ADAPTATION FUND BOARD SECRETARIAT TECHNICAL REVIEW OF PROJECT/PROGRAMME PROPOSAL

PROJECT/PROGRAMME CATEGORY:

Countries/Region: Antigua and Barbuda and Saint Lucia
Project Title: Increasing the Resilience of the Education System to Climate Change Impacts in the Eastern Caribbean
Thematic Focal Area: Disaster risk reduction and early warning systems
Implementing Entity: UN-Habitat
Executing Entities: Antigua and Barbuda: Department of Environment; St Lucia: Ministry of Education, Innovation, Gender Relations and Sustainable Development; Regional: The Organisation of Eastern Caribbean States (OECS), and The Caribbean Disaster Emergency Management Agency (CDEMA)
AF Project ID: AF00000192
IE Project ID:
Requested Financing from Adaptation Fund (US Dollars): 13,996,500
Reviewer and contact person: Saliha Dobardzic
Co-reviewer(s): Claudia Lasprilla
IE Contact Person:

Technical Summary	The project "Increasing the Resilience of the Education System to Climate Change Impacts in the Eastern Caribbean" aims to advance climate-resilient sustainable development in both countries by enhancing the resilience of their respective educational systems to extreme climate events. This will be done through the three components below: Component 1: Strengthen the enabling environment for adaptation planning within the education sector at the national and regional level (USD 380,000); Component 2: Strengthen the capacity of schools, businesses, communities and households to understand climate risks and adaptation options, and cope with socio-emotional impacts (USD 979,000); Component 3: Climate-proofing interventions implemented in select school buildings to improve resilience to, and recovery from, extreme climate events (USD 10,315,500). Requested financing overview: Project/Programme Execution Cost: USD 1,225,500 Total Project/Programme Cost: USD 12,900,000 Implementing Fee: USD 1,096,500 Financing Requested: USD 13,996,500

	The initial technical review raises several issues, such as duplication, regional approach, cost-effectiveness, and gender inclusion as is discussed in the number of Clarification Requests (CRs) and Corrective Action Requests (CARs) raised in the review.
Date	January 24, 2021

Review Criteria	Questions	Comments	Response
Country Eligibility	1. Are all of the participating countries party to the Kyoto Protocol?	**Yes.**	
	2. Are all of the participating countries developing countries particularly vulnerable to the adverse effects of climate change?	**Yes**. Small island states in the Eastern Caribbean region are exposed to a variety of climate change hazards, including hurricanes, floods, landslides, droughts and fires. Important economic sectors are being negatively impacted, including educational systems, which are the main focus of the submitted proposal. Buildings and supporting infrastructure in the region need to be enhanced to withstand climate impacts, such as higher frequency of category 4 and 5 hurricanes which in recent years has led to greater infrastructure vulnerabilities, causing damage critical systems such as buildings, health, telecommunication, electricity, water, sewage and waste systems.	
Project Eligibility	1. Have the designated government authorities for the Adaptation Fund from each of the participating countries endorsed the project/programme?	**Yes.** As per the Endorsement letter dated: Antigua and Barbuda: January 7, 2022 Saint Lucia: November 29, 2021	

	2. Does the length of the proposal amount to no more than one hundred (100) pages for the fully-developed project document, and one hundred (100) pages for its annexes?	**No.** The document covers 104 pages, while the annexes are 56 pages. The annexes contain links to extensive external documents and text which go far beyond the page limit. **CAR1**: Please trim the proposal such that extraneous information is limited and the length of the proposal conforms to the prescribed limit.	**CAR1:** The proposal has been adjusted to be within the prescribed limit.
	3. Does the regional project / programme support concrete adaptation actions to assist the participating countries in addressing the adverse effects of climate change and build in climate resilience, and do so providing added value through the regional approach, compared to implementing similar activities in each country individually?	**Not clear.** The project states that it will build the climate resilience of schools affected by natural hazards and which incurred on considerable recovery costs after an event. The countries additionally experience limited adaptive capacity on both governments, school systems, and communities to prepare for and recover from extreme weather events. These events further lead to considerable declines in educational opportunities, economic productivity, and impacts on the community. The project proposes a set of activities that will provide off-grid energy connection, rainwater harvesting, and water storage systems. These activities will benefit communities during natural disasters and droughts while	**CR1:** The grouping of A&B and SL was a result of conversations that took place several years ago with UN-Habitat in which Dominica (in addition to A&B and SL) also expressed a desire to tackle the problems of climate resilience of schools. There was an agreement at that time that the three countries would do a regional project together, and by doing so there would be shared learning and efficiencies. Dominica subsequently dropped out of the project. **CR2:** Antigua & Barbuda is emulating a call for application/proposal modality being used for the Adaptation Fund full project approved for Antigua and Barbuda. This modality uses the DOE's SIRF Fund to issue calls for proposals for schools. The RFP for the schools will include the

		reducing electrical costs and providing constant access to water to students and staff members. In addition, the proposal seems to advocate for more robust building codes to withstand flooding events and high-speed winds. However, none of the schools considered this aspect in their proposed adaptive measures. Likewise, the retrofit and repairs on roof structures and retrofitting elements on the entire building (windows, walls, and doors) seem to be included only in Saint Lucia. **CR1**: Please clarify the selection of these two countries among the Lesser Antilles options? And what is the added value of a regional approach, compared to implementing similar activities in each country individually? **CR2**: Please clarify if no advancements in the building structure, including roofs, were considered in Antigua and Barbuda schools, and why. Likewise, kindly explain why no schools in Barbuda were considered in the proposal, provided that Barbuda suffered 90% damage in all of its infrastructure during the 2017 hurricane events.	requirement for the upgrading of roof, windows, back-up energy, windows, doors, etc. to meet the building code https://environment.gov.ag/news-events#news/article/115, the RFP is available if required. The project will have the same results as that of St. Lucia in terms of resilience building, however it is being executed via a grant making approach rather than a predetermined project management approach. Barbuda has 3 schools, all of which have been repaired after the hurricane using loans and grant funding. This information is also available. **CR3:** Please see fiches and work packages which have been updated to be more explicit and note flooding prevention measures.

		The Environmental Impact Assessments of the evaluated schools mentions flooding as one of the highest risks in some of the target areas. **CR3**: Please clarify the prioritization of adaptation measures, such as AC systems improvements and no considerations regarding flooding prevention.	
	4. Does the project / programme provide economic, social and environmental benefits, particularly to vulnerable communities, including gender considerations, while avoiding or mitigating negative impacts, in compliance with the Environmental and Social Policy of the Fund?	**Not clear.** The proponents explained different benefits and co-benefits that the project would provide, such as employment opportunities, access to water during droughts, reduced risk of waterborne diseases during storm or flood events, reduced stormwater runoff, and others. However, some aspects need further clarification. The proponents explained that Antigua and Barbuda would take a grant-based approach to approve which measures are actually taken at each school. This call for proposals/grants-based approach is the model that the Government of Antigua and Barbuda typically uses. In response to a call for proposals, each school will provide detailed climate change adaptation measures after a detailed prioritization process.	**CR4:** The list of schools presented are an initial pre-selection as A&B considered adaptation measures a priority. However, as now clarified in the document, it is possible that schools are added or dropped during the grant process after following the application steps. Funding limitations and the work and costs of responding to the call for proposals is a limiting factor. **CR5:** An adaptive and flexible approach will be taken. Therefore, there will be considerations of other measures as presented by each school, and they will be evaluated on their value and importance. **CR6:** Measures at each school will be considered at a school level. Therefore, prioritization of adaptation measures will likely vary between schools as appropriate to the local context.

		CR4: Please clarify why not all schools in Antigua and Barbuda can participate in this grant-based approach. **CR5**: Please clarify if the selected 15 schools can only choose from the proposed adaptation measures described in the proposal. **CR6**: Please clarify how the proposed adaptation measures will be prioritized when in action. In the ESMP of Antigua and Barbuda (Annex), at least one stakeholder noted that the roof of her facility could not support solar panels. The project coordinator advised that feasibility assessments be carried out prior to installing solar panels, and where necessary, solar panels will be ground-mounted. **CR7**: To avoid any maladaptation practice, please clarify the system/size of solar panels and rainwater harvesting to be used - which will also affect their costs. For instance, would solar panels include systems to remove them quickly before high-speed winds or intense storms? **CR8**: Please provide an evaluation of the roofs where the system would be installed, and clarify why the roofs of the schools in Antigua and Barbuda will not be reinforced, as this is one of the measures	**CR7:** A&B is aware of mal-adaptation risks. The DOE will be working with the defense force to develop a nationwide program for the protection of the Panels during hurricane events. This follows the GCF build project approved in 2020 and currently early implementation. An early warning system is being developed and plans for solar panel removal and storage inside the schools are being considered. Each school will have a disaster manual and will be part of the national early warning systems. **CR8:** The works on roofs that are to be carried out will have to meet the newly updated building code. https://environment.gov.ag/news-events#news/article/115 **CR9:** The overall climate change exposure is the direct result of a Review and Evaluation Report of Schools and Climate Change done by both countries; a note is attached to the fiches explaining that these parameters will only increase over time due to the Climate Crisis. **CR10:** One main element in increasing energy resilience is system redundancy: in case one fails or suffers damages the

		recommended on the Environmental Assessment Impact of the country. **CR9**: Please clarify when presenting the school descriptions how was the climate change exposure overall assessed. **CR10**: Please clarify if the proposal's goal was to create a shift to sustainable energy production, why are generators running on fuel included in schools' individual interventions/improvements. **CR11**: Please include detailed information on the project's expected beneficiaries (direct and indirect), disaggregated by sex, when possible.	operations may continue while repairs are made. **CR11:** As expressed on Annex 3 *"Technical Assessment and Technology Options Report"*, the best option was to use the schools' populations as the direct beneficiary group; another option was to factor the number of students in each school by the national average household size, thereby giving rise to a combined direct and in-direct total beneficiaries.
	5. Is the project / programme cost-effective and does the regional approach support cost-effectiveness?	**Not clear.** To evaluate the cost-effectiveness of the approach, we encourage the project team to detail specific design aspects for the renewable energy system, water harvesting, water storage systems, and retrofitting of buildings, where appropriate. **CR12**: Kindly detail specific design aspects for the renewable energy system and retrofitting buildings, where appropriate. Please clarify if different techniques/systems would be applied to each school. Piloting different systems/approaches allows for a large pool of lessons learned	**CR12:** One important factor of this proposal and its regional approach is that it already has a previous experience (A&B) that provides lessons learned for the implementation. The specific systems will be determined once orders are ready to be made, following national construction requirements, favoring maximization of impact and local knowhow over experimentation. **CR13:** A regional approach will provide cost efficiencies through the collective sourcing of materials and perhaps service providers. The collective sourcing will provide

		and the capacity to scale-up only best practices. **CR13**: Please clarify how a regional approach supports the project's cost-effectiveness. **CAR2**: Please include the cost-effective analysis mentioned on page 64.	buying power enabling the possibility of buying at better prices. **CAR2:** As noted in the Prodoc, the cost-effective analysis was high level and the content already provided represents the analysis.
	6. Is the project / programme consistent with national or sub-national sustainable development strategies, national or sub-national development plans, poverty reduction strategies, national communications and adaptation programs of action and other relevant instruments? If applicable, it is also possible to refer to regional plans and strategies where they exist.	**Not clear.** The project identifies, in Section E, various national and regional plans; however, it misses describing its compliance with them. **CR14:** Please clarify how the project activities and components align with the presented national and regional plans.	**CR14:** In general, the project aligns to national and regional strategies to build the resilience, particularly, of public buildings in response to increasing climate impacts. Saint Lucia's Medium Term Development Strategy speaks to the interconnectedness of development planning by ensuring that economic, social & environmental concerns are incorporated into SLU's planning framework. The MTDS speaks to 6 key Results Areas: Agriculture, Tourism, Health, Infrastructure, Citizen Security and Education. The MTDS goals which are aligned to this project include - improving the quality of education and education pathways and providing a safe and secure environment. By building more resilient schools which can withstand Cat 4 & 5 hurricanes, and installing decentralized energy and rainwater harvesting systems, this ensures that students can still

			attend school immediately after a natural disaster. Stronger buildings also ensure safer learning spaces are created. The MTDS also identifies disaster risk management, resilience and sustainable development as a cross-cutting thematic development area, this is aligned to component 2 which speaks to strengthening the capacity of schools, businesses, communities and households to understand climate risks and adaptation options. CCAP: Outcome 2 - Facilitating adaptation measures through design and measures promoting strategic partnerships between public sector agencies, private sector civil society, communities & other stakeholders. This outcome is in alignment with component 2 of the project which seeks to increase the capacity of communities, students, households etc, which will be achieved through engagement between public sector agencies and the schools, parents, and residents in the communities. In the case of A&B the project will be in compliance with the new draft Building code and the 2021 NDC to make buildings more resilient. The OECS solar challenge will be enhanced under this project.

			Further information is provided in Part II, section E of the document.
	7. Does the project / programme meet the relevant national technical standards, where applicable, in compliance with the Environmental and Social Policy of the Fund?	**Not clear.** The proponents have detailed alignment with Organisation of Eastern Caribbean States (OECS) building codes standards and the CARICOM Renewable Energy Building Codes (CREEBC) for designing and installing renewable energy. However, other systems considered in the proposal follow technical standards. **CR15**: Please clarify what national technical standards are to be followed to maintain the quality of the harvested rainwater, environmental standards in terms of daily capacity, plumbing codes, size of water tanks, and sewage systems. **CR16**: Please explain the tanks' size costs considerations if the quantity for minimum reserves has not yet been calculated according to the proposal. However, in the annexes, each tank has been allocated a unit in litres to define its capacity.	**CR15:** A&B's new Building Code also addresses the technical standards for water piles as well as tanks or cisterns. The size of the water storage is guided by the # of children at school and # of days the school would like to have storage. Vector control is an issue so storage has to be such that it does not allow for the breeding of mosquitoes (this is addressed in the Building Code and monitored by the Ministry of health). All of the drawings and specifications have to be approved by the Physical Planning Department as well as the Project team. The water collected at the schools is meant only for the bathrooms, cleaning and in some cases watering animals from the community. The Ministry of Health also maintains this standard, and this can be monitored (not sure if it is done) by the Government Lab. **CR16:** See response above in CR15 **CR17:** This level of detail is not available yet and will be determined during the implementation phase guided by the Physical Planning

		CR17: Please include the daily demand of water and energy per school selected to calculate the size of the systems and individual cost of the systems to meet the school's needs as an educational institution in times of drought and as an emergency shelter after a disaster.	Department and the Ministry of Health guidelines.
	8. Is there duplication of project / programme with other funding sources?	**Not clear.** The proposal states how it has built unto other projects activities, such as the technical assistance provided by CTCN in Saint Lucia and the work of the Caribbean Safe Schools Initiatives. However, for the recently awarded project in Antigua and Barbuda by the GCF only expresses its alignment but not how it avoids/will avoid duplication—considering that the GCF project also supports the education sector and includes two schools that are part of this proposal. **CR18**: Please clarify how the project will avoid duplicating efforts with the GCF project. Are there any lessons that can be already gathered from its implementation? Can there be synergies created, especially when providing trainings on the new solar panels or RHW systems and DRR. Similarly, what is the differential in the approach from the GCF project.	**CR18:** The GCF build project is targeting a set of public schools. These schools were selected for that project based on geographical distribution. This recognizes that the project budget was not adequate for all buildings. These schools will not be part of the AF schools selection. Lessons will be carried over from the GCF project as well as the AF project currently under implementation of the DOE and the SIRF Fund. The team that is providing oversight for the GCF build, and existing AF projects will be providing technical, civil engineering and RE oversight for this project. **CR19:** The Haiti project will be reviewed in detail in the coming week to understand best practices and gather learned lessons.

		In addition, other projects in the region present similar activities and components. The proponent will benefit from reviewing best practices and gathering lessons learned. ● Green Schools, Green Future in Haiti: the project aims at introducing green, sustainable, and progressive educational programs and modern and renewable technologies (such as solar and computers), agriculture/aquaponic systems, and the teaching of trades for the children and the community. **CR19**: Kindly look for possible synergies or lessons learned with the project listed above. The project plans to incorporate DRR in the school curriculum and develop a handbook to guide its delivery. This is with the support of NEMO and the Red Cross, as they have been involved in similar initiatives. The proponents are encouraged to also consider partnerships with UNESCO and USAID/OFDA, which	

		have already produced similar courses/handbooks: • UNESCO Handbook for teachers on DRR • USAID/OFDA course on School Safety	
	9. Does the project / programme have a learning and knowledge management component to capture and feedback lessons?	**Not clear**. Component 2 of the proposal strengthens the capacity of schools, businesses, communities, and households to understand climate risks and adaptation options and cope with socio-emotional impacts. However, although lessons learned will be taken from both countries, the training and capacity-building aspects are focused mainly on Antigua and Barbuda. **CR20**: Please clarify if component 2 is only to be developed in Antigua and Barbuda, and why. One of the key elements mentioned in the consultations for the sustainability of the project's resilience is its maintenance capacity. The maintenance usually falls under resident security personnel and caretakers, who repair minor defects, but which require basic plumbing and	**CR20:** It is correct that component 2 is only to be developed for A&B. The reason is that SL prefers to focus project funds on physical measures of component 3. **CR21:** Employees of the schools will receive training in component 2 and 3. Component 2 is more about capacity building with regards to climate change at a wide range of levels. Component 3 is about specific capacity building that is required/aligned to the physical measures deployed. **CR22:** Ecozone is an early childhood environmental program that has been ongoing for over 10 years. Some of the participants of this program go on to become environment professionals and some of them now work at the DOE. https://unfccc.int/files/cooperation_and_support/education_and_outreach/application/pdf/antigua_and_barbuda_-_education_and_public_awareness

		carpentry skills to be accomplished. Likewise, new systems installed will require further training. **CR21**: Please clarify in which of the components will the employees' training be included. **CR22**: Please describe what the Ecozone Summer Camp activity entails (Activity 2.1.13). Component 2 of the proposal consists of capacity building and knowledge sharing activities with spillover effects throughout the region. **CR23:** Please clarify how will the effectiveness of these measures be monitored at the regional level? **CR24**: How will capacity-building activities in schools etc., be monitored? How will the project ensure that learning is actually taking place? **CR25:** Please clarify how capacity-building activities will increase the already existing knowledge of these systems at the regional level? What would be the value-added of the project for the region?	_programmes.pdf. The program was paused for some time but it is being restarted in 2023 when all children can be vaccinated. **CR23:** The regional partners of OECS and CDEMA will collaborate with each country to monitor the work, as aligned with their frameworks. **CR24**: There are a wide range of activities and mechanisms for delivery. That said, monitoring will be developed as appropriate to the activity and may include testing, presentations, etc. **CR25:** The implementation of this project will provide data and information to OECS and CDEMA which can then be analyzed and lessons learned will be captured. Then this information will feed into guidance docs and shared with the region.
	10. Has a consultative process taken place, and has it involved	**Not clear.**	**CR26:** There were limitations on in-person consultations as a result of

	all key stakeholders, and vulnerable groups, including gender considerations?	A summary of the consultations with principals, staff, and students at one selected school in each country, Ministries of Education, and institutional stakeholders was provided. **CR26**: Please clarify why only two schools were considered in the process. It is not clear the sex-disaggregation within the consultation. Thus, gender-responsive elements within the consultations cannot be evaluated. **CR27**: Please include the list of stakeholders already consulted disaggregated by sex.	Covid, however, a much larger group of schools were included in virtual consultations and in the case of A&B there were previous consultations conducted for the GCF project that were still valuable. **CR27:** As consultations have been led by multiple individuals/entities in each country an effort will be made to review past stakeholder engagements to create a sex disaggregated list.
	11. Is the requested financing justified on the basis of full cost of adaptation reasoning?	**Not clear.** The objective of the proposal is to enhance the resilience of their respective educational systems to extreme climate events. For instance, installing Rainwater Harvesting (RWH) systems and storage tanks which will help to provide water to communities during droughts. Nonetheless, in the case of Antigua and Barbuda is not clear why installing such systems is prioritized above the enhancement of the building resistance to high wind-speed events, and thus how will the installment of these new systems be sustained in old roofs. Please refer to **CR2** and **CR3** above.	The Schools may prioritize water systems since droughts are becoming more frequent than hurricanes (every 3 years as opposed to every 10 years). When there is no water the schools have to close operations and this happens frequently. Some schools however may prioritized wind damage. The priority will be further influenced by the cost of the activity. Adaptation costs are very expensive especially now during pandemic recovery, so it will be about balancing between prioritization and budget availability.

