender-sensitive development impact**

Climate-proofing of select educational buildings in Antigua and Barbuda, as well as St Lucia will help to limit the disruptions to education services following extreme climate events. Given the gendered demographics of the employees and users of these institutions, as well as gendered vulnerability to climate impacts, this will induce a gender-sensitive development impact, as described below.

- Although certain institutions are predominantly operated and inhabited by men, women often dominate the users and employees of — or more critically dependent upon — the public buildings targeted for climate-proofing interventions. By reducing the disruptions to the functioning of these buildings and delivery of primary services, the project will ensure both women and men's economic and household activities can resume without unnecessary delay, following an extreme climate event.
- In the full project a project gender action plan will be developed that will outline actions to ensure project implementation does not perpetuate or worsen gender inequality, by aiming to: i) promote women's inclusion in all project aspects, including training and employment opportunities; ii) pursue representative participation in all consultations and workshop events; iii) advance gender diversity and challenging negative stereotyping in public awareness activities; and iv) design and implement gender-sensitive training that considers the different learning methods and training accessibility of men and women. Through these measures, the project disrupts underlying factors contributing to gender inequality in the country, thereby contributing to gender-sensitive sustainability beyond the projects' timeline.

## **C. Describe the cost-effectiveness of the proposed project**

In recent years, Antigua and Barbuda, as well as St. Lucia have experienced several hurricanes, resulting in significant damages to the **built infrastructure including schools. In order to determine the**

cost-effectiveness of the project proposed adaptation investments compared to the expected avoided hurricane impact costs.

At this concept stage, a high-level cost-effectiveness analysis was conducted that compared the estimated costs of business as usual against based on some basic assumptions about the costs of business as usual as well as the costs of the proposed adaptation measures.

In the business as usual scenario the government responds to damages incurred from extreme weather events in the same manner as it has in the past by making repairs to the same standard. This means buildings are repaired using conventional methods and reliance on centralised energy and water supply is maintained.

In the resiliency building scenario as proposed in this concept note the government retrofits select schools to resist Category 5 hurricanes, and water and energy supply is decentralised to allow for multiple supply options. Technical capacity is built in the public and private sector.

While the initial cost of upgrading a school to make it resilient to category 5 hurricanes is greater than the one off expense of repairing a school to its previous standard after an extreme weather event, the comparison must take also factor that schools will need repeated, and increasingly so, repairs that can safely be assumed to be more significant cumulatively than the cost of the adaptation measures.

Additionally, by installing localised water and energy sources there will be costs savings realized as expenses for water and energy will be reduced.

Furthermore, in the business as usual approach there are productivity losses incurred when a school can no longer provide education services to the students and communities. The ability to calculate these savings go beyond the scope of this concept note, but the value of the losses in productivity are real and significant, if not hard to measure.

As such, the comparison makes clear that over the long term it is more cost efficient to build resiliency of the schools systems then it is to continue on a business as usual basis.

The proposed project concept requests grant finance from the Adaptation Fund to enhance the resilience of Antigua and Barbuda's and St. Lucia's education system to extreme climate events. Grants from the AF will be used to fund the climate-proofing investments that are required to adapt to climate change resulting from extreme climate events. With the support of AF grant funding, the proposed project will deliver several adaptation benefits that will contribute to each country shifting towards a climate-resilient sustainable development pathway. The funds will be used efficiently and effectively to: i) strengthening the enabling environment for adaptation planning in each country and the region to enable the public and private sector to take early action and rapid response to climate threats ii) mainstream climate change adaptation into the education sector; and iii increase the climate resilience of school buildings.

Also, by taking a regional approach, cost and operational efficiencies will be realized through efficiencies in planning, managing and implementing of the project. In addition, regional collaboration will improve the knowledge transfer process contributing to the regionally developed guidelines, policies standards, procedures and lessons learned from this project will also lead to efficiencies in upscaling this project across the region.

## **D. Consistency with national sustainable development strategies.**

This project concept strongly aligns with the national sustainable development strategies of both countries as presented below.

## Antigua and Barbuda

**Antigua and Barbuda's Medium-Term Development Strategy (MTDS)** outlines the strategies and actions to be undertaken from 2016–2020 to meet the national goal of becoming a developed country in 15–20 years<sup>4</sup>. Within the MTDS, seven Flagship Priorities are emphasized, with two of these directly relating to improved buildings and infrastructure. The technical and institutional capacity of the local workforce, as well as private sector consumers and producers<sup>5</sup> will be built through developing and delivering training programmes under Output 2 of the project. These programmes will focus on the application of the updated Building Code as well as on effective techniques for implementing, monitoring and maintaining climate change adaptation measures on infrastructure<sup>6</sup>. This output aligns closely with Flagship Priority One of the MTDS, which focuses on *inter alia* the renewal and maintenance of critical infrastructure.

**Nationally Determined Contribution** of 2015 outlines the country's commitments to addressing climate change threats through reducing GHG emissions and increasing the adaptive capacity of the population of Antigua and Barbuda. The proposed project aligns specifically with the country's adaptation priorities in that project interventions will increase the climate resilience of select school buildings.

**Antigua and Barbuda's Green Climate Fund Country Programme** will achieve its target impact potential by integrating adaptation into development processes, thereby avoiding lock-in of long-lived, climate-vulnerable infrastructure. Specifically, the country programme identifies the building, water and energy sectors as priority sectors to receive GCF support to increase their climate resilience. The proposed project is strongly aligned with these priorities in that it focuses on increasing the resilience of priority buildings to extreme climate events, and decentralising power and water supply to ensure continued provision of power and water during and immediately after an extreme event. Moreover, these interventions have been designed to be scalable and replicable both nationally and regionally, therefore, enhancing the adaptation impact of the interventions.