	12. Is the project / program aligned with AF's results framework?	**Yes.** The project proposal is aligned with outcomes 2,3 4, and 7 of the AF Result framework.	
	13. Has the sustainability of the project/programme outcomes been taken into account when designing the project?	**Not clear.** It seems that the proposed adaptation measures are designed to deliver long-term benefits to vulnerable communities. Also, the participatory nature of consultative processes would ensure that the project is aligned with the local realities and addresses community vulnerabilities. The regional approach will also ensure that benefits are transferred within and between countries in the Caribbean region. However, two key elements that we encourage the project team to consider are: **CR28**: Please justify how planned capacity building and training activities will be preserved over the course (and after) of the project timeline. The project states that "solutions [will be] maintained regardless of staff turnover". What regional or local mechanisms will be put in place to ensure this? **CR29**: To ensure the longevity of technologies is maintained. The project states a bold ambition to	**CR28:** Training for maintenance of schools and capacity building is always ongoing. However, the project will speed up the rate at which this happens with the objective of increasing resiliency before the next hurricane. In SL capacity building will be provided to the teachers, district officers and principals, and will be done with the support and in collaboration with other agencies such as the National Emergency Management Office. A training plan should also be developed for the schools. **CR29:** "Deliver adaptation benefits for 50 years" applies for structural integrity measures and the implementation team will ensure the procurement of the materials and installation to a level that meets those expected lifespans. Careful attention to maintenance has been factored. **CR30:** With regards to insurance premiums, it is expected that premiums go down as per the

		"deliver adaptation benefits for 50 years". How will this be ensured? One of the benefits mentioned in the proposal is reducing insurance premiums because of the reduced risk to climate-proofed structures. **CR30**: Installing new systems and improving building facilities typically entails a rise in insurance prices. Please clarify whether this cost was accounted for in the cost-effectiveness analysis.	rationale provided. However, as noted, the measures taken will increase the protected value of the assets which may serve as a countermeasure. That said, the resiliency measures should result in less damage to schools when extreme weather events occur, so it is on this basis that premiums would be reduced.
	14. Does the project / programme provide an overview of environmental and social impacts / risks identified, in compliance with the Environmental and Social Policy and Gender Policy of the Fund?	**Not clear.** The project is categorized as a Category B project (Medium Risk) due to the results envisioned in environmentally and socially vulnerable areas. The proponents state that potential impacts of policy changes and environmental and social risk associated were 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. However, some clarifications are needed. **CR31**: Please clarify why were Protection of Natural Habitats, Pollution Prevention and Resource Efficiency and Lands and Soil	**CR31:** As the measures to be taken will be done on existing premises, to pre-existing structures it was not deemed necessary to include Protection of Natural Habitats, Pollution Prevention and Resource Efficiency and Lands and Soil Conservation. **CR31:** Generally School improvements and maintenance are done during the holiday periods i.e. summer, easter and Christmas periods. When work gets done during the school period planning will be in place to minimize disruptions and ensure safety. All steps will be taken to reduce construction during these periods. **CR32:** The "lack of community cohesion" articulated is a statement referring to the independent action of the communities, not a reflection

		Conservation not considered in the checklist exercise. **CR32**: Please clarify how the proposal will overcome the lack of community cohesion identified as a factor that inhibits the respective communities' ability to engage in collective action in the short and long term. **CR33**: One of the social impacts stated are temporary restrictions on access to school buildings and services. Provided that Covid-related restrictions have already limited access to schools for a while, please indicate the expected duration of the access restriction and how this will be reduced to the minimum. The proposal annexes include an Environmental Impact Assessment (EIA) per country, covering a section on gender action and compliance with the Fund's gender policy. However, an independent gender assessment and action plan report was not provided. Carrying such an exercise will help guide the proposal towards the gender-specific context of the communities involved. **CAR3**: Kindly include the gender assessment and action plan report as an annex.	of engaging with the project specifically around schools. So in both countries it is accurate to say that there is no issue of lack of engagement between the community and the governments as it relates to this project. This is further clarified in Part II section I of the document. **CAR3**: An independent gender assessment and action plan report is still in progress. However, based on previous work and learnings, key dimensions of gender considerations have been incorporated into the project document. Furthermore, both countries are expected, prior to the approval of the project, to complete the gender assessment and action plan that informs the implementation.
	15. Does the project promote new and innovative solutions to climate change adaptation, such	**Not clear.**	**CR 34: The** systems that will be installed have been scoped at a high level. Specific technologies will

	as new approaches, technologies and mechanisms?	The project is innovative as it is changing the normal approach of the countries by building their climate resilience in advance to any future natural hazards. To build on this, the project presents the application of sustainable systems such as solar panels and rainwater harvesting as innovative for the education sector within the Caribbean region. However, the proposal also mentions that solar panels are already being installed by other projects in local schools, which will disqualify the innovative aspect of the solar systems. Similarly, RWH systems have been installed in schools in other countries in the region, such as Haiti, Jamaica, and Nevis; they are also part of the adaptive measures applied by the GCF project in Antigua and Barbuda. For the decentralized renewable energy systems, in particular, we encourage that the project team ensures that technologies are innovative in their design and installation vis-à-vis other technologies in the market. **CR34**: Please further clarify the systems that will be installed and why they are innovative. Are these	be determined on a school basis as appropriate. The approach will be taken to select the solutions that provide the most value and lifespan. which ever products are selected they will be from vendors who offer the latest in technologies so as to ensure that products incorporate latest innovations, but also are likely to have a long use period **CR35:** The strategic framework is the same as both countries as the focus has three pillars, **s**trengthening the enabling environment for adaptation planning within the education sector at the national and regional level, capacity building, and climate proofing. The countries and regional entities will maintain frequent contact to align activities and collaborate and cooperate as necessary. he major difference between the projects is that A&B is allocating more resources to national capacity building to SL who prefer to deploy the majority of funds for climate-proofing measures.

		different from the ones in other schools, and if so, how. The proposal claims that the same strategic framework will be implemented in both countries, which in the long run can improve the adoption and replication of similar frameworks to other Caribbean countries. However, the strategy is not the same for both countries from the activities' description presented. A more substantial component of learning and sharing applies to Antigua and Barbuda than to Saint Lucia, and the proposed adaptation measures differ. **CR35**: Please clarify how the strategic framework will be the same.	
Resource Availability	1. Is the requested project / programme funding within the funding windows of the programme for regional projects/programmes?	**Yes.** The total amount requested is USD 13,996,500.	
	2. Are the administrative costs (Implementing Entity Management Fee and Project/ Programme Execution Costs) at or below 20 per cent of the total project/programme budget?	**Yes.** The EC and IEC cost are equivalent to 18% of the project's costs.	
Eligibility of IE	1. Is the project/programme submitted through an eligible Multilateral or Regional Implementing Entity that has been accredited by the Board?	**Yes.** UN-Habitat is a Multilateral Implementing Entity accredited to the Fund.	

Implementation Arrangements	1. Is there adequate arrangement for project / programme management at the regional and national level, including coordination arrangements within countries and among them? Has the potential to partner with national institutions, and when possible, national implementing entities (NIEs), been considered, and included in the management arrangements?	**Yes.** The Department of Environment (DoE) is Antigua and Barbuda NIE for the Fund and it is acting as one of the executing entities in the project. In addition, the project has included regional partners as executing entities and the Ministry of Education, Innovation, Gender Relations and Sustainable Development in Saint Lucia.	
	2. Are there measures for financial and project/programme risk management?	**Not clear.** The proposal includes a table with the different possible risks and their management/mitigation strategy. However, there are further clarifications needed in some of the presented risks. **CR36**: Please clarify how the project will overcome the lack of commitment/buy-in from local communities, considering that only 1 school per country was consulted. **CR37:** Further describe the 'active role' that communities will have to ensure ownership. **CR38:** Kindly clarify how will the finance for the future maintenance of the newly installed systems will be secured. **CR39:** Provided that building material prices have more than tripled in the past year. Please clarify if this tendency has been	**CR36:** In A&B the DOE collected information from 17 schools. There are absolutely no issues with community buy-in Antigua and Barbuda. In SL, there were several schools consulted - refer to consultations report. Additionally, there will be continuous engagement of stakeholders throughout the project life. Community groups, public agencies, school officers (principals & teachers will validate the various plans, reports before they are finalized and accepted. This misunderstanding has been addressed through edits in the project document. **CR38:** Finance for future maintenance of the newly installed

		embedded in each system's costs. If the price trend is maintained, will the project still be able to implement changes in all 15 schools in Antigua and Barbuda and the 12 selected in Saint Lucia.	systems will be provided as part of operational budgets. In addition, in Antigua & Barbuda they are training students to perform maintenance of systems that will be installed. Also, training of personnel from within the Ministry of Works to manage the systems will be implemented. **CR39:** A contingency amount has been included in the renovation cost for each school in SL. That said, it is difficult to know where prices for materials will be at the time of implementation. If the prices increase the project will be impacted. In A&B all schools will have some activity however it may not be adequate to provide all of the resilience measures envisioned / needed. Considerations of activities such as purchasing in bulk will be pursued.
	3. Are there measures in place for the management of for environmental and social risks, in line with the Environmental and Social Policy of the Fund? Proponents are encouraged to refer to the Guidance document for Implementing Entities on compliance with the Adaptation	**Yes.** The proposal includes an Environmental and Social Management Plan (ESMP) for each of the participant countries as annexes. **CAR4**: Kindly include a comprehensive summary of the findings of each ESMP within the proposal's annex section.	**CAR4:** All available information related to Environmental and Social Policy has already been provided in the annexes.

	Fund Environmental and Social Policy, for details.		
	4. Is a budget on the Implementing Entity Management Fee use included?	**No.** **CAR5:** Please include a breakdown table of the implementing entity management fees.	**CAR5:** A budget on the Implementing Entity Management Fee use has now been included. This is further clarified in Part III section G of the document.
	5. Is an explanation and a breakdown of the execution costs included?	**No.** **CAR6:** Please include a breakdown table and an explanation of the project's execution costs.	**CAR6:** A breakdown table of the Implementing Entity Management Fees has now been included. This is further clarified in Part III section G of the document.
	6. Is a detailed budget including budget notes included?	**Yes**. The proposal includes a breakdown of the costs per activity. However, provided that beneficiaries have not been identified, it is difficult to grasp if an adequate number of resources have been allocated for gender-responsive implementation. **CAR7**: Please revise the budget as it adds to USD 13,996,501.	**CAR7:** The budget has been revised and corrected.
	7. Are arrangements for monitoring and evaluation clearly defined, including budgeted M&E plans and sex-disaggregated data, targets and indicators, in compliance with the Gender Policy of the Fund?	**Not clear.** The proponents include a description of the different reports that will be part of the M&E plan but missed to identify and provide a breakdown of the fees and sex-disaggregated data to evaluate effective compliance with the Fund's Gender policy.	**CAR8**: A budgeted M&E table has been added in page 82 of the Prodoc. **CAR9:** Key dimensions of gender considerations have been incorporated into the project document. Furthermore, both countries are expected, prior to the approval of the project, to complete a gender assessment and action

		CAR8: Please include a budgeted Monitoring & Evaluation Plan table, that is in compliance with the AF M&E guidelines and with the Gender Policy. **CAR9**: Kindly include gender-responsive targets and indicators disaggregated by sex.	plan that will permeate to the gender-responsive targets and indicators.
	8. Does the M&E Framework include a break-down of how implementing entity IE fees will be utilized in the supervision of the M&E function?	**No**. **CAR10**: Please include the project's M&E Plan with a breakdown of IE fees for supervision of the M&E functions.	**CAR10:** The implementing entity IE fees will be utilized to supervise the M&E function through the recruitment of 1) a national consultant (specialist in M&E and communications) to be based in Antigua & Barbuda for a total of 19-months within the 48-month lifespan of the project and a total cost of $47,500 @ $2,500 per month. And 2) a consultant for M&E inception support for a total of 4 months during the first year and a total cost of $18,000 @ $ 4,500 per month. This is further clarified in Part III section G of the document.
	9. Does the project/programme's results framework align with the AF's results framework? Does it include at least one core outcome indicator from the Fund's results framework?	**Not clear**. Section E of the proposal includes the project alignment with the AF Results framework, aligning with outcomes 2, 3, 4, and 7. However, the table is missing key elements, including milestones, targets, indicators, and one or more core outcome indicators of the	**CAR11:** The table of Section E has been updated.

		Adaptation Fund Results Framework. **CAR11**: Kindly revise the table presented in section E for it to include the project's milestones, targets and indicators, including one or more core outcome indicators of the Adaptation Fund Results Framework. The AF core indicators are included in the *Strategic Results Framework (Amended in 2019)*: https://www.adaptation-fund.org/wp-content/uploads/2019/10/Adaptation-Fund-Strategic-Results-Framework-Amended-in-March-2019-2.pdf	
	10. Is a disbursement schedule with time-bound milestones included?	**No.** **CAR12**: Please include a disbursement table with the project's time-bound milestones.	**CAR12:** The disbursement schedule has been calculated per year. The first payment will be made upon signature of the contract. Remaining payments will be made on a yearly basis upon delivery of time-bound milestones and outputs. Upon signing: 1st: 4,713,347 USD One year after project inception: 2nd: 4,559,893 USD Two years after project inception: 3rd: 4,414,107 USD Three years after project inception: 4th: 309,153 USD

			The table is included in the project document. This is further clarified in Part III section G of the document.

ADAPTATION FUND

REGIONAL PROJECT/PROGRAMME PROPOSAL

PART I: PROJECT INFORMATION

Title of Project/Programme:	Increasing the resilience of the education system to climate change impacts in the Eastern Caribbean
Countries:	Antigua and Barbuda, and St Lucia
Thematic Focal Area:	Disaster risk reduction and early warning systems
Type of Implementing Entity:	Multilateral
Implementing Entity:	**United Nations Human Settlements Programme**
Executing Entities:	**Antigua and Barbuda:** Department of Environment. **St Lucia:** Ministry of Education, Innovation, Gender Relations and Sustainable Development. **Regional:** The Organisation of Eastern Caribbean States (OECS), and The Caribbean Disaster Emergency Management Agency (CDEMA)
Amount of Financing Requested:	US$13,996,500

Project Background and Context:

Problem statement

Climate change is causing an increase in the frequency and intensity of natural disasters, most notably the number of high-intensity tropical storms and hurricanes that make landfall on the small island developing states (SIDS) of Antigua & Barbuda, and St. Lucia. Historically, most 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 design of school buildings to withstand only up to a Category 3 hurricane was considered sufficient in the past.

Background Context

The Eastern Caribbean region is one of the most disaster-prone areas of the world as over the years, the countries continue to be exposed to a number of natural hazards such as, floods, hurricanes, droughts, fires and landslides that hinder economic growth; compromise the effectiveness of poverty reduction strategies and disrupt their education systems. The long-lasting impact of those hazards is further exacerbated by the effects of climate change, particularly with regard to the increasing intensity and frequency of extreme weather events. For example, St Lucia has experienced six hurricanes during the last 20 years and in 2018, Hurricane Irma caused significant damage to Antigua and Barbuda. Factors such as land degradation; infrastructural development in coastal settlements; high food import bills and reliance on imported fuel also increase the vulnerability of these small island states (SIDS) to climate change.

The Organisation of Eastern Caribbean States (OECS) region of Small Islands are among the most vulnerable areas to hydro-meteorological hazards. Many of these hazards are being exacerbated by climate change and the associated sea level rise. In 2017, category 5 hurricanes Irma and Maria stormed through the region, causing at least 3191 deaths and a cumulative damage of $12 billion. Similarly, damaging floods, landslides, droughts and coastal erosion have continued to cause substantial damage and loss, as excessive heat emerges as a new and important threat to the region. Future climate projections point to rising temperatures and increased evapotranspiration, as well as continued sea level rise, altered precipitation patterns, and increasing hurricane intensity. These projected changes will impact the region's coastal ecosystems and fisheries, water supplies, agriculture, biodiversity, human health, tourism and critical infrastructure.

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 stores 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.

Antigua and Barbuda as well as St Lucia are part of the Leeward Islands in the eastern Caribbean. As small island developing states (SIDS), these countries are very vulnerable to extreme climate events such as hurricanes and tropical storms. This vulnerability is exacerbated by long-standing macroeconomic and financial problems, with extreme climate events having significant impacts on the lives and livelihoods of local communities, as well as the local economy. Damages to critical public infrastructure — including schools — leads to disruptions to educational activity and incurs considerable recovery costs after an event. Moreover, it often takes several months for both countries to recover from such disruptions, leading to considerable declines in educational opportunities and economic productivity, as well as impacts on families who have to figure out how to cope with out-of-school children.

Historically, both Antigua and Barbuda as well as St Lucia have only been hit by relatively low-intensity tropical storms, with those reaching hurricane status seldom strengthening above Category 3. The return rate of Category 4 hurricanes in the first half of the 20th century was only 1 in 50 years, and until 2017, the country had never experienced a Category 5 hurricane. Consequently, building codes in both countries did not prescribe the construction methods/technologies required to withstand above a Category 3 hurricane. While designing buildings to withstand up to a Category 3 hurricane was sufficient in the past, the increasing intensity of hurricanes hitting the region is having severe impacts on these country's built environments and population. This trend of increasing intensity of storms within the Caribbean region is projected to continue for the foreseeable future. Therefore, urgent adaptation measures for the education sector are therefore needed to address the impacts of climate change on the country.