## Saint Lucia

**The Medium-Term Development Strategy (MTDS) for the period 2020- 2023** seeks to achieve growth that is Accelerated, Resilient, Inclusive, Sustainable and Equitably shared (A.R.I.S.E.). The MTDS is aligned with the Sustainable Development Goals and the strategic priorities of key development partners. The publication of the Medium-Term Development Strategy serves as the primary policy document that informs the country's Public Sector Investment Programme. The MTDS has six key result areas at its core, 1. Healthcare, 2. Education, 3. Citizen Security, 4. Agriculture, 5. Infrastructure and 6. Tourism; and the iterative process of issue prioritisation and the development of solutions based and actionable implementation programmes within these areas. The MTDS will guide the implementation of a strategic long-term vision (via the NDP) with a goal of delivering a more sustainable and inclusive Saint Lucia by 2022.

Saint Lucia is also in the process of formulating a longer-term **National Development Plan (NDP)**. The lead phase of the plan's development will be underpinned by the following seven broad pillars: 1. Building Productive Capacity & Expanding Growth Opportunities 2. Building Strong Institutions 3. Infrastructure, Connectivity & Energy 4. Adaptation for Environmental Sustainability and Climate Change 5. Social Transformation, Building Social Resilience and Social Capital 6. Enhancing the Labour Force 7. Promoting Physical Health and Wellness

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<sup>4</sup> Medium-Term Development Strategy 2016 to 2020 (MTDS). 2015. Government of Antigua and Barbuda.

<sup>5</sup> private sector consumers include business owners and homeowners, while private sector consumers refer to architects, engineers and private contractors.

<sup>6</sup> such measures include climate-resilient water harvesting and decentralised renewable energy

Several key policies have recently been developed to facilitate the mainstreaming of disaster and climate risk analysis and consideration in infrastructure design and implementation, as well as decision-making, including in planning and budgetary processes and public investment projects including the following:

**The National Land Policy**, which guides risk-informed land use planning and mitigates development in disaster-prone locations.

**The Urban Transformation Policy**, which guides the revitalization of well-designed and well managed urban centers, with well-maintained and resilient infrastructure, to unleash their economic potential for growth.

**The Nationally Determined Contribution (NDC)** of 2015 outlines the country's commitments to addressing climate change threats by reducing GHG emissions and increasing the adaptive capacity of the population of Antigua and Barbuda. The proposed project aligns specifically with the country's adaptation priorities in that project interventions will increase the climate resilience of select school buildings.

**The Climate Change Adaptation Policy (CCAP, 2015)** is St. Lucia's strategic framework for addressing the impacts of climate change in an integrated manner and across all key sectors. It lays out goals for 2022 under three pillars (facilitation, financing, and implementation).

**St Lucia Green Climate Fund Country Programme** is being finalized however it identifies the building, water and energy sectors as priority sectors to receive GCF support to increase their climate resilience. The proposed project is strongly aligned with these priorities in that it focuses on increasing the resilience of priority buildings to extreme climate events, and decentralising power and water supply to ensure continued provision of power and water during and immediately after an extreme event. Moreover, these interventions have been designed to be scalable and replicable both nationally and regionally, therefore, enhancing the adaptation impact of the interventions.

## Regional

**OECS Eastern Caribbean Regional Climate Change Implementation Plan.** The aim of the project was to provide strategic support to the OECS to help develop, prepare to implement, and finance an Eastern Caribbean Climate Change Implementation Plan. This initial project was seen as the first building block.

**The Model School Safety Programme for Caribbean Schools:** The goal of the Model Safe School Programme of CDEMA is to create safe, secure/protective and green educational institutions from pre-primary to tertiary levels, including private and public institutions through the development of simple, applicable and adaptable tools. This policy, along with the assessment tools provide the framework for the development of procedures to enhance school safety throughout the region. In order to address some of the evident vulnerabilities of the education sector, the toolkit was developed by CDEMA to guide governments on the development of National Safe School Policies, and to offer tools for assessing the level of safety and greening of schools.

**The Caribbean Safe School Initiative (CSSI):** During the Caribbean Safe Schools Ministerial Forum of 2017, regional commitment to disaster risk management in the education sector was reaffirmed resulting in the Antigua and Barbuda Declaration on School Safety and the Caribbean Road Map on Schools Safety.



The **Antigua and Barbuda Declaration on School Safety** which was ratified by a group of Caribbean Ministers of Education guides the CSSI for the upcoming years through specific actions that are presented in the **Caribbean Road Map on School Safety**. The priority areas of the CSSI to be pursued are:

1. Develop enabling policies and national plans and strategies;
2. Secure human and financial resources;
3. Enhance and implement a standardized schools safety assessment;
4. Develop a safe school standard;
5. Review and develop multi-hazard school safety plans and guiding documents;
6. Improve coordination among stakeholders;
7. Review and update disaster risk management components in the curriculum;
8. Train school staff, families and the community in disaster risk management;

## **E. Compliance with relevant national technical standards**

### **Regional Technical Standards**

**The Organisation of Eastern Caribbean States Building Codes:** This updated code recognizes that the damage caused by extreme natural events disproportionately affect the poor and emphasizes the development of building standards that will prevent or mitigate damage. The regional Governments are also revising existing planning and building regulations to be more responsive to the current needs, and to ensure that all buildings are constructed in a "safe" manner and resistant to the natural hazards.

The design and implementation of retrofitting activities of this project will be conducted to align with the OECS building codes standards. Furthermore, the capacity development activities of the project will be developed to also align with the OECS regional standards to ensure climate change resiliency.

**CARICOM Renewable Energy Building Codes (CREEBC):** The CREEBC is designed to specifically meet the needs of the Caribbean. It establishes minimum energy efficiency requirements inclusive of those for the building envelope, cooling system, ventilation, pumping, lighting and the service water-heating systems in buildings. The technical requirements of this code are the product of both regional and international expertise.

The design and installation of renewable energy systems of this project will be conducted to align with the CREEBC standards. Furthermore, the capacity development activities of the project will align to CREEBC standards.

**OECS Guidelines for the Locating and Designing of Disaster Resilient Schools:** This forthcoming Guiding document will produce standards for locating and designing schools to be resilient to natural disasters, therefore making them

## **F. Duplication of project with other funding sources**

The proposed project concept will avoid overlap with other projects and use lessons learned where possible and seeks to catalyse a paradigm shift within Antigua and Barbuda's, and St. Lucia's approach to the building and renovating of schools away from conventional development practices to an approach that prioritizes the adoption of innovative climate-resilient solutions and early action.

The project will catalyse a paradigm shift in each country's building sector by establishing a standard for the adoption of climate-resilient interventions that can be readily scaled up and replicated across the country's public building portfolio<sup>7</sup> as well as within the private sector.

Through the implementation of these transformative adaptation interventions, the project will facilitate the wide-scale replication of climate-resilient practices nationally and across the Caribbean region.

### **Baseline projects in Antigua and Barbuda**

Considerable baseline investments are being made through public expenditure and donor-funded initiatives to increase the resilience of Antigua and Barbuda and St Lucia's built environment to extreme climate events.

Lessons learned and best practices from these investments have been incorporated into the design of the proposed project to replicate successful adaptation techniques and ensure that there is complementarity between the project and existing actions. The most relevant baseline investments that will be complemented by the proposed project interventions are presented below.

- The Government of Antigua and Barbuda is currently implementing a project entitled **Building climate resilience through innovative financing mechanisms for climate change adaptation** which is funded by the Special Climate Change Fund (SCCF). Among its four primary focus are: i) developing innovative financing mechanisms to fund adaptation interventions through the Sustainable Island Resource Framework Fund (SIRF Fund), including for the building sector; and ii) strengthening national policies and plans to promote adaptation to climate change through *inter alia* updating the national building code, which includes considerations for Category 4 and 5 hurricanes. The proposed project concept will complement this SCCF-funded project by building the physical resilience of select school buildings, building the capacity of involved and affected stakeholders to understand climate risks and build adaptive capacity, and contributing to policy development at national and regional levels.
- The GoAB is currently preparing the following project proposal to be submitted to the Green Climate Fund. **“Resilience to hurricanes in the building sector in Antigua and Barbuda”** is expected to be presented to the GCF board for approval in 2020 and will have a value of approximately \$39 M. This project seeks to build the climate resilience of Antigua and Barbuda's building sector by 1. Climate-proofing interventions implemented in critical public service and community buildings to improve resilience to, and recovery from, extreme climate events, 2 Mainstreamed climate change adaptation into the building sector and relevant financial mechanisms, and 3. Strengthening climate information services in order to facilitate early action within the building sector to respond to extreme climate events. The proposed project concept aligns to 1 and 2 but is focused specifically on education sector.
- Furthermore, the GoAB is implementing a **Grid-interactive Solar PV Systems for Schools and Clinics** project. The overall goal of this project “is to ensure that during a drought or a hurricane, schools in the country will still be fully functional, better known as climate-resilient. Using clean technology will contribute to the national commitment of reducing our CO2 emissions” (Dept. of the Environment). Reducing our electricity usage, while increasing the trainees and trainers' awareness of environmental management and renewable energy both at the Center and in the surrounding communities will be a vital outcome. The proposed project

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<sup>7</sup> This portfolio identifies 200 public buildings for implementation of climate-resilient measures.

concept will build off / complete this project by installing climate-resilient Solar PV Systems in select schools.

- **Improving Resilience of the Education system to climate change impacts in the Eastern Caribbean region for Saint Lucia and Antigua and Barbuda.** The main aim of this Technical Assistance is to enable the GoSL and GoAB to strategically assess the climate risk of school emergency shelters and appraise improvement measures required. This information will enable these governments to seek funding to implement these measures.

### **Best practices and lessons learned**

Best practices from the Organisation of Eastern Caribbean States (OECS) Building Code and the Caribbean Disaster Mitigation project will inform the design of climate-proofing interventions to be implemented under the proposed concept. Lessons learned from numerous baseline investments into climate change adaptation in both countries will also inform the design of all project interventions. Such lessons include appropriate mechanisms for ensuring that project activities are implemented in a participatory, gender-inclusive and sustainable way.

Best practices from the Caribbean Disaster Emergency Management Agency (CDEMA) also inform this project concept as taken from the Model Safe School Programme (MSSP) toolkit. The toolkit guides governments on the development of National Safe School Policies and offers tools for assessing the level of safety and greening of schools.