Hurricanes and tropical storms are the main climatic hazards affecting Eastern Caribbean Islands including Antigua and Barbuda, and St Lucia. Since 1995, these countries have experienced 15 hurricanes and 14 tropical storms. Most of these storms ranged from Category 1 to 3 in magnitude, with the notable exceptions of Hurricanes Luis in 2005 (Category 4), and Irma and Maria in 2017, which were the only Category 5 hurricanes that have affected the country and region in recorded history. The frequency and intensity of these storms is strongly correlated to: i) high sea surface temperature (SST) in the major development region (MDR); ii) decreasing vertical wind shear (VWS) in the mid-troposphere during depression development; and iii) changes in the La Niña phase of the El Niño Southern Oscillation (ENSO). In the lead up to Hurricane Irma in 2017, the SST anomaly from baseline climatic conditions was shown to be in the order of 1°C in the region to the south-east of Antigua and Barbuda and east of St Lucia. Hurricane Irma was fluctuating between Category 2 and 3 strengths before being deflected west-southwest by a high-pressure system back over the area of warmer ocean. This increased SST gave energy to the depression, contributing to its development into a Category 5 hurricane.

Given their proximity to each other, these two countries share the same vulnerability and risks to climate change. The vulnerability and risks are due to three main conditions: (i) small geographical areas, which results in disasters taking on country-wide proportions; (ii) situated in one of the highest-risk areas in the world with high levels of volcanic and seismic activity and located in the tropical cyclone belts with direct exposure to the forces of the oceans; and (c) their dependence on few sources of income (the agriculture and tourism sectors) for a substantial part of its GDP. These sources of income have been severely reduced for months on end by a single climate-related disaster. Another critical indicator of each country's vulnerability is their limited capacity to reactivate the

development process after a devastating weather event. There are other non-climatic factors that may contribute to the country's vulnerability and exacerbate the adverse effects of climate change, including, inter alia, issues pertaining to building codes, public awareness and sensitisation, planning and development.

The impact of natural hazards on the countries' education systems is further compounded by the fact that some schools are used as emergency shelters. In St Lucia, for example, eighty-seven (87) out of one hundred and three (103) public schools are designated emergency shelters. These schools are at the receiving end of disasters both in terms of the damage to their infrastructure and the disruptions in operations which may occur. In this regard, the widespread disruptions to the education system caused by health-related events such as the CoronaVirus (COVID 19) pandemic must also be taken into account when considering threats posed to children in particular and to the wider community in general.

Despite the vulnerability of schools to numerous threats, they serve as centers of knowledge transfer and human development. Schools, therefore, play a dual role: as centers of safety in times of disaster, and as the means through which entire communities can increase their capacity to protect themselves from hazardous events.

Recognizing that urgent actions must be taken to increase the capacity of the education sector to combat the effects of disasters and climate change, the governments of St Lucia and Antigua and Barbuda undertook a project in 2020 entitled: 'Increasing Resilience of the Education System to Climate Change in Saint Lucia and Antigua & Barbuda'. This project was guided by technical expertise from The Climate Technology Centre and Network/United Nations Framework Convention on Climate Change (CTCN/UNFCCC).

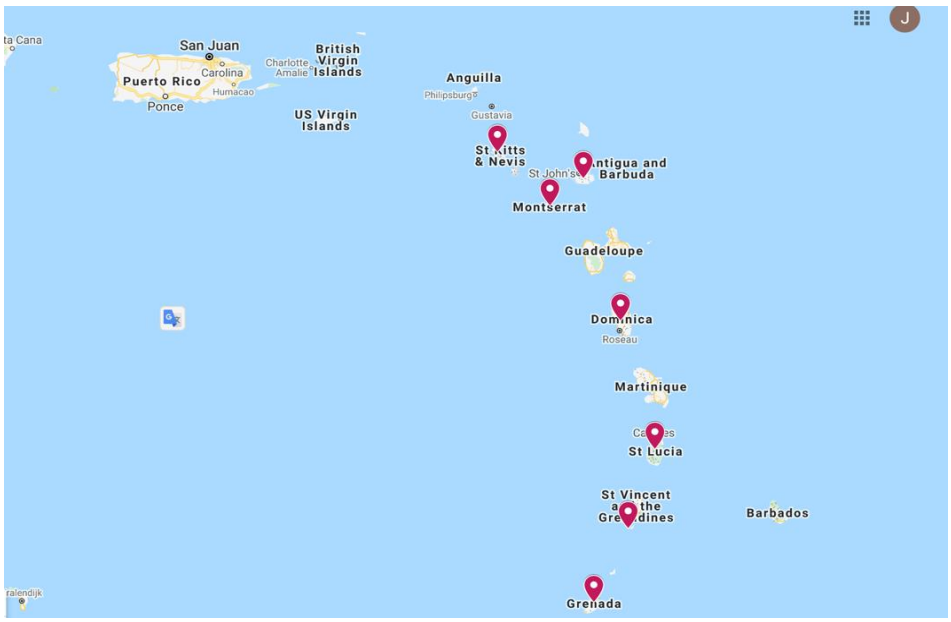


Figure 1 Map of Organization of Eastern Caribbean States Protocol Members

Figure 2 Antigua and Barbuda

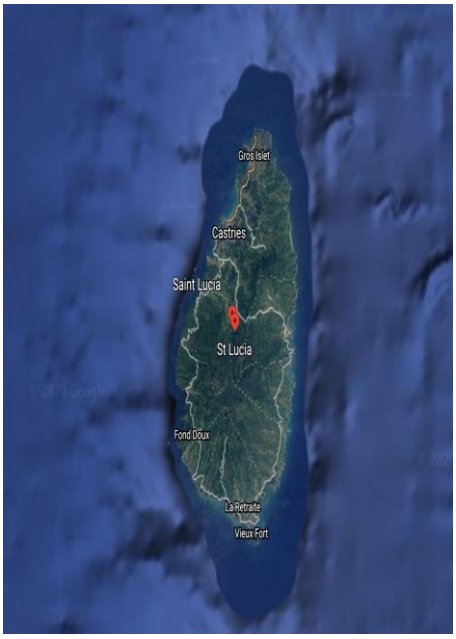


Figure 3 Saint Lucia

Project Objectives:

Eastern Caribbean Islands are united in their political will and commitment to building the resilience of their respective education sectors utilizing both a national and a regional approach. This commitment was established and formalized through the Declaration on School Safety and the development of the Caribbean Roadmap on Schools Safety to which this proposed project is aligned. However, at both the country and regional level, the enabling environment for building resiliency of school systems needs to be enhanced.

Furthermore, schools need to be capacitated to be able to continue to operate, or rapidly return to operating, after extreme weather events. Recent extreme weather events have taken schools out of operations, in some cases for as long as a year. This has a huge negative impact on students' learning and outcomes as well as negative effects more broadly on families and communities who have to make accommodations as their children are not in school. In order to be able to continue to operate or ability to return quickly to operation ghten schools, in addition to being made resilient, also need to have off grid energy and water access.Increasing the resilience of priority school buildings will lead to critical educational services remaining operational during and after an extreme event, as well as a more rapid recovery.

For Antigua & Barbuda and St. Lucia - strengthening the climate resilience of their educational systems in the face of intensifying and increasing extreme weather impacts is a necessary adaptation. While

the need to build resilience encompasses many elements, including capacity and policy, it is the improving the strength of the physical infrastructure of existing school buildings that is paramount. Schools in these countries need to be upgraded to be able to withstand the impacts of Category 4+ hurricanes, which have sustained wind speeds of over 200km/h.

As noted, in addition to strengthening the climate resilience of school buildings, the **enabling environment for building systemic resilience also needs to be improved** to support the implementation of the Caribbean Roadmap for School Safety (CRSS). The CRSS has three pillars:

1. safe learning facilities (including standardized 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 training on disaster risk management).

Furthermore, locally, in order for these school systems to be resilient in the face of climate hence, the **capacity** of students, parents, community members, school administrators and staff, as well government bodies needs to be enhanced to improve understanding of climate risks and resiliency measures and improve market conditions for innovative technology solutions.

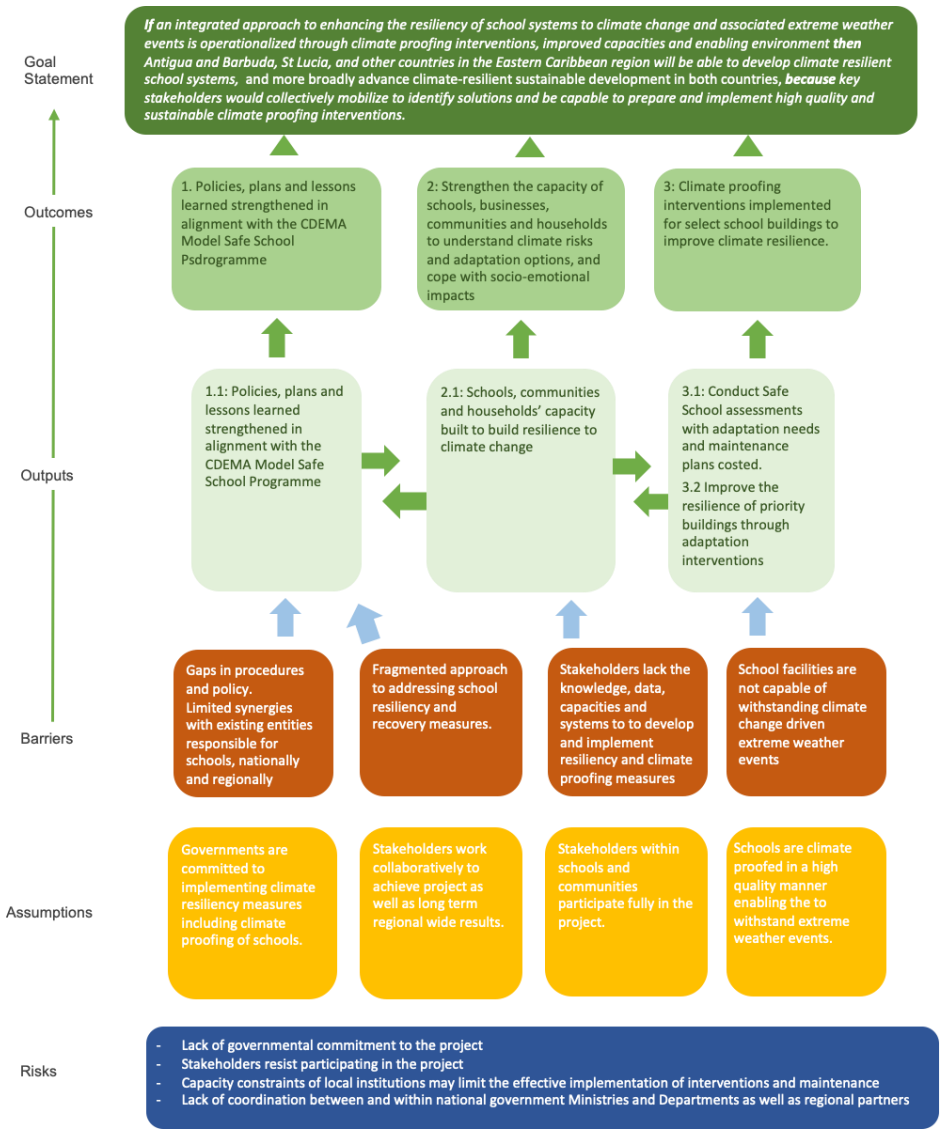
Project objective

The broad objective of this project is to advance climate-resilient sustainable development in both countries by enhancing the resilience of their respective educational systems to extreme climate events. In doing so, the project will catalyze a shift from reactive development — that involves costly recovery actions after an extreme climate event — towards a proactive approach.

In contributing to this broad vision the project has the following three core objectives:

1. Improving the enabling environment for adaptation planning within the educational systems to support national implementation of Safe School Policies.
2. Strengthening the capacity of schools, communities, and households to both understand climate risks and adaptation options, as well as plan and implement adaptation measures.
3. Building the resilience of select existing school buildings to withstand up to Category 5 hurricanes.

This proactive approach is intended to eventually facilitate the upscaling and replicating of these interventions across all school buildings in both countries, and serve as a model for scaling these activities across the Eastern Caribbean region.


Goal Statement
If an integrated approach to enhancing the resiliency of school systems to climate change and associated extreme weather events is operationalized through climate proofing interventions, improved capacities and enabling environment then Antigua and Barbuda, St Lucia, and other countries in the Eastern Caribbean region will be able to develop climate resilient school systems, and more broadly advance climate-resilient sustainable development in both countries, because key stakeholders would collectively mobilize to identify solutions and be capable to prepare and implement high quality and sustainable climate proofing interventions.
Outcomes
1. Policies, plans and lessons learned strengthened in alignment with the CDEMA Model Safe School Psdrogramme
2: Strengthen the capacity of schools, businesses, communities and households to understand climate risks and adaptation options, and cope with socio-emotional impacts
3: Climate proofing interventions implemented for select school buildings to improve climate resilience.
Outputs
1.1: Policies, plans and lessons learned strengthened in alignment with the CDEMA Model Safe School Programme
2.1: Schools, communities and households' capacity built to build resilience to climate change
3.1: Conduct Safe School assessments with adaptation needs and maintenance plans costed.
3.2 Improve the resilience of priority buildings through adaptation interventions
Barriers
Gaps in procedures and policy. Limited synergies with existing entities responsible for schools, nationally and regionally
Fragmented approach to addressing school resiliency and recovery measures.
Stakeholders lack the knowledge, data, capacities and systems to to develop and implement resiliency and climate proofing measures
School facilities are not capable of withstanding climate change driven extreme weather events
Assumptions
Governments are committed to implementing climate resiliency measures including climate proofing of schools.
Stakeholders work collaboratively to achieve project as well as long term regional wide results.
Stakeholders within schools and communities participate fully in the project.
Schools are climate proofed in a high quality manner enabling the to withstand extreme weather events.
Risks
- Lack of governmental commitment to the project
- Stakeholders resist participating in the project
- Capacity constraints of local institutions may limit the effective implementation of interventions and maintenance
- Lack of coordination between and within national government Ministries and Departments as well as regional partners

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.	1.1 Policies, plans and lessons learned strengthened in alignment with the CDEMA Model Safe School Programme	Regional and national policy and planning on building climate resiliency within each country's education sector will be improved.	$380,000
		Gap Analysis and stakeholder engagements to determine areas in need of improvement of the Model Safe School Policy for each country	
		An updated toolkit and action plan to guide the integration of climate resilience design and OECS guidelines into the Model Safe School Policy in each country	
		An updated Model Safe School Policy and Toolkit for each country	
		A joint lessons learned report with data analysis included based on the experiences of the project	
2. Strengthen the capacity of schools, businesses, communities and households to understand climate risks and adaptation options, and cope with socio-emotional impacts	2.1 Schools, communities and households' capacity building to increase resilience to climate change	Annual capacity building workshops to educate communities on the risks of climate change-related hazards and how to react in case of a disaster.	$979,000
		Learning materials relating to climate change adaptation, resilience, and disaster recovery for integration into the Ministry of Education's Social Science Programme.	
		Technology expos to improve knowledge-sharing of new and innovative technologies.	
		Public sensitized on resilience, recovery and adaptation efforts through awareness campaigns at Arbour month events.	
		Disaster risk reduction and resilience education into the school curriculum, particularly social studies programme	
		Demonstrations conducted by schools' industrial arts departments on adaptation and resilience-building benefits, as a part of School Based Assessment projects	
		Capacity building workshops for schools to improve knowledge of Site	

		Environmental Management Plans and grant proposal development	
		MOE team and technical evaluation committee team capacitated to evaluate submissions of proposals and SEMP Reports	
		Proposals for climate-proofing school facilities	
		Site Environmental Management Plans Reports for 15 participating schools	
		Educational campaigns for 15 participating schools	
		Site Environmental Management Plans Reports for additional schools	
		Participation of primary, secondary and tertiary students in DoE's annual Ecozone Summer Camp.	
		Information products for conducting self-assessments for climate resiliency at homes and buildings within target school communities	
		Student home climate resiliency self-assessment surveys conducted	
		School programme for the enhancement of the resiliency and building of the adaptive capacity of students, parents, teachers, and school personnel to help them cope with the social-emotional impacts caused by exposure to extreme weather events, including hurricanes.	
3. Climate-proofing interventions implemented in select school buildings to improve resilience to, and recovery from, extreme climate events.	3.1 Conduct Safe School assessments with adaptation needs and maintenance plans costed.	Conduct baseline audits of school buildings in alignment with and in support of the Model Safe School Programme toolkit and OECS's Guidelines for the Locating and Designing of Disaster Resilient Schools (A&B)	$10,315,500
		Develop site-specific operational procedures for long-term maintenance, and a monitoring framework, of climate-proofing measures for each priority building (both)	
	3.2 Improve the resilience of priority buildings through adaptation interventions	Implement climate-proofing measures to improve priority buildings climate resilience including engineering design & supervision (A&B)	
		Implement climate-proofing measures to improve priority buildings climate resilience including engineering design & supervision (SL)	

		3.2.3 Design, procure and install weather stations at select schools (A&B)	
4. Total components			$11,674,500
5. Project Execution cost			$1,225,500
7. Total Project Cost			$12,900,000
8. Implementing Fee			$1,096,500
Amount of Financing Requested			$13,996,500

Projected Calendar:

Milestones	Expected Dates
Start of Project/Programme Implementation	June 2022
Project Closing	June 2026
Terminal Evaluation	May 2026

PART II: PROJECT / PROGRAMME JUSTIFICATION

A. Project components

The objective of the proposed project 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 in both countries, with a view towards supporting the efforts of scaling up across the region over time. Component 2 seeks to build the capacities and knowledge of those involved in the education sector including students, parents, school faculty in Antigua and Barbuda. Component 3 entails the upgrading of school facilities to make them physically resilient to high-intensity storms and hurricanes.

These Components all play key roles in achieving the project outcomes, as they are connected and integrated into nature. Outputs from the evidence-based activities (Component 1) will direct the options for resiliency actions over the long term at the systems level and across both countries and the region. Component 2 will enhance capacity to plan and implement resiliency measures at various levels from national down to the local. Component 3 is the heart of this proposal which will result in 8~~12~~ schools in SL and 15 schools in A&B having their physical infrastructure improved. This project is adaptation-focused with cross-cutting elements including mitigation measures, as well as gender, knowledge, and data management which will support engagement with stakeholders and long-term adaptation of the school systems and the communities they serve.

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 enhancing the national and regional enabling environment for building the climate resiliency of school infrastructure so as to be able to withstand the impacts of Category 4+ hurricanes. 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 enhancing of this enabling environment the following outputs and activities will be taken in both countries:

Output 1.1: Policies, plans and lessons learned strengthened in alignment with the CDEMA Model Safe School Programme

Activities

1.1.1 Annual regional meetings with CDEMA, OECS, SL and A&B and other key stakeholders will be held. Each country will take turns hosting its own in an effort to reflect, discuss lessons learned and forward plan both for each country but also more broadly for the region. Representatives from CDEMA and OECS will join these annual meetings

1.1.2 Biannual (2x per year) national review meetings in each country to review progress, and closely monitor the project activities

1.1.3 Conduct a gap analysis of the coordination mechanisms and stakeholder engagement in each country to determine areas in need of improvement for implementing the Model Safe School Policy.

Activity 1.1.4 Develop an updated toolkit and action plan to guide the integration of climate resilience design and OECS guidelines into the Model Safe School Policy in each country.