Moreover, international best practices and lessons learned that have been identified will inform the final project design and include:

- using climate-resilient materials for increasing the structural integrity of school buildings;
- ensuring that designs of buildings under future climate change conditions, do not include long overhangs, which are at risk to high-intensity storms;
- incorporating traditional knowledge into training for engineers, architects, draughtsmen on how to design and implement climate-resilient solutions in the building sector;
- increasing compliance with the standards and guidelines stipulated in the national building code;
- updating the national and local policy framework for the building sector to ensure that future development adopts changes in international standards regarding the technical specifications required by all buildings under changing climate conditions;
- drawing on regional experiences and resources to increase capacity to respond to the impacts of extreme events;
- developing appropriate strategies for securing financial resources for project development and implementation;
- undertaking regular monitoring and evaluation of climate-adaptive interventions to ensure that the most effective and appropriate solutions are being implemented under future conditions of climate change;
- engaging and collaborating extensively with all relevant project stakeholders will encourage buy-in from national- and local-level decision-makers therefore contributing to the sustainability of proposed adaptation interventions over the long term; and

- implementing effective financial and project management strategies to ensure the efficient use of financial resources and avoid delays during the implementation phase.

## **G. Learning and Knowledge Management**

To support the shift away from the current paradigm of reactive development and recovery, climate change adaptation for the education sector will be mainstreamed broadly into the public and private sectors that are touched by the education sector. The envisioned activities of capacity building and enhancing the enabling environment will foster a proactive approach to climate-resilient planning and development by the GoAB and the GoSL, private sectors and households.

The uptake and sustainability of climate-resilient adaptation solutions beyond the project to other schools, public and private buildings as well as homes will be driven through awareness campaigns that highlight the benefits associated with investing in climate-resilient practices. These benefits include:

- reductions in the economic losses caused by extreme climate events as a result of the improved structural integrity of structures (public and private sector buildings and homes),
- continuity of operations of businesses and schools,
- ability to continue living in homes, avoiding being displaced to shelters or otherwise,
- reductions in insurance premiums as a result of reduced risk to climate-proofed buildings.

Efficient and effective knowledge transfer through the aforementioned awareness campaigns will not only improve the uptake of climate-resilient building practices but will also improve the preparedness of schools and other critical public services, local communities, households, business owners, and other private sector stakeholders for the onset of extreme climate events.

In addition to facilitating the uptake of climate-resilient building practices, the project will shift disaster response by the GoAB from a reactive approach towards proactive climate-responsive planning. This will be focused on increased preparedness for extreme climate events such as hurricanes and tropical storms.

Knowledge management will be strongly embedded in the project and takes the approach of learning and disseminating information that are relevant to scaling this project to other schools and other countries. Knowledge products (lessons learned, data, and information on the processes) will be created, made publicly available and widely disseminated to inform policymakers, administrators and others to scale this project across the Caribbean.

Additionally, a localised approach will be taken to inform local communities and individuals about the importance and value of enhancing the resilience of their physical structures and building their capacity to climate-proof their structures. Information products will be designed specifically for these stakeholders and disseminated providing clear and practical information on how to retrofit structures (or when building new), to be resilient to category 4 and 5 hurricanes. Included will be lessons and information related to the use and implementation of innovative, low-cost water and renewable energy supply techniques and management.

At a regional level, the OECS will develop a knowledge and management plan to capture knowledge and develop in into actionable information will be shared with other OECES member states. Lessons learned, especially what worked and what did not, will be captured through monitoring of all project sub-interventions. This information will inform the replication / upscaling guidelines for use in planning and rolling across the region.

## H. Consultative process

The consultation process conducted in the development of this concept note was built on the consultations of the pre-concept stage. In-person community consultations were conducted remotely as the spread of COVID-19 made travel impossible and the targeted stakeholders began, and still, practice social distancing. In the development of the full proposal an in-depth and comprehensive community consultation process will be conducted.

Consultations were conducted weekly (and more frequently in some cases) via video calls and email throughout the project concept development to secure buy-in from the relevant project partners and ensure coordination of project interventions. Consultations were held with key regional and national stakeholders in both Antigua and Barbuda, as well as St. Lucia and included representatives from the environmental and educational ministries from both governments. Additionally, consultations were held with the Caribbean Disaster Emergency Management Agency and the Organisation of Eastern Caribbean States. These consultations included in-depth technical discussions with representatives from relevant government ministries and regional organizations on the project components, activities, and targeted outcomes.

The consultative process shaped the design of this project concept note and was structured to:

- identify the specific needs and concerns of stakeholders, especially school children, school officials, women, and disabled groups;
- align with relevant national and sectoral priorities;
- avoid duplication with other projects and use lessons learned;
- identify and avoid potential environmental and social risks and impacts.

This project concept note was developed in close coordination with the relevant ministries, examining regional, national and sectoral plans and strategies to ensure the project aligns for both countries. Regional frameworks have been reviewed in order to ensure a platform for scaling up and replicating across the Eastern Caribbean.

### **National entities included in the consultations in Antigua and Barbuda were:**

- Ministry of Health and Environment, Department of Environment;
- National Office of Disaster Services;
- Antigua and Barbuda Disabilities Association.

### **National entities included in the consultations in St Lucia were:**

- Ministry of Education, Innovation, Gender Relations and Sustainable Development;
- Ministry of Economic Development, Housing, Urban Renewal, Transport and Civil Aviation;
- Ministry of Sustainable Development;
- National Emergency Management Organization.

### **Regional entities included in the consultations were:**

- The Organisation of Eastern Caribbean States;
- The Caribbean Disaster Emergency Management Agency;
- Climate Technology Centre and Network.

## **Mission Plan**

The mission that was cancelled due to covid-19 had the following itinerary:

- Antigua: March 15th–18th
- Barbuda: March 19th–21st
- St Lucia: March 22nd–27th

This above mission will be rescheduled take place immediately after the travel ban is lifted.

#### **Stakeholder consultations conducted in the development of the pre-concept included:**

- Regular bi-weekly or monthly calls with UNICEF, CDEMA, Saint Lucia and A&B since September through December 2019;
- Calls with Climate Technology Centre and Network (CTCN) in October, November, December to support component 3 and align with the Technical Assistance of the school assessments;
- Meetings with the NDA's (and Minister of Environment of A&B) at COP25 in Madrid;
- Project site visit in June 2019.

During the **preparation of the full proposal** an additional mission(s) will be undertaken to:

- collect additional baseline information;
- visit the identified target school buildings that will receive climate-proofing measures;
- conduct community consultations with populations to be touched by the project to learn from them and engage them in the project;
- conduct consultations with relevant private sector entities and key companies;
- collect necessary climate data to strengthen the climate rationale of the project;
- further develop and validate potential project interventions — including appropriate climate-proofing measures;
- determine roles and responsibilities of the relevant implementing entities for the project.
- To determine the Environmental and Social Risks of the detailed project interventions

For the pre-concept note, meetings were held with AF focal points, different ministries focal points and with the OECS, CDEMA and UNICEF to align with regional and national priorities and to avoid overlap with other projects.

## **I. Justification for funding requested**

As SIDS, both Antigua and Barbuda, as well as St. Lucia are particularly vulnerable to extreme climate events such as tropical storms and hurricanes. Over the period of 1999–2018 Antigua and Barbuda ranked 47th and St Lucia 51st on the Global Climate Risk Index. Additionally, over that same period, Antigua ranked 6<sup>th</sup> and St Lucia 17<sup>th</sup> in terms of Losses per unit GDP in %.<sup>8</sup>

The primary reasons for both country's vulnerability, which is typical of Eastern Caribbean nations, are i) inefficient planning and management of the built environment; ii) high costs of repairing damage caused by recurrent extreme climate events; iii) the composition of the economies; iv) high population density in the coastal zones; and v) limited availability of freshwater resources. Additionally, both countries have limited financing options due to their high public debt. Existing high budget costs for disaster recovery are grossly inadequate for expected future adaptation investments. Hence, grant financing from the Adaptation Fund is needed to fund this project.

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<sup>8</sup> Germanwatch. 2019. Global Climate Risk Index.

The frequency of high-intensity tropical storms and hurricanes that make landfall in the Eastern Caribbean, including Antigua and Barbuda, as well as St. Lucia, is expected to increase under future climate change conditions. High-intensity storms and hurricanes have severe impacts on the region and countries, including loss of life, economic losses and damage to infrastructure. For example, in 2017 Hurricane Irma resulted in ~129 fatalities across the Caribbean and south-eastern region of the United States. The impacts of these extreme climate events are further exacerbated by both country's economic composition. For example, tourism makes up the largest proportion of each country's GDP (~60% for Antigua and Barbuda and ~42% for St. Lucia) and accounts for the highest overall investment. The onset and aftermath of extreme events, including those events that had regional impacts, but did not directly hit either country, still significantly reduces tourist activity in each country. This not only affects revenue generation, but also leads to increased unemployment in the tourism sector. Such unemployment results from the closure of tourism-driven businesses and a subsequent reduction in employment demand in the sector. Both countries are heavily reliant on imports of basic supplies, including food, medicine and building materials. Extreme climate events have major impacts on these imports as shipping routes become unsafe and insurance premiums for shipping companies increases.

GDP per capita and Human Development Index (HDI) are both relatively high in each country with Antigua and Barbuda at ~US\$16,727<sup>9</sup> and 0.78<sup>10</sup>, and St. Lucia at ~\$10,566<sup>11</sup> and 0.75 respectively. However, these countries have small tax and market bases as well as high public debt — constraining each government's ability to allocate funding from the national budget for adaptation. Moreover, limited opportunities exist for the public and private sector to access financial resources for addressing climate change impacts. External investment is therefore critical to increase the resilience of both countries to climate change.

## J. Sustainability of the project

The proposed project concept is based on the premise that to sustain the **project outcomes** over the long term requires linking the initiatives and lessons to **national and regional policies and strategies** as well as institutional frameworks.

**Given that** there is strong political **commitment from** the Ministries of Education of both countries and OECS States for building resilience of school infrastructure to climate changed-induced extreme weather events there **is a pathway for sustaining the adaptation measures beyond the life of the project.**

The proposed project concept will assist these countries to take a more proactive and sustained approach to **climate change adaptation planning** in the education sector.

The proposed project interventions have been designed to deliver maximum adaptation benefits to vulnerable communities beyond the project lifetime. These benefits are centred around increasing the climate resilience of the educational facilities and system and will be highlighted during numerous workshops that will be conducted during the implementation phase. Uptake of climate resilience technologies within the education sector requires buy-in and commitment from all project partners to ensure that adaptation solutions continue to provide benefits to the population over the long term.

The project concept has been developed through a participatory and consultative process, which has allowed relevant stakeholders to contribute to this conceptual design of the project interventions.

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<sup>9</sup> World Bank. 2018. Available at: <https://data.worldbank.org/indicator/NY.GDP.PCAP.CD?locations=AG>

<sup>10</sup> UNDP. 2017. Inequality-adjusted Human Development Index. Available at: <http://hdr.undp.org/en/composite/IHDI>

<sup>11</sup> World Bank. 2018. Available at: <https://data.worldbank.org/indicator/NY.GDP.PCAP.CD?locations=AG>

Undertaking the development of the project concept in this way has promoted a country-driven approach to the project in both Antigua and Barbuda, and St. Lucia, which will be key to ensuring the sustainability of project interventions over the long term.