Activity 1.1.5 Develop and validate an updated Model Safe School Policy and Toolkit that is relevant for each country.

Activity 1.1.6 Collect data and capture lessons learned from the project on an ongoing basis and produce a final paper that can be used for scaling up the project across each country. Provide this info to OECS and CDEMA.

Activity 1.1.7 OECS and CDEMA produce a joint lessons learned report with data analysis included based on the experiences of the project for use in scaling resiliency across the region's education sectors.

Component 2: Strengthen the capacity of schools, businesses, communities and households to understand climate risks, 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, various capacity-building programmes will be implemented. These training programmes will be designed for and delivered at a wide range of levels from the targeted schools and their stakeholders including students, parents, teachers, administrators and the local community.

Capacity building is an essential component of building the adaptive capacity of the education sector as the stakeholders will benefit from improved knowledge, skills and tools that build adaptive capacity and will go beyond the scope and timeline of the project. An interactive approach to the capacity building will be taken to allow for incorporating improvements, feedback and learning from participants. Capacity development activities will be shared openly with the OECS and CDEMA for their use but also for sharing with other Caribbean governments for utilization across the region. This will lead to the improved adaptive capacity of communities, school systems and government planners, and others. Representatives from OECS, CDEMA and other regional and national organizations will be invited to attend training programs so as to more rapidly increase capacity across the region.

To develop/enhance adaptive capacity the following activities will be taken in Antigua and Barbuda:

Activity 2.1.1. Annual capacity-building workshops to educate communities on the risks of climate change-related hazards and how to react in case of a disaster.

Activity 2.1.2. Develop learning materials relating to climate change adaptation, resilience, and disaster recovery for integration into the Ministry of Education's Social Science Programme.

Activity 2.1.3. Plan and host technology expos to improve knowledge-sharing of new and innovative

technologies.

Activity 2.1.4. Sensitize the public on resilience, recovery and adaptation efforts through awareness campaigns at Arbour month events.

Activity 2.1.5. Integrate disaster risk reduction and resilience education into the school curriculum, particularly social studies programme

Activity 2.1.6 Demonstrations conducted by schools' industrial arts departments on adaptation and resilience-building benefits, as a part of School-Based Assessment projects.

Activity 2.1.7. Conduct capacity-building workshops for schools to improve knowledge of Site Environmental Management Plans and grant proposal development

Activity 2.1.8. Conduct training of internal MOE team and technical evaluation committee team to evaluate submissions of proposals.

Activity 2.1.9. Develop proposals for climate-proofing school facilities

Activity 2.1.10. Develop Site Environmental Management Plans Reports for 15 participating schools (A&B)

Activity 2.1.11 Design and conduct educational campaigns for 15 participating schools (A&B)

Activity 2.1.12 Develop Site Environmental Management Plans Reports for additional schools (A&B)

Activity 2.1.13 Participation of primary, secondary and tertiary students in DoE's annual Ecozone Summer Camp. (A&B)

Activity 2.1.14 Develop information products for conducting self-assessments for climate resiliency at homes and buildings within target school communities (A&B)

Activity 2.1.15 Student home climate resiliency self-assessment surveys conducted (A&B)

Activity 2.1.16 Design and conduct school program for the enhancement of the resiliency and building of the adaptive capacity of students, parents, teachers, and school personnel to help them cope with the social-emotional impacts caused by exposure to extreme weather events, including hurricanes. (A&B)

Component 3: Climate proofing interventions implemented for select school buildings to improve climate resilience.

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. To achieve this, the structural integrity of the selected priority schools will be strengthened through a comprehensive set of interventions as laid out in the Annex. These interventions will physically protect buildings, thereby reducing damages and maintaining the operability of critical services during and directly after an extreme event.

An important element of resilience-building measures will focus on equipping the schools to remain open and functional in the event of extreme weather events by equipping each school with

decentralized (independent from the grid) power and water supplies. Decentralizing 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 provide are uninterrupted when centralized systems are disrupted.

To enhance the resiliency of the school sites and facilities the following climate-proofing interventions will be taken:

Activity 3.1.1. Conduct baseline audits of school buildings in alignment with and in support of the Model Safe School Programme toolkit and OECS's Guidelines for the Locating and Designing of Disaster Resilient Schools (A&B)

Activity 3.1.2. Develop site-specific operational procedures for long-term maintenance, and a monitoring framework, of climate-proofing measures for each priority building (both)

Activity 3.2.1 Implement climate-proofing measures to improve priority buildings climate resilience including engineering design & supervision (A&B)

Activity 3.2.2 Implement climate-proofing measures to improve priority buildings climate resilience including engineering design & supervision (SL)

Activity 3.2.3 Design, procure and install weather stations at select schools (A&B)

Each country has taken their own approach to design and implementing this component.

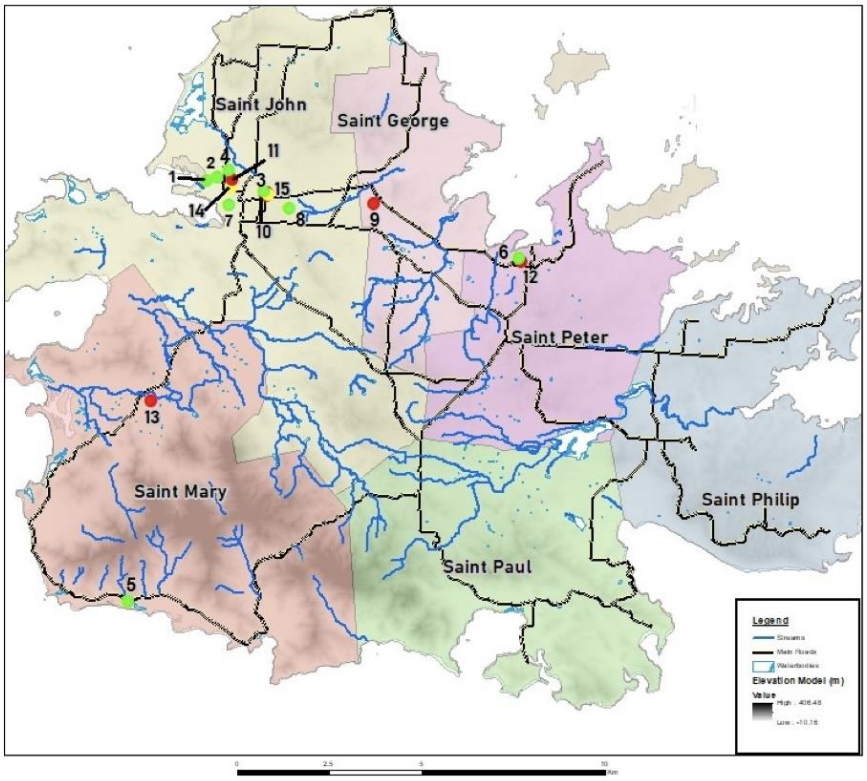
St. Lucia The proposed project will execute climate resilience building of twelve (8~~12~~) schools across St. Lucia, specifically identifying and implementing building-appropriate climate-proofing measures – such as water harvesting and storage systems, solar energy for emergency power, hurricane shutters and other retrofitting interventions. Detailed school-specific upgrading plans for St Lucia are included in the Annex section.

Map illustrating the location of the included schools in St Lucia:

61°6'0.000"W
61°0'0.000"W
60°54'0.000"W
60°48'0.000"W
14°6'0.000"N
14°0'0.000"N
13°54'0.000"N
13°48'0.000"N
N
Corinth Secondary
Ave Maria Primary
Balata Combined
Ave Maria Infant
Fond Assau Combined
CASTRIES
Bexon Primary
DENNERY
ANSE-LA-RAYE
CANARIES
SOUFRIERE
Patience Combined
MICOUD
Micoud Primary
Saltibus Combined
CHOISEUL
Desruisseaux Combined
LABORIE
VIEUX-FORT
Vieux-Fort Infant
0 5 10 km
Vieux-Fort Primary

Antigua and Barbuda has identified 15 schools and conducted an initial assessment for each that provides a generalized indication of targeted measures details of which are included in the Annex. A&B will take a grant-based approach to approve which measures are actually taken at each school. Each school, in response to a call for proposals, will provide detailed climate change adaptation measures after a detailed prioritization process. This call for proposals/grants-based approach is the model that the GoAB typically utilizes when allocating capital (including from international sources) for environmental, and climate change mitigation and adaptation projects.

Map illustrating the location of the included schools in Antiguan and Barbuda:



The GoAB believes that the call for proposals model has many benefits including

- reducing the possibility for bias by giving schools the opportunity to share their views on interventions
- provides an opportunity for a wider cross-section of the community to be reached and informed of the proposed activities and take part in the process.
- supports school ownership of the work that will be done and the concept of adaptation more broadly.

- allows an opportunity for independent stakeholders to be a part of the vetting process
- builds ownership as it relates to the chosen interventions and will improve their knowledge of the needs of their facilities
- ensures a transparent and competitive award process

To better understand the call for proposals (CFP) model, an example of a similar and previous Grant Process Checklist can be viewed at: https://docs.google.com/document/d/13ZGaMkadhnYNar2aT8zhYlgrirhbOgEu/edit?usp=sharing&ouid=113949050718302442873&rtpof=true&sd=true

The specific interventions to take place at each school will be very similar/same to those conducted in St Lucia. However, Antigua and Barbuda are targeting the following climate-proofing measures:

- Water harvesting and water storage systems
- Stormwater drainage solutions
- Renewable energy systems with backup batteries
- Energy-efficiency elements
- Indoor air quality (HVAC systems)
- Hurricane shutters on doors and windows, reinforcement
- Roof reinforcements / securing school roofs
- Communication systems for emergencies
- Tents systems for emergencies
- Solar water heaters
- Window and door strengthening through replacements
- Early warning systems/weather stations
- Central septic systems
- Mosquito screens and nets

From a process perspective, the CFP and selection of schools will be conducted as follows:

- Each of the 15 schools will be invited to respond to a call for proposals
- Each of the 15 schools will be given a small preparation grant to understand the baseline and develop the solutions.
- The evaluation and selection of schools will be managed by the Department of Environment.
- Grants will be processed and awarded through the Sustainable Island Resources Framework (SIRF) Fund.

The Criteria for the initial selection of schools was as follows:

- The school faces environmental challenges such as droughts and high temperatures that impede learning which will be improved through the project interventions.
- The location of the school serves geographically or socially vulnerable populations.
- Geographically vulnerable: prone to flooding, remote or restricted access, at risk to storm surge or sea-level rise, no other access to education in the area
- Socially vulnerable: densely populated areas, provides services to differently-abled students, socio-cultural minority

For **Antigua & Barbuda** a list of schools provided by the Ministry of Education Science and Technology were cross-referenced with buildings targeted by other projects at the Department of Environment (DOE). This allowed for a strategic approach to reducing the repeated selection of schools already targeted by other projects to receive climate adaptation interventions. However, it should be noted that some schools previously targeted to receive solar PV were included in this selection due to their need for additional climate-resilient interventions.

Consultations with the DOE's climate change specialist also helped to identify communities that are particularly vulnerable to extreme climate events due to restricted access or remoteness. The selection, therefore, took into consideration not only the educational benefits but also the needs of at-risk populations that depend on the school for shelter or other community services. However, given the implementation arrangements, it is possible that schools are added or dropped during the grant process after following the application process.

For **St. Lucia**, the relative vulnerability of the twelve schools was established using the five stipulated hazards, namely: Landslides; Fluvial Flooding; Coastal Flooding and Sea Level Rise; Droughts; and Wind Speed/Hurricanes. Where available, established hazard maps were used to identify the location of the schools, thereby assessing their relative climate change vulnerability. In the case of the drought hazard, there was a paucity of data further exacerbated by less than timely responses from the sole producer of water in Saint Lucia. In that regard, the consulting team decided to undertake a qualitative assessment based on information from senior officers of the Water and Sewerage Company Incorporated and the knowledge of the Senior Advisor on the team.

The brief profile for each school is presented on a single page, designed to demonstrate a site plan of the schools' location at the top and table below providing all the critical information as stipulated in the Terms of Reference.

1. Risk Category – This is a categorization to assist with the detailed design of retrofit solutions. Depends on the nature of occupancy. There are four risk categories per ASCE 7-16: https://www.asce.org/asce-7/ in the case of St. Lucia; for Antigua & Barbuda the hazard for each school was scored and the final score was averaged. Based on the results, a score to the closest whole number was ranked from 1 – low to 5 -very high.
2. Building Condition – This is an overall physical condition assessment of the buildings on the school compound using a condition index ranging from poor with a value of 1 and excellent with a value of 5;

3. Occupancy Group – A building code relater parameter that would assist in the design of retrofit interventions;

4. Original Design Code – A document that would assist in understanding and assessing the performance of the structural elements of the buildings;

5. Occupancy Group A and B Buildings – This makes reference to critical institutional buildings (health centers, hospitals, fire stations, and police stations, etc.);

6. Climate Vulnerability – Defines the findings of the Rapid CVA and presents a summary basis for the rating;

7. School Layout – Brief description of what the buildings house;

8. Community type – Rural, Urban or Suburban;

9. Adjacent land uses – Residential, agricultural, recreation, transportation, commercial, institutional

10. Climate Change Exposure – Brief description about the school's risk to Landslides, Hurricanes, Flooding, Drought, Sea-Level Rise understanding that the climate crisis will only make these events even more recurrent.

Score	Landslide	Fluvial Flooding	Wind Speed	Drought	Sea Level Rise/Coastal Hazards
1	Low susceptibility	Very low flood hazard susceptibility (Predicted to flood less frequently than a 1 in 50-year return period storm event).	Very low wind hazard susceptibility (between 30-35 m/s wind speed; 100-year maximum likelihood event).	Very low (low flows resulting in demand restrictions have never been experienced in this system).	No impact – combined 1.1 metre Sea Level Rise and a 4 metre storm surge will have no impact due to high elevation of school above sea-level.
2	Not applicable	Low flood hazard susceptibility (Predicted to flood for events between 1:20 and 1 in 50 year-return period).	Low wind speed hazard susceptibility (between 35 to 40 m/s; 1 in 100-year maximum likelihood event).	Low (low flows result in demand restrictions implemented less than once in 5 years).	Not applicable.
3	Moderate susceptibility	Moderate flood hazard susceptibility (Predicted to flood for events between 1:10 and 1:20 year return period).	Moderate wind speed hazard (between 40 to 45 m/s; 1 in 100-year maximum likelihood event).	Medium (low flows result in demand restrictions implemented once every 1 to 5 years).	Future impact only – combined 1.1-metre Sea Level Rise and a 4-metre storm surge will have an impact due to low elevation of school above sea-level.
4	Not applicable	High flood hazard susceptibility (Predicted to flood for events between 1:5 and 1:10 year return period).	High wind speed hazard (between 45 to 50 m/s; 1 in 100-year maximum likelihood event).	High (low flows result in demand restrictions implemented typically once per dry season on average).	Not applicable.
5	High susceptibility	Very high flood hazard susceptibility (Predicted to flood for events of 1:5 years or more frequent).	Very high wind speed hazard (50-55m/s; 1 in 100-year maximum likelihood event).	Very high (low flows result in demand restrictions implemented multiple times each dry season).	High impact – a 4-metre storm surge will have an impact due to low elevation of school above sea-level.

Score	Landslide	Fluvial Flooding	Wind Speed	Drought	Sea Level Rise/Coastal Hazards
1	Low susceptibility	Very low flood hazard susceptibility (Predicted to flood less frequently than a 1 in 50-year return period storm event).	Very low wind hazard susceptibility (between 30-35 m/s wind speed; 100-year maximum likelihood event).	Very low (low flows resulting in demand restrictions have never been experienced in this system).	No impact – combined 1.1 metre Sea Level Rise and a 4 metre storm surge will have no impact due to high elevation of school above sea-level.
2	Not applicable	Low flood hazard susceptibility (Predicted to flood for events between 1:20 and 1 in 50 year-return period).	Low wind speed hazard susceptibility (between 35 to 40 m/s; 1 in 100-year maximum likelihood event).	Low (low flows result in demand restrictions implemented less than once in 5 years).	Not applicable.
3	Moderate susceptibility	Moderate flood hazard susceptibility (Predicted to flood for events between 1:10 and 1:20 year return period).	Moderate wind speed hazard (between 40 to 45 m/s; 1 in 100-year maximum likelihood event).	Medium (low flows result in demand restrictions implemented once every 1 to 5 years).	Future impact only – combined 1.1-metre Sea Level Rise and a 4-metre storm surge will have an impact due to low elevation of school above sea-level.
4	Not applicable	High flood hazard susceptibility (Predicted to flood for events between 1:5 and 1:10 year return period).	High wind speed hazard (between 45 to 50 m/s; 1 in 100-year maximum likelihood event).	High (low flows result in demand restrictions implemented typically once per dry season on average).	Not applicable.
5	High susceptibility	Very high flood hazard susceptibility (Predicted to flood for events of 1:5 years or more frequent).	Very high wind speed hazard (50-55m/s; 1 in 100-year maximum likelihood event).	Very high (low flows result in demand restrictions implemented multiple times each dry season).	High impact – a 4-metre storm surge will have an impact due to low elevation of school above sea-level.

11. Proposed Adaptation Measures – Proposed interventions for the selected schools with no hierarchical order, and subject to changes based on project implementation. However, priorities will follow the climate change exposure index.

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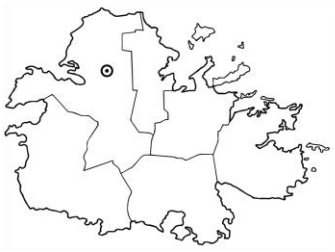
Antigua & Barbuda Pre-Selected Schools.

Beacon Light Nazarene Academy



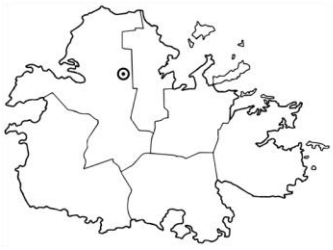
Facility Name:	*Beacon Light Pre-school*	*Risk Category:*	*High*
Type of School:		*Occupancy Group:*	*Private building*
School Address:	*Hann Street, Villa, St John's*	*No. of Occupants:*	*60*
Latitude:	*17° 06' 30" N*	*Year Built:*	*1985*
Longitude:	*61° 46' 49" W*	*Year(s) Renovated:*	*3 Years*
Use:	*School*	*Original Design Code:*	*Uncertain*
Date of Building Condition Assessment Visit:	*29th June 2021*	*Date of Fire Safety Assessment Visit:*	*Uncertain*
School Description		*No. of Buildings:*	*1*
		Shape of Building:	*Rectangular*

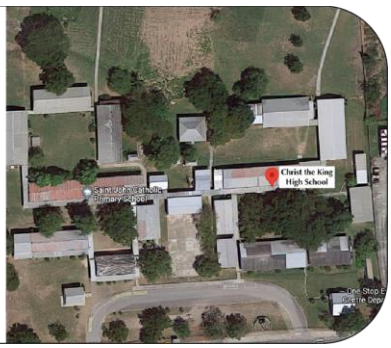
	School Layout:	One story building which house a Classroom, Bathroom, Kitchen	
Environmental and Social Factors	Community Type:	Suburban	
	Adjacent Land Users:	Residential, Commercial	
	Occupancy Group A and B Buildings within 1km:	Restaurants, Religious Building	
Climate Change Exposure* *Always important to remember how each of these items will be worsened over time by the Climate Crisis.	Landslides:	N/A	
	Wind Speed:	Low	
	Flooding:	Moderate to High	
	Drought:	High	
	Sea-level Rise:	Moderate to High	
	Overall:	High	
Proposed Adaptation Measures:	Install photovoltaics (PV) systems, backup battery systems, water harvesting solutions for buildings and stormwater drainage solutions, flooding protection components, enhance energy efficiency of existing HVAC systems (inverter a/c) LED lighting systems, water storage (water tanks), tents (1-4) to be stored/managed by the army.		