Another key design feature of the project to drive sustainability over the long term and encouraging scaling up and replication of these innovative solutions within each country and across the Caribbean is the efficient and effective transfer of knowledge. Additionally, public and private sector stakeholders will be trained on climate-resilient adaptation solutions for the school buildings, incorporating a train-the-trainers approach to ensure that knowledge of these solutions is maintained regardless of staff turnover. Technical staff from the relevant Ministries (e.g. building inspectors and building maintenance teams) will be trained on how to effectively implement, operate, maintain and monitor climate-adaptive measures installed on buildings.

Consumers and producers within the private sector will also be targeted to receive training on the design, use and maintenance of climate resilience measures including: i) private user groups — for example, business owners and homeowners; and ii) private sector service providers — for example, architects, engineers and private contractors.

The sustainable operation and management of construction-related project interventions will be conducted by key government institutions to oversee specific project activities, with a commitment from both Governments to finance all operations and maintenance activities required under the project.

Interventions focused on increasing the structural integrity of schools are expected to deliver adaptation benefits for 50 years, while the installation of solar PV panels and climate-resilient water harvesting solutions on targeted buildings are expected to deliver adaptation benefits for 20 years.

Furthermore, site-specific operational procedures will be developed for long-term maintenance of climate-proofing interventions for each school building, and these procedures will be integrated into the project O&M Framework. The maintenance plans and costs for the climate change adaptation measures to be installed on priority buildings are presented below.

The sustainability of the climate-resilient adaptation solutions will be enhanced through awareness campaigns that highlight the benefits associated with investing in climate-resilient practices. These benefits include: i) reductions in insurance premiums as a result of a reduced risk to climate-proofed structures; and ii) reductions in the economic losses caused by extreme climate events as a result of improved structural integrity of critical buildings. Efficient and effective knowledge transfer through the aforementioned awareness campaigns will not only improve the uptake of climate-resilient building practices, but will also improve the preparedness of schools, local communities, business owners and other stakeholders for the onset of extreme climate events.

In addition to facilitating the uptake of climate-resilient building practices, the project will shift disaster response by the GoAB and the GoSL from a reactive approach towards a proactive climate-responsive planning which has sustained long term benefits..

## **K. Environmental and social impacts and risks.**

The environmental and social risk associated with this proposed project (Concept Note) was evaluated in accordance with Adaptation Fund's Environmental and Social Policy, UN-Habitat's Environmental and Social Safeguards System (ESSS) as well as with the environmental, social and economic policies of Antigua and Barbuda, and St Lucia. A preliminary Safeguards Screening Report is completed and filed, the project is tentatively categorized as a Category B project (Medium Risk) due to the results envisioned in environmentally and socially vulnerable areas, and potential impacts of policy changes.



The Medium Risk classification triggers the necessity to further assess all project outputs and to ensure that all consortium and implementing partners will receive adequate training in the safeguards system. Further, all unidentified sub-projects (the community action to be developed during the project) will need to undergo an environmental and social screening and where necessary and environmental and social impact assessment. Detailed procedures will be developed in an Environmental and Social Strategy / Management Plan.

Overall, the environmental and social impacts and risks assessed to be present in this project are moderate and associated with activities whereby climate-proofing interventions will be implemented in select school buildings. While the project is expected to result in significant net-positive benefits in the long term — However, the process of retrofitting of school buildings may cause temporary closures, as will the utilization of schools as shelters during and after extreme weather events will restrict access to services for the population in both countries.

The project is designed to generate positive economic, environmental and social impacts, and will encourage inputs and participation from women, and disabled persons from within the host communities.

### Environmental impacts

All potential environmental impacts associated with the project are linked with the renovation of school buildings and public infrastructure and include the generation and subsequent disposal of waste from demolition processes and construction activities as well as concerns regarding the sourcing of materials. Because the majority of construction will focus on upgrading of existing in-place facilities — as opposed to the breaking of new ground — many of the potential environmental impacts that are normally associated with construction activities are not applicable. Additionally, because the required construction activities are relatively small in scale, require limited landscaping and will be implemented within urban or peri-urban vicinities, impacts on biodiversity, critical ecosystems and soils are considered minor and limited in scale.

### Social impacts

As previously stated, the main social impacts associated with the project are temporary restrictions on access to school buildings and services. Where services provided by these buildings are critical — construction activities will be implemented in a phased approach to ensure that limited services can still be provided during construction. Additionally, advance notice of closures will be provided to the communities. Also several minor social risks that have been identified and are associated with construction activities. These include labour practices, construction site safety and social disruptions adjacent to construction sites. These additional minor impacts are all temporary and can be mitigated through regular monitoring and management. No long-term social impacts are associated with the project.

Checklist of environmental and social principles	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance
<i>Compliance with the Law</i>	X	
<i>Access and Equity</i>		X
<i>Marginalized and Vulnerable Groups</i>	X	

<i>Human Rights</i>	X	
<i>Gender Equity and Women's Empowerment</i>		X
<i>Core Labour Rights</i>		X
<i>Indigenous Peoples</i>	X	
<i>Involuntary Resettlement</i>	X	
<i>Protection of Natural Habitats</i>		X
<i>Conservation of Biological Diversity</i>	X	
<i>Climate Change</i>	X	
<i>Pollution Prevention and Resource Efficiency</i>		X
<i>Public Health</i>	X	
<i>Physical and Cultural Heritage</i>	X	
<i>Lands and Soil Conservation</i>		X

### **Compliance with the Law**

The proposed project concept is designed to comply with all relevant regional and national laws, especially those cited under Section E of this document. To ensure that no legal issues arise and that all relevant legal requirements are met, relevant authorities in both countries will be consulted during the development of the full project proposal,

### **Access and Equity**

The proposed project concept is designed to ensure that there is equal access to infrastructure and services by all people as appropriate.