Bright Beginnings Pre-School

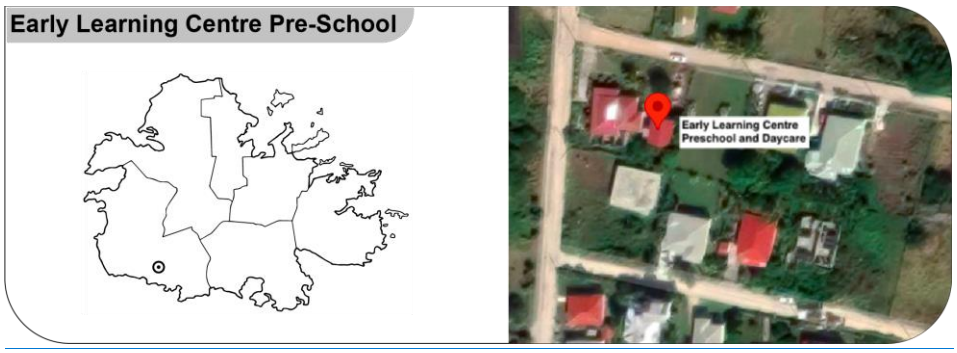
Facility Name:	*Bright Beginnings Pre-school*	*Risk Category:*	*High*
Type of School:	*Pre-school*	*Occupancy Group:*	*Private building*
School Address:	*Parham Village, St Peter*	*No. of Occupants:*	*90*
Latitude:	*17° 06' 30" N*	*Year Built:*	*Uncertain*
Longitude:	*61° 46' 09" W*	*Year(s) Renovated:*	*Uncertain*
Use:	*School*	*Original Design Code:*	*Uncertain*
Date of Building Condition Assessment Visit:	*29th June 2021*	*Date of Fire Safety Assessment Visit:*	*Uncertain*
School Description		*No. of Buildings:*	*1*
		Shape of Building:	*Rectangular*
		School Layout:	*One story building which house a*
Environmental and Social Factors		*Community Type:*	*Suburban*
		Adjacent Land Users:	*Commercial, Residential*
		Occupancy Group A and B Buildings within 1km:	*Teaching Facility, Religious Building*
*Climate Change Exposure** **Always important to remember how each of these items will be worsened over time by the Climate Crisis.*		*Landslides:*	*N/A*
		Wind Speed:	*Moderate*
		Flooding:	*Moderate*
		Drought:	*Moderate to High*
		Sea-level Rise:	*High*
		Overall:	*High*
Proposed Adaptation Measures:	*Install photovoltaics (PV) systems, backup battery systems, water harvesting solutions for buildings and stormwater drainage solutions, flooding protection components, enhance energy efficiency of existing HVAC systems (inverter a/c) LED lighting systems, water storage (water tanks), tents (1-4) to be stored/managed by the army.*		

Christ the King High-School



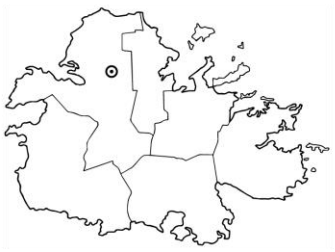


Facility Name:	Christ the King High School	Risk Category:	Moderate
Type of School:	Secondary	Occupancy Group:	Private building
School Address:	Old Parham Road, St. John's, Antigua	No. of Occupants:	264
Latitude:	17°07'27" N	Year Built:	1933
Longitude:	61°49'57" W	Year(s) Renovated:	2-3 years ago
Use:	School	Original Design Code:	Uncertain
Date of Building Condition Assessment Visit:	23rd June 2021 12:00PM	Date of Fire Safety Assessment Visit:	None
School Description		No. of Buildings:	12
		Shape of Building:	Rectangular
		School Layout:	10 rectangular classrooms which house 1 lab, 1 staff room
Environmental and Social Factors		Community Type:	Urban
		Adjacent Land Users:	Residential, Commercial, Recreational
		Occupancy Group A and B Buildings within 1km:	Restaurants, Religious Building
Climate Change Exposure*		Landslides:	N/A
		Wind Speed:	Low
		Flooding:	No to Low
*Always important to remember how each of these items will be worsened over time by the Climate Crisis.		Drought:	High
		Sea-level Rise:	No to Low
		Overall:	Moderate
Proposed Adaptation Measures:	Install photovoltaics (PV) systems, backup battery systems, water harvesting solutions for buildings and stormwater drainage solutions, enhance energy efficiency of existing HVAC systems (inverter a/c) LED lighting systems, water storage (water tanks), tents (1-4) to be stored/managed by the army.		



Facility Name:	Early Learning Centre	Risk Category:	Moderate
Type of School:	Pre-school	Occupancy Group:	Private building
School Address:	Urlings Village, St. Mary's, Antigua	No. of Occupants:	17
Latitude:	17°" N	Year Built:	Over 20 years
Longitude:	61°" W	Year(s) Renovated:	2018-2019
Use:	School	Original Design Code:	Uncertain
Date of Building Condition Assessment Visit:	23rd June 2021	Date of Fire Safety Assessment Visit:	2018-2019
School Description		No. of Buildings:	1
		Shape of Building:	Rectangular
		School Layout:	Rectangle building
Environmental and Social Factors		Community Type:	Suburban
		Adjacent Land Users:	Residential
		Occupancy Group A and B Buildings within 1km:	Restaurants, Public HealthCenter & Clinics, Gas Stations , Religious Building
Climate Change Exposure*		Landslides:	N/A
		Wind Speed:	Low
		Flooding:	Moderate to High
*Always important to remember how each of these items will be worsened over time by the Climate Crisis.		Drought:	Low
		Sea-level Rise:	Moderate
		Overall:	Moderate
Proposed Adaptation Measures:	Install photovoltaics (PV) systems, backup battery systems, water harvesting solutions for buildings and stormwater drainage solutions, flooding protection components, enhance energy efficiency of existing HVAC systems (inverter a/c) LED lighting systems, water storage (water tanks), tents (1-4) to be stored/managed by the army.		

Grace Christian Academy



Facility Name:	*Grace Christian Academy*	*Risk Category:*	*Moderate*
Type of School:	*Primary*	*Occupancy Group:*	*Private building*
School Address:	*Rowan Henry Street, St. John's, Antigua*	*No. of Occupants:*	*350*
Latitude:	*17°07'39" N*	*Year Built:*	*1978*
Longitude:	*61°50'27" W*	*Year(s) Renovated:*	*Yearly*
Use:	*School*	*Original Design Code:*	*Uncertain*
Date of Building Condition Assessment Visit:	*23rd June 2021*	*Date of Fire Safety Assessment Visit:*	*2018*
School Description		*No. of Buildings:*	*3*
		Shape of Building:	*Rectangular*
		School Layout:	*Two rectangular 2-story building which house classrooms, office, bathroom and a 1-story building which house two classrooms*
Environmental and Social Factors		*Community Type:*	*Suburban*
		Adjacent Land Users:	*Commercial, Residential*
		Occupancy Group A and B Buildings within 1km:	*Restaurants, Religious Building*
*Climate Change Exposure**		*Landslides:*	*N/A*
		Wind Speed:	*Low*
		Flooding:	*Moderate*
**Always important to remember how each of these items will be worsened over time by the Climate Crisis.*		*Drought:*	*High*
		Sea-level Rise:	*No to low*
		Overall:	*Moderate*
Proposed Adaptation Measures:	*Install photovoltaics (PV) systems, backup battery systems, water harvesting solutions for buildings and stormwater drainage solutions, flooding protection components, enhance energy efficiency of existing HVAC systems (inverter a/c) LED lighting systems, water storage (water tanks), tents (1-4) to be stored/managed by the army.*		

Facility Name:	Jennings Primary School	Risk Category:	High
Type of School:	Primary	Occupancy Group:	Public building
School Address:	Jennings Village, St.Mary's Antigua	No. of Occupants:	214
Latitude:	17°04'25" N	Year Built:	1995
Longitude:	61°51'47" W	Year(s) Renovated:	2019
Use:	School	Original Design Code:	Uncertain
Date of Building Condition Assessment Visit:	21 June 2021 12:00PM	Date of Fire Safety Assessment Visit:	Uncertain
School Description		No. of Buildings:	5
		Shape of Building:	Rectangular
		School Layout:	5 Blocks, A: Staffroom, Principal's office, reading room, Bathroom, Kitchen. B: 2-story with 5 classrooms, storeroom, Computer room, 3 Classrooms, pump room. C: 2 Classrooms. D: 1 Classroom. E: 2 Bathrooms and Auditorium.
Environmental and Social Factors		Community Type:	Suburban
		Adjacent Land Users:	Residential, Commercial, Recreational
		Occupancy Group A and B Buildings within 1km:	Teaching Facility, Recreational Ground
Climate Change Exposure*		Landslides:	N/A
		Wind Speed:	Moderate to High
		Flooding:	High
*Always important to remember how each of these items will be worsened over time by the Climate Crisis.		Drought:	Moderate
		Sea-level Rise:	Moderate to High
		Overall:	High
Proposed Adaptation Measures:	Install photovoltaics (PV) systems, backup battery systems, water harvesting solutions for buildings and stormwater drainage solutions, flooding protection components,		

	enhance energy efficiency of existing HVAC systems (inverter a/c) LED lighting systems, water storage (water tanks), tents (1-4) to be stored/managed by the army.

Facility Name:	*Montessori Preschool*	*Risk Category:*	*Moderate*
Type of School:	*Pre-school*	*Occupancy Group:*	*Private building*
School Address:	*Lower Gambles, St John's, Antigua*	*No. of Occupants:*	*35*
Latitude:	*17°07'46" N*	*Year Built:*	*1921*
Longitude:	*61°50'30" W*	*Year(s) Renovated:*	*2019*
Use:	*School*	*Original Design Code:*	*Uncertain*
Date of Building Condition Assessment Visit:	*29th June 2021*	*Date of Fire Safety Assessment Visit:*	*2021*
School Description		*No. of Buildings:*	*1*
		Shape of Building:	*Rectangular*
		School Layout:	*1-story building which houses classroom, bathroom*
Environmental and Social Factors		*Community Type:*	*Suburban*
		Adjacent Land Users:	*Commercial, Residential*
		Occupancy Group A and B Buildings within 1km:	*Restaurants, Religious Building*
*Climate Change Exposure** **Always important to remember how each of these items will be worsened over time by the Climate Crisis.*		*Landslides:*	*N/A*
		Wind Speed:	*Low*
		Flooding:	*Moderate*
		Drought:	*High*
		Sea-level Rise:	*Moderate to High*
		Overall:	*Moderate*
Proposed Adaptation Measures:	*Install photovoltaics (PV) systems, backup battery systems, water harvesting solutions for buildings and stormwater drainage solutions, flooding protection components, enhance energy efficiency of existing HVAC systems (inverter a/c) LED lighting systems, water storage (water tanks), tents (1-4) to be stored/managed by the army.*		

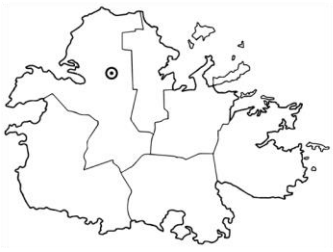
Parham Primary School

Facility Name:	Parham Primary School	Risk Category:	High
Type of School:	Primary	Occupancy Group:	Public building
School Address:	Parham Village, St. Peter's, Antigua	No. of Occupants:	90
Latitude:	17°06'28" N	Year Built:	1970
Longitude:	61° 45'46" W	Year(s) Renovated:	Uncertain
Use:	School	Original Design Code:	Uncertain
Date of Building Condition Assessment Visit:	22 June 2021 10:00AM	Date of Fire Safety Assessment Visit:	Uncertain
School Description		No. of Buildings:	6
		Shape of Building:	Rectangular
		School Layout:	5 Rectangular building which house classrooms and one building which house 1staff room and a Principal office
Environmental and Social Factors		Community Type:	Suburban
		Adjacent Land Users:	Residential
		Occupancy Group A and B Buildings within 1km:	Restaurants, Religious Building, Parham Fisheries
Climate Change Exposure*		Landslides:	N/A
		Wind Speed:	Moderate to High
		Flooding:	High
*Always important to remember how each of these items will be worsened over time by the Climate Crisis.		Drought:	Moderate to High
		Sea-level Rise:	High
		Overall:	High
Proposed Adaptation Measures:	Install photovoltaics (PV) systems, backup battery systems, water harvesting solutions for buildings and stormwater drainage solutions, flooding protection components, enhance energy efficiency of existing HVAC systems (inverter a/c), LED lighting systems, water storage (water tanks), tents (1-4) to be stored/managed by the army.		

Facility Name:	Piggott's Primary School	Risk Category:	Moderate
Type of School:	Primary	Occupancy Group:	Public building
School Address:	Piggotts Village, St. George's, Antigua	No. of Occupants:	234
Latitude:	17°07'18" N	Year Built:	1974
Longitude:	61°43'13" W	Year(s) Renovated:	Uncertain
Use:	School	Original Design Code:	Uncertain
Date of Building Condition Assessment Visit:	22 June 2021 9:00AM	Date of Fire Safety Assessment Visit:	2017
School Description		No. of Buildings:	9
		Shape of Building:	Rectangular
		School Layout:	8 Rectangular buildings which house Classrooms, 1 Auditorium and 1 Building which House staffroom and Principal office
Environmental and Social Factors		Community Type:	Suburban
		Adjacent Land Users:	Residential, Recreational, Commercial
		Occupancy Group A and B Buildings within 1km:	Restaurants, Public HealthCenter & Clinics, Gas Stations , Religious Building
Climate Change Exposure*		Landslides:	N/A
		Wind Speed:	Low
		Flooding:	High
*Always important to remember how each of these items will be worsened over time by the Climate Crisis.		Drought:	High
		Sea-level Rise:	No to Low
		Overall:	Moderate
Proposed Adaptation Measures:	Install photovoltaics (PV) systems, backup battery systems, water harvesting solutions for buildings and stormwater drainage solutions, flooding protection		

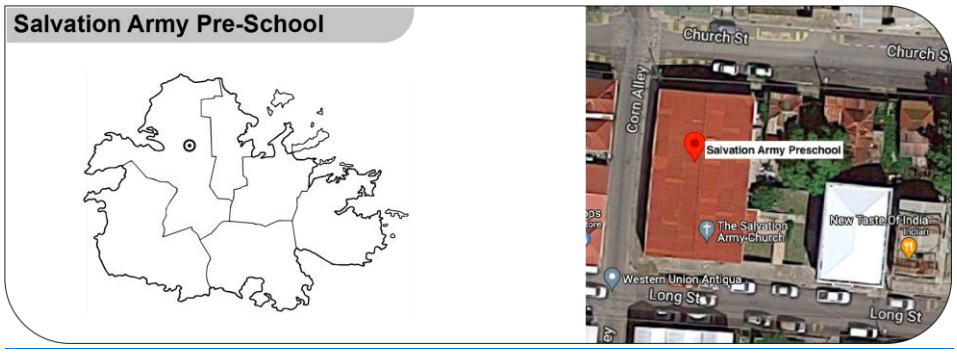
	components, enhance energy efficiency of existing HVAC systems (inverter a/c), LED lighting systems, water storage (water tanks), tents (1-4) to be stored/managed by the army.

Princess Margaret Secondary



Facility Name:	Princess Margaret Secondary	Risk Category:	Moderate
Type of School:	Secondary	Occupancy Group:	Public building
School Address:	St. John's, Antigua	No. of Occupants:	869
Latitude:	17°07'33" N	Year Built:	1955
Longitude:	61°50'31" W	Year(s) Renovated:	2003
Use:	School	Original Design Code:	Uncertain
Date of Building Condition Assessment Visit:	28th June 2021	Date of Fire Safety Assessment Visit:	2019
School Description		No. of Buildings:	17
		Shape of Building:	Rectangular
		School Layout:	A: 1-story Building Tech, Staff Room, Metal Room, Technical Drawing Room. B: 2-storry Management Room, Staff Room/kitchen and 1 Lab. Upstairs Home Economics Room. Music Block
Environmental and Social Factors		Community Type:	Urban
		Adjacent Land Users:	Residential, Commercial, Recreational
		Occupancy Group A and B Buildings within 1km:	Restaurants, Public HealthCenter & Clinics, Religious Building
Climate Change Exposure*		Landslides:	N/A
		Wind Speed:	Low
		Flooding:	Moderate to High
*Always important to remember how each of these items will be worsened over time by the Climate Crisis.		Drought:	High
		Sea-level Rise:	No to Low
		Overall:	Moderate

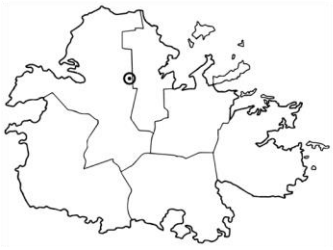
Proposed Adaptation Measures:	*Install photovoltaics (PV) systems, backup battery systems, water harvesting solutions for buildings and stormwater drainage solutions, flooding protection components, enhance energy efficiency of existing HVAC systems (inverter a/c), LED lighting systems, water storage (water tanks), tents (1-4) to be stored/managed by the army.*



Facility Name:	*Salvation Army Pre-school*	*Risk Category:*	*High*
Type of School:		*Occupancy Group:*	*Private building*
School Address:	*Long Street, St Johns Antigua*	*No. of Occupants:*	*37*
Latitude:	*17°07'22" N*	*Year Built:*	*1976*
Longitude:	*61°50'31" W*	*Year(s) Renovated:*	*2007*
Use:	*School*	*Original Design Code:*	*Uncertain*
Date of Building Condition Assessment Visit:	*23rd June 2021*	*Date of Fire Safety Assessment Visit:*	*Uncertain*
School Description		*No. of Buildings:*	*1*
		Shape of Building:	*Rectangular*
		School Layout:	*2-story building. The first Floor is Utilized by the school which House Bathroom's, Kitchen, Classrooms and Offices*
Environmental and Social Factors		*Community Type:*	*Urban*
		Adjacent Land Users:	*Commercial*
		Occupancy Group A and B Buildings within 1km:	*Restaurants, Religious Building*
*Climate Change Exposure**		*Landslides:*	*N/A*
		Wind Speed:	*Low*
		Flooding:	*High to Moderate*
		Drought:	*High*
		Sea-level Rise:	*Moderate to High*

*Always important to remember how each of these items will be worsened over time by the Climate Crisis.	Overall:	High	
Proposed Adaptation Measures:	Install photovoltaics (PV) systems, backup battery systems, water harvesting solutions for buildings and stormwater drainage solutions, flooding protection components, enhance energy efficiency of existing HVAC systems (inverter a/c), LED lighting systems, water storage (water tanks), tents (1-4) to be stored/managed by the army.		

Simon Bolivar Pre-School



Facility Name:	Simon Bolivar	Risk Category:	Moderate	
Type of School:	Pre-school	Occupancy Group:	Private building	
School Address:	St Johnson's Village Main Rd Antigua	No. of Occupants:	28	
Latitude:	17°07'22" N	Year Built:	Uncertain	
Longitude:	61°49'32" W	Year(s) Renovated:	2021	
Use:	School	Original Design Code:	Uncertain	
Date of Building Condition Assessment Visit:	July 2021	Date of Fire Safety Assessment Visit:	Uncertain	
School Description		No. of Buildings:	3	
		Shape of Building:	Each Building is shaped like a pumpkin	
		School Layout:	There are 2 1-story buildings which each house a Classroom, Bathroom and Kitchen. 1 1-story building houses an Office, Bathroom and Kitchen	
Environmental and Social Factors		Community Type:	Urban	
		Adjacent Land Users:	Residential, Recreational, Commercial	
		Occupancy Group A and B Buildings within 1km:	Restaurants, Religious Building, Sports ground	
Climate Change Exposure*		Landslides:	N/A	
		Wind Speed:	Low	
		Flooding:	High	
*Always important to remember how each of these items will be worsened over time by the Climate Crisis.		Drought:	High	
		Sea-level Rise:	No to Low	
		Overall:	Moderate	
Proposed Adaptation Measures:	Install photovoltaics (PV) systems, backup battery systems, water harvesting solutions for buildings and stormwater drainage solutions, flooding protection components, enhance energy efficiency of existing HVAC systems (inverter a/c),			

LED lighting systems, water storage (water tanks), tents (1-4) to be stored/managed by the army.

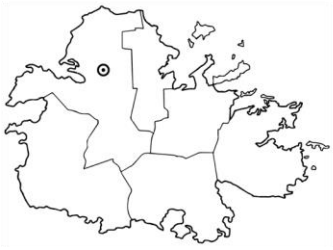
St. John's Catholic Pre-school

Facility Name:	St. John's Catholic Preschool	Risk Category:	Moderate	
Type of School:	Pre-school	Occupancy Group:	Private building	
School Address:	Old Parham Road, St. John's, Antigua	No. of Occupants:	39	
Latitude:	17°07'28" N	Year Built:	1984	
Longitude:	61° 50'05" W	Year(s) Renovated:	6 years ago	
Use:	School	Original Design Code:	Uncertain	
Date of Building Condition Assessment Visit:	23 June 2021 11:30AM	Date of Fire Safety Assessment Visit:	None	
School Description		No. of Buildings:	3	
		Shape of Building:	Rectangular	
		School Layout:	Three 1-story building connected by a canopy which house classrooms, office, and kitchen	
Environmental and Social Factors		Community Type:	Urban	
		Adjacent Land Users:	Residential, Commercial, Recreational	
		Occupancy Group A and B Buildings within 1km:	Restaurants , Religious Building, Teaching Facility	
Climate Change Exposure*		Landslides:	N/A	
		Wind Speed:	Low	
		Flooding:	High	
*Always important to remember how each of these items will be worsened over time by the Climate Crisis.		Drought:	High	
		Sea-level Rise:	Low	
		Overall:	Moderate	
Proposed Adaptation Measures:	Install photovoltaics (PV) systems, backup battery systems, water harvesting solutions for buildings and stormwater drainage solutions, flooding protection components, enhance energy efficiency of existing HVAC systems (inverter a/c), LED lighting systems, water storage (water tanks), tents (1-4) to be stored/managed by the army.			

St. John's Primary School

Facility Name:	St. John's Catholic Primary School	Risk Category:	Moderate
Type of School:	Primary	Occupancy Group:	Private building
School Address:	Old Parham Road, St. John's, Antigua	No. of Occupants:	310
Latitude:	17°07'28" N	Year Built:	1981
Longitude:	61° 50'05" W	Year(s) Renovated:	6-7 years ago
Use:	School	Original Design Code:	Uncertain
Date of Building Condition Assessment Visit:	23 June 2021 11:00AM	Date of Fire Safety Assessment Visit:	2020
School Description		No. of Buildings:	9
		Shape of Building:	Rectangular
		School Layout:	9 Rectangular buildings which house classrooms, 1 Staffroom, Principal office
Environmental and Social Factors		Community Type:	Urban
		Adjacent Land Users:	Residential, Commercial, Recreational
		Occupancy Group A and B Buildings within 1km:	Restaurants , Religious Building
Climate Change Exposure*		Landslides:	N/A
		Wind Speed:	Low
		Flooding:	No to Low
*Always important to remember how each of these items will be worsened over time by the Climate Crisis.		Drought:	High
		Sea-level Rise:	No to Low
		Overall:	Moderate
Proposed Adaptation Measures:	Install photovoltaics (PV) systems, backup battery systems, water harvesting solutions for buildings and stormwater drainage solutions, enhance energy efficiency of existing HVAC systems (inverter a/c) LED lighting systems, water storage (water tanks), tents (1-4) to be stored/managed by the army.		

Villa Pre-School



Facility Name:	Villa Preschool	Risk Category:	Moderate
Type of School:	Pre-school	Occupancy Group:	Public building
School Address:	Amy Byers Street, St John's Antigua	No. of Occupants:	18
Latitude:	17°07'49" N	Year Built:	1969
Longitude:	61°50'49" W	Year(s) Renovated:	1-3 years ago
Use:	School	Original Design Code:	Uncertain
Date of Building Condition Assessment Visit:	June 2021	Date of Fire Safety Assessment Visit:	2018
School Description		No. of Buildings:	1
		Shape of Building:	Rectangular
		School Layout:	A rectangular building which houses two Classroom and bathroom
Environmental and Social Factors		Community Type:	Suburban
		Adjacent Land Users:	Residential, Commercial
		Occupancy Group A and B Buildings within 1km:	Restaurants, Public HealthCenter & Clinics, Gas Stations , Religious Building
Climate Change Exposure*		Landslides:	N/A
		Wind Speed:	Low to Moderate
		Flooding:	Moderate
*Always important to remember how each of these items will be worsened over time by the Climate Crisis.		Drought:	High
		Sea-level Rise:	Moderate to High
		Overall:	Moderate
Proposed Adaptation Measures:	Install photovoltaics (PV) systems, backup battery systems, water harvesting solutions for buildings and stormwater drainage solutions, flooding protection components, enhance energy efficiency of existing HVAC systems (inverter a/c) LED lighting systems, water storage (water tanks), tents (1-4) to be stored/managed by the army.		

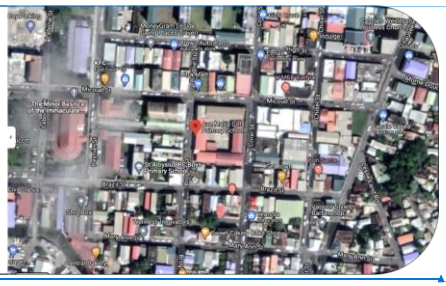
St. Lucia Pre-Selected Schools.

Ave Maria Infant School

Facility Name:	Ave Maria Infant	Risk Category:	RCIV
Type of School:	Infant	Occupancy Group:	Group A: Public Buildings
School Address:	Corner of Coral & Micoud Street, Castries	No. of Occupants:	402
Latitude:	14°00'31.73" N	Year Built:	1901
Longitude:	60°59'19.39" W	Year(s) Renovated:	2001, within last 10 years
Use:	School & Emergency Shelter	Original Design Code:	Unknown
Date of Building Condition Assessment Visit:	September 9, 2020	Date of Fire Safety Assessment Visit:	December 29, 2020
School Description		No. of Buildings:	2
		Shape of Building:	Two rectangular buildings forming L-shape
		School Layout:	Each building has two floors which house classrooms. The first floor houses a stage, storage room and principal's office. The ground floor houses washrooms, a library, canteen and staff resource.
Environmental and Social Factors		Community Type:	Urban
		Adjacent Land Users:	Commercial, Institutional, Transportation
		Occupancy Group A and B Buildings within 1km:	City and Town Halls, Public Libraries, Religious Buildings, Teaching Facilities, Restaurants, Court Houses, Permanent Exhibition Buildings, Passenger Assembly Buildings, Public Health Centres and Clinics
Climate Change Exposure*		Landslides:	No or low
*Always important to remember how each of these items will be worsened over time by the Climate Crisis.		Wind Speed:	Moderate
		Flooding:	High
		Drought:	No or low
		Sea-level Rise:	Moderate
		Overall:	Low to moderate

Proposed Adaptation Measures:	Condition of the building, Exterior Doors, Exits and Entrances, Windows and shutters, Safety of roofing, Parapets and other outside Elements (railings, ornaments), Internal walls, Safety of stairways and Ramps, Disability Accessibility, Water Reserves, Water Distribution System, Wastewater System, Storm Drainage System, Flooding Protection Components, Alternate Sources of Electricity, Safety of Electrical Equipment, Lighting System, Safety of HVAC Components,

Ave Maria Primary School



Facility Name:	Ave Maria Primary	Risk Category:	RCIV
Type of School:	Primary	Occupancy Group:	Group A: Public Buildings
School Address:	Corner of Broglie & Brazil Street, Castries	No. of Occupants:	529
Latitude:	14°00'31.73" N	Year Built:	1901
Longitude:	60°59'19.39" W	Year(s) Renovated:	Within last 8 years
Use:	School & Emergency Shelter	Original Design Code:	Unknown
Date of Building Condition Assessment Visit:	September 9, 2020	Date of Fire Safety Assessment Visit:	December 8, 2020
School Description		No. of Buildings:	3
		Shape of Building:	Two rectangular buildings forming an L-shape.
		School Layout:	The L-shaped building has two floors which house classrooms. The ground floor houses a sick bay, office, and home economics room. The rectangular building houses a canteen.
Environmental and Social Factors		Community Type:	Urban
		Adjacent Land Users:	Commercial, Institutional, Transportation
		Occupancy Group A and B Buildings within 1km:	City and Town Halls, Public Libraries, Religious Buildings, Teaching Facilities, Restaurants, Court Houses, Auditoria, Permanent Exhibition Buildings, Passenger Assembly Buildings, Public Health Centres and Clinics
Climate Change Exposure*		Landslides:	No or low
		Wind Speed:	Moderate

*Always important to remember how each of these items will be worsened over time by the Climate Crisis.	Flooding:	High	
	Drought:	No or low	
	Sea-level Rise:	Moderate	
	Overall:	Low to moderate	
Proposed Adaptation Measures:	Condition of the building, Exterior Doors, Exits and Entrances, Windows and shutters, Safety of roofing, Parapets and other outside Elements (railings, ornaments), Internal walls, Safety of stairways and Ramps, Disability Accessibility, Water Reserves, Water Distribution System, Wastewater System, Storm Drainage System, Flooding Protection Components, Alternate Sources of Electricity, Safety of Electrical Equipment, Lighting System, Safety of HVAC Components.		

Balata Combined School

Facility Name:	Balata Combined	Risk Category:	RCIV
Type of School:	Primary	Occupancy Group:	Group A: Public Buildings
School Address:	Balata, Castries	No. of Occupants:	274
Latitude:	14°00'45.43" N	Year Built:	1978, 1989, 2003
Longitude:	60°57'13.83" W	Year(s) Renovated:	2019
Use:	School & Emergency Shelter	Original Design Code:	Unknown
Date of Building Condition Assessment Visit:	August 27, 2020	Date of Fire Safety Assessment Visit:	December 21, 2020
School Description		No. of Buildings:	3
		Shape of Building:	L-shaped and rectangular buildings
		School Layout:	One building has two floors and the other has only one. The two storey building houses classrooms, toilets, a kitchen, staff room and principal's office. The single storey houses a library.
Environmental and Social Factors		Community Type:	Suburban

	Adjacent Land Users:	Residential, Recreation, Transportation, Institutional
	Occupancy Group A and B Buildings within 1km:	Assembly Halls, Restaurants, Religious Buildings
Climate Change Exposure*	Landslides:	Moderate
	Wind Speed:	Low to moderate
	Flooding:	Moderate
	Drought:	Low to moderate
*Always important to remember how each of these items will be worsened over time by the Climate Crisis.	Sea-level Rise:	No or low
	Overall:	Low to moderate
Proposed Adaptation Measures:	Condition of the building, Exterior Doors, Exits and Entrances, Windows and shutters, Safety of roofing, Parapets and other outside Elements (railings, ornaments), Internal walls, Safety of stairways and Ramps, Disability Accessibility, Water Reserves, Water Distribution System, Wastewater System, Storm Drainage System, Flooding Protection Components, Alternate Sources of Electricity, Safety of Electrical Equipment, Lighting System, Safety of HVAC Components.	

Bexon Primary School

Facility Name:	Bexon Primary	Risk Category:	RCIV
Type of School:	Primary	Occupancy Group:	Group A: Public Buildings
School Address:	Bexon, Castries	No. of Occupants:	152
Latitude:	13°57'08.70" N	Year Built:	1996
Longitude:	60°58'30.92" W	Year(s) Renovated:	After 2007 earthquake
Use:	School	Original Design Code:	Unknown
Date of Building Condition Assessment Visit:	September 14, 2020	Date of Fire Safety Assessment Visit:	September 14, 2020 January 6, 2021
School Description		No. of Buildings:	1
		Shape of Building:	Rectangular
		School Layout:	The building has three floors which house classrooms, washrooms, storerooms, panel rooms, a scienc

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		lab, janitor room, canteen, principal's office, and staff room.
Environmental and Social Factors	Community Type:	Suburban
	Adjacent Land Users:	Residential, Agricultural, Recreational, Institutional
	Occupancy Group A and B Buildings within 1km:	Restaurants, Religious Buildings, Teaching Facilities
Climate Change Exposure* *Always important to remember how each of these items will be worsened over time by the Climate Crisis.	Landslides:	Moderate
	Wind Speed:	No or low
	Flooding:	High
	Drought:	No or low
	Sea-level Rise:	No or low
	Overall:	Low to moderate
Proposed Adaptation Measures:	Condition of the building, Exterior Doors, Exits and Entrances, Windows and shutters, Safety of roofing, Parapets and other outside Elements (railings, ornaments), Internal walls, Safety of stairways and Ramps, Disability Accessibility, Water Reserves, Water Distribution System, Wastewater System, Storm Drainage System, Flooding Protection Components, Alternate Sources of Electricity, Safety of Electrical Equipment, Lighting System, Safety of HVAC Components.	

Fond Assau Combined School

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Facility Name:	Fond Assau Combined	Risk Category:	RCIV
Type of School:	Primary	Occupancy Group:	Group A: Public Buildings
School Address:	Fond Assau, Babonneau Castries	No. of Occupants:	142
Latitude:	13°59'47.27" N	Year Built:	2006, 2015
Longitude:	60°56'10.83" W	Year(s) Renovated:	Unknown
Use:	School & Emergency Shelter	Original Design Code:	Unknown
Date of Building Condition Assessment Visit:	September 4, 2020	Date of Fire Safety Assessment Visit:	December 21, 2020 December 21, 2020
School Description		No. of Buildings:	3
		Shape of Building:	Rectangular
		School Layout:	Two buildings have three storeys and there is one single storey building. The two three storey buildings house classrooms, toilets, and administrative offices. The single storey building houses a kitchen and a resource/recreational room.
Environmental and Social Factors		Community Type:	Suburban
		Adjacent Land Users:	Residential, Agricultural, Transportation
		Occupancy Group A and B Buildings within 1km:	Assembly Halls, Restaurants, Religious Buildings, Teaching Facilities
Climate Change Exposure*		Landslides:	No or low
		Wind Speed:	Moderate to high
*Always important to remember how each of these items will be worsened over time by the Climate Crisis.		Flooding:	No or low
		Drought:	Moderate
		Sea-level Rise:	No or low
		Overall:	Low
Proposed Adaptation Measures:	Condition of the building, Exterior Doors, Exits and Entrances, Windows and shutters, Safety of roofing, Parapets and other outside Elements (railings, ornaments), Internal walls, Safety of stairways and Ramps, Disability Accessibility, Water Reserves, Water Distribution System, Wastewater System, Storm Drainage System, Alternate Sources of Electricity, Safety of Electrical Equipment, Lighting System, Safety of HVAC Components.		