### **Marginalised and vulnerable groups**

The design and implementation of the proposed project concept should not have any negative impacts on marginalised and vulnerable groups.

### **Human Rights**

The proposed project concept is designed to respect and adhere to the requirements of all relevant conventions on human rights.

### **Gender Equity and Women's Empowerment**

The proposed project concept is designed to ensure that gender considerations are included in all project interventions.

### **Core Labour Rights**

Activities to retrofit buildings will create employment. The relevant national labour laws guided by the ILO labour standards will be followed throughout project implementation.

### **Indigenous Peoples**

No indigenous groups are expected to be impacted by the implementation of the proposed project concept.

### **Involuntary Resettlement**

No involuntary resettlement is foreseen in any circumstance during project implementation.

### **Protection of Natural Habitats and Conservation of Biological Diversity**

While damage to natural habitats and threats to biological diversity are unlikely, there is a possibility that construction work may temporarily adversely impact local biodiversity. Efforts will be made to prevent damage, and actions will be taken to restore any damaged natural habitats to their original condition. This will be further assessed in the full proposal stage.

### **Climate Change**

No mal-adaptation activities are foreseen as the project will not provide or install infrastructure or appliances that result in increased greenhouse gases (GHG) emissions. The project will install renewable energy solutions that reduce GHG emissions.

### **Pollution Prevention and Resource Efficiency**

As per above, the installation of localized renewable energy solutions will reduce pollution levels and will lead to resource efficiencies.

### **Public Health**

No public health issues are foreseen as a risk. The project expects to improve public health by preventing or reducing injuries from climatic events.

### **Physical and Cultural Heritage**

No physical or cultural heritage impacts are foreseen. No heritage sites have been identified during the screening risks of proposed interventions in target areas.

### **Lands and Soil Conservation**

Efforts will be made to minimize the disturbance of land and soil while renovation/retrofitting school buildings. Any damage that is done to land and soil will be restored to its original state. Additionally, the project will seek to protect risk areas and critical natural habitats from damage and protective measures for land erosion control will be conducted as required.

## PART III: IMPLEMENTATION ARRANGEMENTS

- A. Describe the arrangements for project / programme implementation.
- B. Describe the measures for financial and project / programme risk management.
- C. Describe the measures for environmental and social risk management, in line with the Environmental and Social Policy of the Adaptation Fund.
- D. Describe the monitoring and evaluation arrangements and provide a budgeted M&E plan.
- E. Include a results framework for the project proposal, including milestones, targets and indicators.
- F. Demonstrate how the project / programme aligns with the Results Framework of the Adaptation Fund

Project Objective(s) <sup>12</sup>	Project Objective Indicator(s)	Fund Outcome	Fund Outcome Indicator	Grant Amount (USD)
Project Outcome(s)	Project Outcome Indicator(s)	Fund Output	Fund Output Indicator	Grant Amount (USD)

- G. Include a detailed budget with budget notes, a budget on the Implementing Entity management fee use, and an explanation and a breakdown of the execution costs.
- H. Include a disbursement schedule with time-bound milestones.

<sup>12</sup> The AF utilized OECD/DAC terminology for its results framework. Project proponents may use different terminology but the overall principle should still apply

## PART IV: ENDORSEMENT BY GOVERNMENT AND CERTIFICATION BY THE IMPLEMENTING ENTITY

### A. Record of endorsement on behalf of the government<sup>13</sup>

<b>Antigua and Barbuda</b> Diann Black-Layne Chief Environment Officer Ministry of Agriculture, Lands, Housing and the Environment	August 1, 2019
<b>Saint Lucia</b> Ms. Caroline Eugene Permanent Secretary Department of Sustainable Development Ministry of Education, Innovation, Gender Relations and Sustainable Development	August 2, 2019

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<sup>13</sup>. Each Party shall designate and communicate to the secretariat the authority that will endorse on behalf of the national government the projects and programmes proposed by the implementing entities.



## GOVERNMENT OF ANTIGUA AND BARBUDA

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Ministry of Health and the Environment  
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**REF: DOE/38/Donor Agencies**

1- August 2019

The Adaptation Fund Board  
c/o Adaptation Fund Board Secretariat  
Email: [Secretariat@Adaptation-Fund.org](mailto:Secretariat@Adaptation-Fund.org)  
Fax: 202 522 3240/5

**Subject: Endorsement for UN-Habitat submission "Increasing resilience of the education system to climate change impacts in the Eastern Caribbean region"**

In my capacity as designated authority for the Adaptation Fund in Antigua and Barbuda, I confirm that the above regional project proposal is in accordance with our government's national and regional priorities in implementing adaptation activities to reduce adverse impacts of, and risks, posed by climate change in Antigua and Barbuda, and in the OECS region.

Accordingly, I am pleased to endorse the above project proposal with support from the Adaptation Fund. If approved, the project/programme will be implemented by UN-Habitat and executed by the Department of the Environment, Ministry of Health, Wellness and the Environment.