Saltibus Combined School

Facility Name:	Saltibus Combined	Risk Category:	RCIV
Type of School:	Primary	Occupancy Group:	Group A: Public Buildings
School Address:	Saltibus, Choiseul	No. of Occupants:	126
Latitude:	61°00'47.44" N	Year Built:	Unknown
Longitude:	13°48'16.68" W	Year(s) Renovated:	Unknown
Use:	School & Emergency Shelter	Original Design Code:	Unknown
Date of Building Condition Assessment Visit:	September 14, 2020	Date of Fire Safety Assessment Visit:	November 25, 2020
School Description		No. of Buildings:	5
		Shape of Building:	Two rectangular buildings joined to form an L-shape and rectangular
		School Layout:	There are four single storey buildings and one two storey building. Two of the single storey buildings house the infant school which have classrooms, a music room and a janitor's room. Another single storey building houses toilets and the last one houses a classroom, library, principal's office, and IT lab. The two storey buildings houses classrooms, a stage, storage room, kitchen, canteen, and sick room.
Environmental and Social Factors		Community Type:	Rural
		Adjacent Land Users:	Residential, Agricultural, Recreation, Transportation, Institutional
		Occupancy Group A and B Buildings within 1km:	Community Centre, Religious Buildings
Climate Change Exposure*		Landslides:	High
		Wind Speed:	Moderate to high
		Flooding:	No or low
*Always important to remember how each of these items will be worsened over time by the Climate Crisis.		Drought:	Moderate to high
		Sea-level Rise:	No or low
		Overall:	Moderate

Proposed Adaptation Measures:	Exterior Doors, Exits and Entrances, Windows and shutters, Safety of roofing, Parapets, and other outside Elements (railings, ornaments), Internal walls, Water Reserves, Alternate water supply to regular water supply, Water Distribution System, Wastewater System, Alternate Sources of Electricity, Safety of Electrical Equipment, Lighting System, Safety of HVAC Components, Lighting System, Information Technology, Fire Protection, Disability Accessibility, ESIA Recommendations

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Vieux Fort Infant School

Facility Name:	Vieux Fort Infant	Risk Category:	RCIII
Type of School:	Infant	Occupancy Group:	Group A: Public Buildings
School Address:	Clarke Street, Vieux Fort	No. of Occupants:	197
Latitude:	60°57'09.69" N	Year Built:	Unknown
Longitude:	13°43'52.06" W	Year(s) Renovated:	2015, 2020
Use:	School	Original Design Code:	Unknown
Date of Building Condition Assessment Visit:	September 4, 2020	Date of Fire Safety Assessment Visit:	November 25, 2020
School Description		No. of Buildings:	4
		Shape of Building:	Rectangular
		School Layout:	There are three single storey buildings and one two-storey building. One single storey building houses a classroom, another houses a kitchen, and one is currently used for storage. The other building houses classrooms, toilets, a sick bay, library, computer lab, staff room, stage, and principal's office.
Environmental and Social Factors		Community Type:	Urban
		Adjacent Land Users:	Transportation, Commercial, Institutional
		Occupancy Group A and B Buildings within 1km:	Restaurants, Religious Buildings, Teaching Facilities
Climate Change Exposure*		Landslides:	No or low
		Wind Speed:	Moderate to high
		Flooding:	Moderate to high
*Always important to remember how each of these items will be worsened over time by the Climate Crisis.		Drought:	No or low
		Sea-level Rise:	No or low
		Overall:	Low to moderate

Proposed Adaptation Measures:	Condition of the building, Safety of Foundations, Disability Accessibility, Exterior Doors, Exits and Entrances, Windows and shutters, Safety of roofing, Internal walls, Alternate water supply to regular water supply, Water Distribution System, Wastewater System, Storm Drainage System, Flooding Protection Components, Alternate Sources of Electricity, Safety of Electrical Equipment, Lighting System, Safety of HVAC Components, Information Technology, Fire Protection, ESIA Recommendations		

Facility Name:	Vieux Fort Primary	Risk Category:	RCIV
Type of School:	Primary	Occupancy Group:	Group A: Public Buildings
School Address:	Beanfield, Vieux Fort	No. of Occupants:	226
Latitude:	60°56'58.77" N	Year Built:	Between 1984 - 1985
Longitude:	13°43'45.47" W	Year(s) Renovated:	2019, 2018, 2016, 2015, 2008
Use:	School & Emergency Shelter (Blocks A, D, C)	Original Design Code:	Unknown
Date of Building Condition Assessment Visit:	September 4, 2020	Date of Fire Safety Assessment Visit:	November 25, 2020
School Description		No. of Buildings:	4
		Shape of Building:	Rectangular
		School Layout:	Two buildings house only classrooms, one building houses special education rooms, toilets and electrical room and another building houses the assembly hall and administrative offices.
Environmental and Social Factors		Community Type:	Urban
		Adjacent Land Users:	Recreation, Transportation, Commercial, Institutional
		Occupancy Group A and B Buildings within 1km:	Passenger Assembly Buildings, Restaurants, Religious Buildings, Teaching Facilities
Climate Change Exposure*		Landslides:	No or low
		Wind Speed:	Moderate to high
		Flooding:	High

*Always important to remember how each of these items will be worsened over time by the Climate Crisis.	Drought:	Moderate	
	Sea-level Rise:	Moderate	
	Overall:	Moderate	
Proposed Adaptation Measures:	Condition of the building, Disability Accessibility, Structural Integrity of Roofs, Exterior Doors, Exits and Entrances, Windows and shutters, Other Elements of the Building Envelope, Safety of roofing, Alternate water supply to regular water supply, Water Distribution System, Wastewater System, Storm Drainage System, Flooding Protection Components, Alternate Sources of Electricity, Safety of Electrical Equipment, Lighting System, Safety of HVAC Components, Lighting System, Information Technology, Fire Protection, ESIA Recommendations		

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B. Promotion of innovative solutions

This regional proposal focuses on implementing comprehensive solutions for climate change adaptation, based on a community-approach disaster risk management, promoting institutional, capacity building and technical elements. These components are **innovative** as they are framed in a solid multi-level strategic framework, which ultimately function as a watershed for scaling up and replicate similar frameworks in other Caribbean countries, accelerating regional climate adaptation and increasing vulnerable communities and social groups' resilience. In addition, implementing the same strategic framework in two countries allows us to see how distinct institutions and communities undertake differently the challenges and opportunities for climate change adaptation, gathering experience from diverse contexts which in the long run can improve the adoption and replication of similar frameworks to other Caribbean countries.

Institutional **innovation** at a regional level looks forward to strengthening capacities in the country's school systems. The Caribbean region benefits from some experiences in regional collaboration on adaptation, through regional organizations such as the Caribbean Community Climate Change Centre (CCCCC) and regional bodies such as the Organization 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 through this project.

The advancement of adaptation activities at the regional level is **innovative** in the context of the Caribbean region, especially in the education sector. In a local level, 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 minimized as well as damages from extreme weather events. This is directly linked with the introduction of physical elements for improving school´s infrastructure resilience as an innovative technical solution in this type of construction. The proposed project 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.

C. Economic, social and environmental benefits

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 decentralized 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 as schools included in the project will incur no or less damage from extreme weather events.
- As retrofitting activities will be designed according to regional guidelines, damages 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 segments 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. Additionally, energy efficiency measures (lighting & cooling) will also result in less energy usage and more savings.

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 decentralized (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 decentralized 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-power plants in 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 minimize 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.
- A project gender action plan has been developed that outlines 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.

D. Cost-effectiveness

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

A high-level cost-effectiveness analysis was conducted that compared the estimated costs of business as usual 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 centralized energy and water supply is maintained.

In the **resiliency building scenario** as proposed the government retrofits select schools to resist Category 5 hurricanes, and water and energy supply is decentralized 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 localized water and energy sources there will be cost 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.

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

The proposed project 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 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.

The procurement of all materials required of the project will be conducted according to the respective guidelines of each country to ensure that any procured items and services are done so transparently and at the lowest possible cost.

E. Consistency with national sustainable development strategies.

This project 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 to meet the national goal of becoming a developed country. The MTDS is currently being updated[1]. However, the new strategy will build ongoing developmental initiatives laid out in the 2016-2020 strategy and will actively incorporate building resilience to climate change in the nation's development agenda, seven Flagship Priorities were 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[2] 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[3]. This output aligns

[1] Medium-Term Development Strategy 2016 to 2020 (MTDS). 2015. Government of Antigua and Barbuda.

[2] Private sector consumers include business owners and homeowners, while private sector consumers refer to architects, engineers and private contractors.

[3] such measures include climate-resilient water harvesting and decentralized renewable energy

closely with the MTDS, which focuses on *inter alia* the renewal and maintenance of critical infrastructure.

The Nationally Determined Contribution of 2021. The NDC targets included in this submission are based on the 1.5°C mitigation goal and adaptation goals that assume a 3.4°C increase in global temperatures (based on projections from the assessments of the INDCs). The targets are aligned with the Government of Antigua and Barbuda's goal of net-zero by 2040. These targets are intended to be met by using relevant technologies, policies such as land use planning and updated building codes, with financial instruments such as catastrophic insurance instruments for extreme weather events. The targets are set to be conditional, or unconditional based on information and assumptions available about technology costs as well as transitional risks. Considering the climate impacts over the first five years of the INDC, the next 10 years may result in over 0.5 billion of climate damage in the country. The approach is, therefore, an urgency to become resilient as fast as possible to reduce the cost of these impacts and reduce the transitional risks related to climate change.

Antigua and Barbuda's Green Climate Fund Country Programme. This CP will help the country integrate 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 decentralizing 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.

National Comprehensive Disaster Management (CDM) Policy and Strategy for Antigua and Barbuda: This policy calls for the modification of The Disaster Management Act (2002) to link and promote the coordination of all related national environmental policy and secondary legislation into a legislative framework that supports and promotes the implementation of CDM. The governance structure of the national disaster management programme and of NODS will be streamlined to enable more efficient decision making and guidance.

Sustainable Island Resource Management Zoning Plan 2012 (SIRMZP): The Physical Planning Act of 2003 describes the intention for a Development Plan for any part of Antigua and Barbuda. The SIRMZP was commissioned as the national physical development plan and approved in 2012. This land use and zoning plan presents a development framework which labels the northwest coast of Antigua as a "settlement expansion zone". The target area is inside this zone.

National Poverty Strategy 2011-2015: The National Poverty Strategy 2011- 2015 has as one of its strategies, "Building Resilience through Environmental Sustainability – by making disaster risk reduction a feature of the planning process in the light of the high environmental risks that the country faces from hurricanes, earthquakes, and now sea rise, as a result of global warming."

National Youth Policy, 2007: The National Youth Policy identifies factors that are critical to youth empowerment and identifies eight key focus areas; including strengthening social environments, education and training, employment and sustainable livelihoods, health, participation and

empowerment, care and protection, crime, violence and rehabilitation and gender equality and gender relations.

By installing resiliency measures and especially solar panels in schools, the project will reach young women and young men, and could build valuable skill sets for young professionals. This project directly impacts 5 of the 8 focus areas listed within the National Youth Policy: strengthening social environments, education and training, employment and sustainable livelihoods, health and participation and empowerment.

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 prioritization 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.

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 guides risk-informed land use planning and mitigates development in disaster-prone locations. The strategic objectives of the National Land Policy are to:

- Enhance the contribution of land to economic development, including poverty reduction, food security, and employment and revenue generation opportunities for all citizens.
- Facilitate the provision of adequate public services to all, notably in health, education, public utilities, recreation and transportation.
- Provide opportunities for all to access to adequate shelter.
- Minimise the risk of loss of life, degradation of land resources, etc. from the impacts of disasters.
- Establish and maintain patterns of land use and development that are responsible and sustainable, and that maintain options for future uses.

- Encourage the development and functioning of efficient land markets.
- Conserve the country's biological diversity.
- Support the rehabilitation, restoration and management of degraded lands.
- Maximize the effectiveness and efficiency of land management institutions, systems and procedures.
- Provide a framework for the management, resolution or avoidance of conflicts related to land and its uses.
- Develop and promote a positive cultural relationship between people and the land.

The Nationally Determined Contribution (NDC) 2020 updated version. In regards to **mitigation**, it should be noted that Saint Lucia's greenhouse gas emissions are minuscule in global terms, with the country having contributed approximately 0.0015% of global emissions in 2016 at a per capita rate of 3.88 tCO2-eq. Notwithstanding this low contribution to the climate change phenomenon, the country is committed to global efforts to reduce greenhouse gas emissions to levels, which will restrict global temperature increase to well below 1.5°C above pre industrial levels. Saint Lucia's NDC is mitigation-centric and the NDC's target is 7% Greenhouse Gas (GHG) emissions reduction in the energy sector relative to 2010, by 2030. Saint Lucia's target is a sector-wide emissions reductions target using 2010 as base, covering IPCC's energy (electricity generation and transportation) sector, and three gasses: Carbon Dioxide, Methane, and Nitrous Oxide.

The target is a continuation and expansion of efforts listed in the first NDC to meet the targets for 2025 and 2030. Saint Lucia has already begun to implement these targets. It is worth noting that Saint Lucia is in the process of exploring a national REDD+ program and is implementing efforts to maintain its current forest cover, as well as undertaking efforts to protect watersheds through forest protection measures.

In regards to adaptation, the GoSL included an Adaptation component as part of updated nDC which is mitigation focused to demonstrate its commitment to achieve the targets of the Paris Agreement as well as having in place better mechanisms for the adaptation to climate change impacts. According to the Intergovernmental Panel on Climate Change (IPCC), adaptation and mitigation can be understood as complementary components of countries' response to climate change and adaptation generates larger benefits to small islands when delivered in conjunction with other development activities.

Saint Lucia has committed to prioritizing cross-sectoral and sectoral adaptation measures for eight key sectors/thematic areas and a segment on the 'limits to adaptation'. Priority sectors for adaptation action include: Tourism; Water; Agriculture; Fisheries; Infrastructure and spatial planning; Resilient Ecosystems; Education; and Health.

St Lucia Green Climate Fund Country Programme draws on St Lucia's NDC and NAP processes, among others, to identify the country's priority sectors, consistent with the whole of Government approach. It touches on the sectors and areas of water, agriculture, fisheries and aquaculture, infrastructure and spatial planning, resilient ecosystems, education, health, tourism, energy efficiency, electricity generation and transportation in the first instance.

The Climate Change Adaptation Policy outlines the general strategy for understanding and addressing the risks posed by climate change. It seeks to "ensure that Saint Lucia and its people, their livelihoods, social systems, and environment are resilient to the risks and impacts of climate change."

The Policy endorses the principles of a cross sectoral approach to climate adaptation and concretely addresses: 1) adaptation facilitation- (appropriate policy, legislative and institutional environment); 2) adaptation financing (measures to ensure adequate and predictable financial flows) and, 3) adaptation implementation (concrete actions to prepare for, or respond to, the impacts of climate change).

The CCAP includes activities geared towards building the resilience of households, communities, vulnerable groups, enterprises, sectors and ultimately, the nation, with efforts directed towards achieving the following objectives by 2022: a) Priority adaptation measures to the adverse effects of climate change developed and implemented at all levels; b) Identification of vulnerable priority areas and sectors and appropriate adaptation measures using available and appropriate information, recognising that such information may be incomplete; c) Adaptation measures in vulnerable priority areas; and d) Appropriate adaptation measures integrated into national and sectoral development strategies and linked as far as national circumstances will allow, to the national budgeting process.

In terms of facilitation, the CCAP proposes actions related to strengthening inter-agency and inter-sectoral collaboration, for example, identifying a suitable mechanism for strengthening the nexus between climate change adaptation and disaster risk reduction. Importantly, while focused on addressing climate change adaptation, the CCAP recognises that some mitigation activities provide meaningful adaptation co-benefits and increase resilience.

Regional

OECS Climate Change Adaptation Strategy and Action Plan is being developed. It's overarching goal is to provide the Regional level of intervention and driving force, within the OECS, on adaptation policies and measures to respond to climate change impacts to support Members States efforts.

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. 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; and 8. Train school staff, families and the community in disaster risk management;

OECS Building Codes: In 2015, the OECS Secretariat, with the assistance of the United Nations Development Programme and through the UNCHS/UNDP Project for Programme Support to the Human Settlements Sector in the OECS (CAR/89/006), updated the standard building codes and guidelines which speak directly to the specific requirement of each OECS country. The codes and guidelines are based on the Caribbean Uniform Building Code (CUBiC) and other regional codes such as the Bahamas Building Code, the draft Jamaica National Building Code and the Turks and Caicos Islands Building Code. Key to these updated codes is the recognition "that the damage caused by these extreme natural events affect the poor to a significant extent and have placed emphasis on the development of building standards which would prevent or mitigate the damage so caused. The Governments are also revising existing planning and building regulations to be more responsive to the current needs, and to ensure to do so that all buildings are constructed in a "safe" manner and resistant to the natural hazards."

CARICOM Renewable Energy Building Codes: The 2018 CARICOM Regional Energy Efficiency Building Code (CREEBC) is an adaptation of the International Energy Conservation Code, 2018 Edition, published by the International Code Council. This CREEBC is meant to specifically meet the needs of the Caribbean and other countries in a tropical environment. It establishes minimum energy efficiency requirements inclusive of those for building envelopes, cooling system, ventilation, pumping, lighting and the service of water-heating systems in buildings. The technical requirements of this code are the product of both regional and international expertise. The government is committed to strengthening the national capacity and capability to implement CDM. This will be done through the elaboration of a series of interlocking complementary policies and strategic actions in areas identified below.

F. 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 document will produce standards for locating and designing schools to be resilient to natural disasters.

G. Duplication with other funding sources

The proposed project will avoid overlap with other projects and use lessons learned where possible and seeks to catalyze 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 catalyze 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[4] 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 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 GoAB 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

[4] This portfolio identifies 200 public buildings for implementation of climate-resilient measures.

and 5 hurricanes. The proposed project 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 implementing the **"Resilience to hurricanes in the building sector in Antigua and Barbuda"** project, submitted to the Green Climate Fund, presented to the GCF board in 2020 and with a value of 32.7m USD grant in financing and 13.4m USD cofinancing (total project cost 46.1m USD). 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 to facilitate early action within the building sector to respond to extreme climate events. The project aligns to 1 and 2 but is focused specifically on the 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 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 GoAB and GoSL 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 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 informed the project design 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, draftsmen 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.

H. 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 localized 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 it into actionable information that will be shared with other OECS 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.

I. Consultative process

In the development of this project, due to travel restrictions from both countries and from the UN, UN-Habitat was unable to visit the two countries. Instead consultations were ongoing and regularly programmed. Starting in June, there was a recurring weekly call with representatives from each country. Meetings alternate from being focussed on each country to then having both countries and regional partners OECS and CDEMA all together on the call every other week. These weekly project planning calls included a range of senior Government stakeholders.

At the community level, very thorough consultations were conducted by CTCN - UNIDO Consultancy Project. The CTCN team is located in St Lucia and also traveled to Antigua and Barbuda, in which it collected the views, insights and recommendations of identified stakeholders.

The purpose of the consultations were to:

- Obtain from beneficiaries (schools and communities) their specific needs and potential concerns
- Identify gaps in capacities of key stakeholders, communities and vulnerable groups to implement project activities and
- Identify possible concerns related to potential risks and impacts.

The objectives of the consultations were to:

- Familiarize stakeholders with the project: its goals, design and expected outcomes;
- Solicit stakeholder views, concerns, and recommendations on how to improve the resilience of schools and their host communities to climate change impacts and
- Introduce stakeholders to Disaster Risk Reduction Education (DRRE) and sensitize them to its importance in promoting school safety.

This was all part of assessing climate risk to the educational system and appraising improvement measures that will allow the governments of Antigua & Barbuda and Saint Lucia to submit a funding proposal to potential funding sources to implement these measures. The methodology involved collection of qualitative data and simple narrative analysis as well as thematic analysis of the data. The main methods for collecting data were interviews - one-on-one conversations, group discussions, and self-administered questionnaires. In-person and virtual modalities facilitated the conversations and the discussions.

The methodology involved collection of qualitative data and simple narrative analysis and thematic analysis of the data. The main methods for collecting data were interviews - one-on-one conversations, group discussions, and self-administered questionnaires. In-person and virtual modalities facilitated the conversations and the discussions.

The findings are captured under the following headings:
- Specific Needs and Potential Concerns Related to Potential Risks and Impacts;
- Gaps in Capacities of Key Stakeholders, Communities, and Vulnerable Groups;
- Views on Approaches for including DRRE in Schools.

Specific needs and potential concerns related to potential risks and impacts raised by stakeholders.

A. Principals, staff, and students at Bexon Combined School (BCS) and Vieux Fort Primary School (VFPS).

- Potential risks and impacts by neighboring constructions. The immediate environs of some schools compounds contain threats including poor draining which causes stagnant water to accumulate, creating breeding grounds for mosquitoes which infest the school. To worsen the situation, contiguous drainage between the schools and the ongoing construction projects are inadequate, posing a direct threat in rainy seasons.

- In order to reduce the risks, some schools would face in the event of droughts such as the closure due to lack of water to practice proper hygiene, sanitation, and drinking, it was recommended that efforts be made to collaborate with the Water Resource Management

Agency and the Ministry of Agriculture in providing technical guidance and support to establish a 20,000-gallon facility at the school.

- Various potential risks and impacts on the school and its users have been identified, with the main one cited as flooding and strong winds. Some schools are easily flooded during heavy rains because its location is below sea level.