Sincerely,

Ambassador Diann Black-Layne  
Chief Environment Officer  
Department of the Environment  
Ministry of Health, Wellness and the Environment



**MINISTRY OF ENVIRONMENT, CLIMATE RESILIENCE, DISASTER  
MANAGEMENT AND URBAN RENEWAL  
ENVIRONMENTAL COORDINATING UNIT**

Tel: (767) -266-5256  
Fax: (767) -448-4577  
E-mail: [ecu@dominica.gov.dm](mailto:ecu@dominica.gov.dm)

37 Great George Street  
Roseau, DOMINICA  
Website: <http://ecu.gov.dm>

2<sup>nd</sup> August, 2019

To: The Adaptation Fund Board  
c/o Adaptation Fund Board Secretariat  
Email: [Secretariat@Adaptation-Fund.org](mailto:Secretariat@Adaptation-Fund.org)  
Fax: 202 522 3240/5

Subject: Endorsement for "Increasing resilience of the education system to climate change impacts in the Eastern Caribbean region"

In my capacity as designated authority for the Adaptation Fund in Dominica, I confirm that the above regional project/programme proposal is in accordance with the government's national priorities in implementing adaptation activities to reduce adverse impacts of, and risks, posed by climate change in the OECS.

Accordingly, I am pleased to endorse the above project/programme proposal with support from the Adaptation Fund. If approved, the project/programme will be implemented by the United Nations Human Settlements Programme and executed by OECS, CEDEMA, Ministry of Education and Human Resource Development.

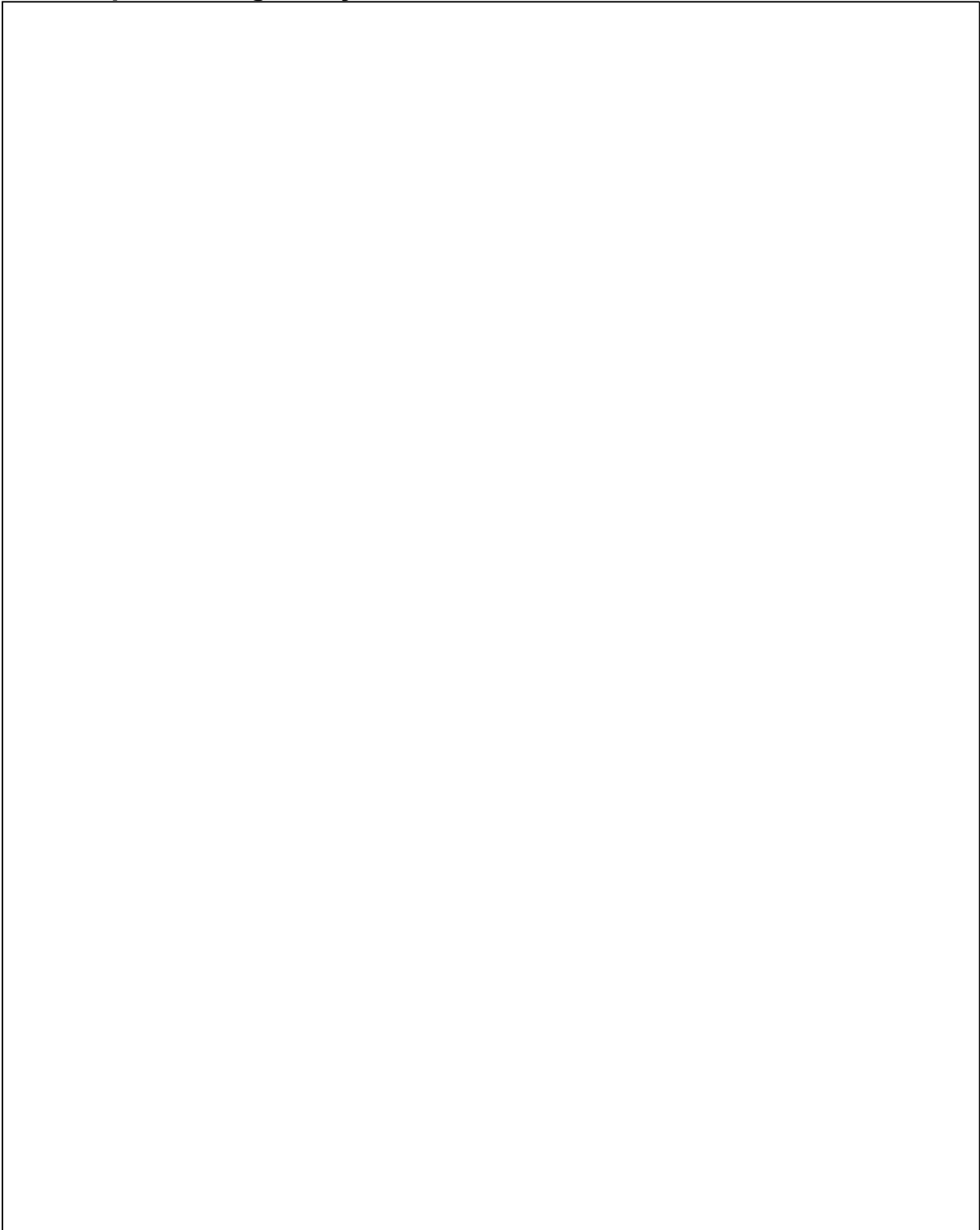
Sincerely,

.....  
**LLOYD PASCAL  
SENIOR POLICY ADVISER**

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***"Embrace the Challenge: Rethink, Rebuild, Transform"***

**B. Implementing Entity certification**





## Annex 1: UNFCCC Climate Technology Centre and Network Technical Assistance Response Plan – Terms of Reference