- Some schools are also impacted by strong winds as there are no wind barriers within its vicinity. The schools and its users were severely impacted by hurricane Tomas in 2010 and the tropical wave in 2013. This resulted in the closure of schools for a significant period of time on both occasions.

- Because of their close proximity to the sea, some schools' infrastructure are constantly impacted by sea blast which has resulted in the deterioration of ventilation and other fixtures. This situation exposes the school plants and its users to risk in the event of high winds and rains. In addition, water gets into classrooms due to leaks in the roofing. There is no guttering to capture and dispose of water from the roof. Therefore, it is necessary to introduce appropriate technology to address defects caused by sea blast.

- The school is designated as an emergency shelter; however, its status is compromised due to defects caused by the recent hazards mentioned above. There are no back generators for providing power in the event of loss of power supply. In addition, the emergency plan has not been rehearsed for quite some time. There is a need to enhance the physical image of the school to reflect its status as a designated Emergency Shelter.

- Lack of community cohesion was cited as a main reason for weak community adaptive capacity. It was reported that advocates of climate change and climate resilience face challenges in mobilizing parents and members of the immediate communities to participate in sensitization campaigns. However, it was also noted that community members tend to spring into action after a disaster and provide support to victims as part of the response effort. There is a need to build and sustain community social capital as a climate resilience tool which can be utilized for any community mobilizing effort.

B. Ministry of Education – Policy and Implementation

- The biggest challenge for future maintenance based on interventions is the availability of finances. Currently, schools are provided with a subsidy for minor maintenance and repair works. However, this has proven inadequate given the nature and extent of defects that have to be addressed. The MEIGRSD is limited to works that can be done by funds allocated in its annual budget. It was felt that interventions by the Ministry may need to be prioritized and better recommendations made to make the most efficient use of limited financial resources.

C. Ministry of Education – School Management – Principals, District Education Officers.

- Support was unanimous on the recommendation to prepare a handbook for teachers and principals to integrate Disaster Risk Reduction (DRR) informally into regular classroom instruction and co-curricular activities for schools in the project. Stakeholders welcomed the

development of a road map through which the introduction of DRR will be incorporated into schools.

- Some schools have a good relationship with some corporate citizens especially in the urban areas like Castries Central and Vieux Fort town, surrounding business places, and constituency councils. In this regard, it was agreed that schools are community assets and play a vital role in enhancing community vitality. Consequently, every effort must be made to make them resilient to climate change.

D. Institutional Stakeholders

- In pursuing rain-water harvesting (RWH) as an option to maintain an adequate supply of water at the schools, it was observed that most RWH plants at schools meet the required environmental standards, that is, they meet the required capacity for the functioning of the school on a daily basis. However, it was pointed out that if the school is to function efficiently as an educational institution and as an emergency shelter, then its water capacity must be augmented in order to meet water requirements after a disaster when the school is in emergency shelter operational mode. This means that days of storage and gallons per person should inform the capacity required to meet the needs of the school as an educational institution in times of drought and as an emergency shelter after a disaster. The meeting noted that the current storage standard is 8,000 gallons and 12,000 gallons for primary and secondary schools, respectively. The water would need to turn over and should not be simply sitting in the rainwater tanks until a disaster. However, the quantity for minimum reserves has not yet been considered.

Gaps in capacities of key stakeholders, communities, and vulnerable groups.

A. Principals, staff, and students at Bexon Combined School (BCS) and Vieux Fort Primary School (VFPS).

An important aspect of resilience is maintenance capacity. All schools have resident security personnel who are also expected to repair minor defects which require basic plumbing and carpentry skills to be accomplished. However, it was noted that as caretakers, they have not received any formal training in the repair of minor defects. In addition, defects are not attended to in a timely and efficient manner due to the unavailability of repair material when it is required. The recommendation put forward is that all security personnel and caretakers at all schools should undergo training in various aspects of defects identification and safety and security skills. The necessary resources (including material and technology) should be provided to those individuals that would enable them to perform their duties in a timely and efficient manner.

B. Ministry of Education – Policy and Implementation

One of the biggest challenges that the Ministry faces in ensuring successful adaptive capacity is the unavailability of the required quantum of financial resources needed to undertake current and future maintenance requirements. Schools are allocated an annual maintenance subvention to undertake minor defects, but the magnitude and frequency of interventions render the subvention inadequate. It

has been observed that minor defects left unattended result in major defects over time and consequently require highly technical assessment and the associated high costs for repair, rehabilitation, or replacement. Additional financial resources need to be secured in order to address the various major school plant defects which pose a risk to users of the facility.

C. Ministry of Education – School Management – Principals, District Education Officers.

As it relates to capacity of the school as an institution engaging in adaptive capacity activities, the following were highlighted as critical needs:

i. Maintenance knowledge for principals and all staff (teaching and ancillary – caretakers, security personnel) and parents should be provided to enable early identification of defects in school infrastructure for follow-up assessments by the Ministry of Education's Building Officers.

ii. All teachers and District Education Officers should be trained in conducting basic defects assessments in order to facilitate early warning of situations that require urgent and immediate attention. The training would also include knowledge and application of strategies to identify requirements for maintenance initiatives.

iii. Training for District Education Officers, Principals, and staff in the use of an app which has been developed by the Caribbean Disaster Emergency Management Agency that provides guidance on maintenance needs, categorizing items and identifying critical ones for necessary and urgent action.

iv. Training for teachers in DRR knowledge and skills so that they can deliver the curriculum effectively;

v. Regarding community adaptive capacity, there are several community-based groups/organizations in the schools' host communities. However, the lack of community cohesion has been identified as a factor which inhibits the ability of the respective communities to engage in collective action. This represents, to some extent, a tragedy of the commons which needs to be addressed through strengthening community social capital-building networks, creating horizontal bridges between groups/organizations, as well as strengthening vertical links between community-based groups/organizations and resource agencies external to the community.

vi. Opportunities should be created for capacity building in community leadership, community mobilization and community organizing, and climate change and resilience knowledge to enable the community to prepare, respond and recover from climate change impacts. A gender transformative approach focused on increasing male participation in the everyday life of the community is critical to enhancing the adaptive capacity of the community. As a "best" practice, PTAs should be engaged before work starts, to ensure they are aware, and disseminate info into the community.

D. Institutional Stakeholders

Discussions in this group revealed the following gaps in the capacities of stakeholders:

i. non-teaching staff lack maintenance knowledge.

ii. parents and students may not be able to identify and have basic information about physical defects in a school.

iii. some communities do not have strong social capacity – social capital, social networks, collective psychological capacity (individual and household positive adaptation behavior).

iv. inadequate community awareness of climate change and potential for climate resilience.

Views on approaches for including DRRE in schools.

A. Principals, staff, and students at Bexon Combined School (BCS) and Vieux Fort Primary School (VFPS).

The staff welcomed the idea of the formal incorporation of DRRE in the primary school curriculum. The idea of a Handbook to guide teachers on the content and methods of instruction was well received. However, they expressed apprehension on how soon this becomes a reality as they have been subjected to many unfulfilled promises in the past. Contributions from a few students provided insights on their understanding of DRRE. Student A said, “learning about disasters and what they can do to us is a good thing because it can help to be prepared when they come”.

The teachers welcomed the idea of a Handbook on DRRE in the schools as an important resource and tool in imparting knowledge on climate change and resilience. To the staff and students, this is a timely initiative given recent experiences with hazards such as high winds and flooding which have negatively impacted the school. More importantly, the teachers viewed this initiative as having a multiplier effect as a result of knowledge and behavior transfer from school to friends, and family/households. This intended outcome was clearly expressed by student A who said, “I want my friends, family, and neighbors to know what I have learnt about climate change”.

B. Ministry of Education – Policy and Implementation

On the incorporation of DRR into the school curriculum, there was unanimous agreement from the participants who accepted the view that DRRE was critical in building climate change and resilience awareness among students, school staff, parents, and the community. It was further agreed that the MEIGRSD should consider incorporation of DRRE as a new policy initiative which would, inter alia, require a review of the current approaches to the informal approach to instruction in DRR via subjects including Social Studies, Geography and Education for Democratic Citizenship and its subsequent gradual incorporation into the formal school curriculum.

C. Ministry of Education – Heads (Teachers) of School Health and Safety Committees, Saint Lucia.

The teachers indicated that while there is disaster related content in the present school curriculum it is insufficient to prepare children to respond adequately to hazardous threats posed by climate change and other catastrophic events. One of the main justifications for inclusion of DRRE was that children will grow with the knowledge of how climate change affects their lives thus enabling them to become more environmentally aware and, in a position, to be able to make informed decisions and right choices.

D. Antigua/Barbuda Stakeholders

On the approach to DRRE implementation, there were two contending views. On the one hand, it was felt that a distinct and concentrated attention on DRRE should be pursued while on the other hand it was felt that the integrated approach would be the most effective form of DRRE implementation. Nonetheless, participants agreed on the importance of developing children's awareness, dispositions, knowledge, and skills to build resilience and expressed support for the proposed Framework for the Inclusion of Disaster Risk Reduction Education in the School Curriculum.

E. Institutional Stakeholders

The idea of teaching DRR in schools was viewed as a step in the right direction. The group felt strongly that the community, students, and principals should be aware of DRR and climate change so that steps can be taken to make themselves safer. The plan to incorporate DRRE in the school curriculum and the development of a handbook to guide its delivery were well received. It was recommended that other stakeholders such as NEMO and Red Cross be involved in such an initiative as they are key actors in the DRR sector and in a position to support an experiential approach in the delivery of the DRRE curriculum.

The consultations and meetings with stakeholders achieved the objective of highlighting various current and potential climate change risks and impacts which the beneficiary schools face. These range from exposure to natural hazards such as strong wind, floods and climate induced conditions such as drought, to a lack of adequate knowledge in disaster risk reduction. Several enabling factors that contribute to this situation were identified including human action which generates noise, poor air quality, and access challenges. Weak social and adaptive capacity at the community level constraints community participation in resilience building efforts. However, the views, insights, and recommendations provided by the stakeholders to address the issue and concerns raised provide promise and should be considered as vital input to the preparation of proposals to access funding to undertake climate change resilience building of schools and communities in Saint Lucia and Antigua and Barbuda.

J. 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 6th and St Lucia 17th in terms of Losses per unit GDP in %.[5]

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

[5] Germanwatch. 2019. Global Climate Risk Index.

disaster recovery are grossly inadequate for expected future adaptation investments. Hence, grant financing from the Adaptation Fund is needed to fund this project.

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 increase.

GDP per capita and Human Development Index (HDI) are both relatively high in each country with Antigua and Barbuda at ~US$16,727[6] and 0.78[7], and St. Lucia at ~$10,566[8] 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.

K. Sustainability

The proposed project 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-induced extreme weather events there is a pathway for sustaining the adaptation measures beyond the life of the project.

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

[6] World Bank. 2018. Available at: https://data.worldbank.org/indicator/NY.GDP.PCAP.CD?locations=AG

[7] UNDP. 2017. Inequality-adjusted Human Development Index. Available at: http://hdr.undp.org/en/composite/IHDI

[8] World Bank. 2018. Available at: https://data.worldbank.org/indicator/NY.GDP.PCAP.CD?locations=AG

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 has been developed through a participatory and consultative process, which has allowed relevant stakeholders to contribute to this conceptual design of the project interventions. Undertaking the development of the project 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 encourage 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 ongoing operations and maintenance activities.

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 because 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.

L. Environmental and social impacts and risks.

The environmental and social risk associated with this proposed project 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. An Environmental and Social Impact Assessment and Management Plan was completed. The project is 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. (See Annex 1)

Overall, the environmental and social impacts and risks assessed to be present in this project are moderate and attributable with activities whereby climate-proofing interventions are implemented in school buildings.

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 labor 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
Compliance with the Law	X	
Access and Equity		X
Marginalized and Vulnerable Groups	X	
Human Rights	X	
Gender Equity and Women's Empowerment		X
Core Labour Rights		X
Indigenous Peoples	X	
Involuntary Resettlement	X	
Protection of Natural Habitats		
Conservation of Biological Diversity	X	
Climate Change	X	
Pollution Prevention and Resource Efficiency		
Public Health	X	
Physical and Cultural Heritage	X	
Lands and Soil Conservation		

Compliance with the Law

The proposed project 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

UN-Habitat promotes equal access to benefits in its projects and programmes and considers that addressing environmental and social risks and impact management plays a key role in seeking spatial justice. Thus, by addressing the principles of "do even better" and "leave no one behind" in the fight against spatial injustice, it is crucial to ensure access to benefits, justice and non-discrimination across all projects and programmes. The proposed project is designed to ensure that there is equal access to infrastructure and services by (i) including in the impact assessment analysis the process of allocating and distributing environmental and social project/programme benefits and show how this process ensures fair and impartial access to these benefits. (ii) Explicitly stating that there will be neither environmental or social discrimination nor favouritism in accessing project/programme benefits. (ii) Defining a Stakeholder Engagement Plan to ensure equal access to the process of participation and consultation for all stakeholders.

Marginalized and vulnerable groups

The design and implementation of the proposed project should not have any negative impacts on

marginalized and vulnerable groups.

Human Rights

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

Gender Equity and Women's Empowerment

UN-Habitat aims at mainstreaming gender equality and the empowerment of women, youth and the equality of all independent of sexual orientation or identity, though the integration of gender equality as a cross-cutting issue in all projects, programmes and policies. The proposed project is designed to ensure that gender considerations are included in all project interventions by (i) Collecting gender-disaggregated data to perform the environmental and social impact assessment. (ii) Identifying potential risks and impacts for women and girls from a project or a programme, with special focus on those that could particularly and/or disproportionally affect this group. (iii) In case impacts and risks cannot be avoided, define pertinent measures in order to address these risks and impacts. (iv) Promoting and creating conditions for the participation of women and girls in the project/programme activities and stakeholder consultations. (v) Including in the description of the project/programme how gender equality and women's empowerment have been promoted by the project/programme.

Core Labor Rights

UN-Habitat greatly values its workforce and the workforce employed for projects and programmes, and it is committed to complying with the international conventions of the International Labour Organization and the United Nations and promotes efforts to go beyond protecting workers' fundamental rights, by providing a sound worker management relationship. Activities to retrofit buildings will create employment. The relevant national labor laws guided by the ILO labor 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 gasses (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. Project implementation

The following mechanisms for project execution, coordination and oversight have been agreed to as per **Antigua and Barbuda's** Department of Environment, Ministry of Health and Environment, and **St. Lucia's Department** of Sustainable Development, Ministry of Education, Innovation, Gender Relations and Sustainable Development. Both organizations serve as the National Designated Authorities to the Adaptation Fund.

PSC - Project Steering Committee – The Executive body, made up of eight members, will include key personnel from the executing entities, government, as well as civil society, representing interests from all levels of society. They will be responsible for policy guidance for management decisions for the programme, playing a critical role in programme monitoring and evaluation and quality of processes,. The SC will also be responsible for evaluations for performance improvement, accountability and learning.

RPSU - Regional Project Supervision Unit – At the regional level, project implementation will be supported through a **Regional Project Supervision Unit (RPSU)**. This 'Unit' will be responsible for project oversight, including coordination with and between **National Project Management Committee (PMCs) of each country**. The RPSU will also be responsible for ensuring project compliance with the AF and UN-H policies and reporting requirements, for contracting the Project Executing Entities.

NPCU - National Project Coordination Units – At the national level, project implementation will be supported through NPCUs. These 'Units' will be responsible for daily project coordination in both countries, including coordination on execution of the project activities with the Project Execution Entities as well as coordination with the RPSU.

PD - Project Director – The PD is to be appointed by the Steering Committee and will serve as the designated National Executing Entity lead officer and focal point for the project. The PD will report to UN-Habitat and provide liaison between the Steering Committee and the PC and the PM, supporting the coordination of the various project components.

PM - Project Manager – a UN-Habitat liaison project manager for the duration of the project. The Project Manager's prime responsibility will be to ensure the programme is run in accordance with the AF and UN-Habitat's guidelines within specified time constraints and cost.

PC – Project Coordinator – the local project coordination unit will facilitate the drawing up of the scope and standards of the project's components and the production of the expected outputs as specified in the programme documentation. Responsible for stakeholder management and for providing guidance and supervision to the Project Implementation team.

Legal and Financial Arrangements – UN-Habitat will sign a joint Memorandum of Understanding with both countries as a legal commitment to implement the project. UN-Habitat will also enter into an Agreement of Cooperation with both countries. This is the legal basis to

transfer funds to be invested under the project. The national entities will authorize the payments against the contractual agreements, upon recommendations from the project manager.

Project Assurance – UN-Habitat as the Multi-lateral Implementing Entity (MIE) will provide project management support, oversight and will act as the secretariat of the Project Management Committee. UN-Habitat will also be part of the team that implements the project, where it will provide technical knowledge and expertise based on its experience implementing other climate change projects in each country, across the Caribbean region, and around the world. UN-Habitat will further oversee compliance with its Environmental and Social Safeguard System and the Environmental and Social Safeguard Policy of the Adaptation Fund.

B. Measures for financial and project risk management.

	Category and Risk	Rating: Impact/ Probability 1: Low 5: High	Management/Mitigation Measure
1.	Environmental/ social: Climate hazard events result in delays in physical work	Impact: 3 Prob: 1	Current climatic seasonal risks have been taken into account in the planning and design of project activities
2.	Institutional: Loss of government support (including regional) for the project (activities and outputs) may result in lack of prioritization of AF project activities.	Impact: 4 Prob: 1	Establishment of a project management committee and the overall participatory and inclusive project design will improve national, municipal and beneficiary level ownership throughout and thus enhance government support for project implementation. Government staff working on climate change, environment, disaster management, land use, and education will be strongly integrated into the project's structure
3.	Institutional: Capacity constraints of local institutions may limit the effective implementation of interventions and maintenance	Impact: 2 Prob: 1	The project has a strong capacity building and training component, designed to promote effectiveness and sustainability.

4.	Institutional/social Lack of commitment/buy-in from local communities may result in delay at intervention sites.	Impact: 2 Prob: 1	Community stakeholders have been consulted during the full project development phase to ensure their buy-in into the AF project. A bottom-up approach integrating the community into the AF project's implementation phases – including community contracting - will be followed. Where possible, the community will have an active role that ensures ownership of the project particularly through community participation in project implementation and monitoring
5.	Institutional/social: Disagreement amongst stakeholders with regards to adaptation measures.	Impact: 3 Prob: 2	Adaptation measures and locations have been selected using extensive and detailed criteria, and through in-depth consultations There will be a participatory approach to the hard resiliency measures
6.	Institutional: Local school administrators and communities may not agree to the ongoing maintenance requirements.	Impact: 2 Prob: 2	The maintenance requirements will be institutionalized within the ministries, local government and communities to ensure sustainable delivery of (post-) project implementation, including formal agreements for maintenance. Given the commitment of the national government and the policy alignment of this project and the direct reporting mechanisms of local government to the national government, it can be assumed that such agreements will be honored. Officials will support the participating communities beyond the project implementation ensuring community level governance support as well as support for maintenance. Capacity building and training of communities will be undertaken to improve their awareness and understanding of the

			benefits of the activities, including infrastructure maintenance. Communities will be involved in project implementation/decision making throughout the project.
7.	Institutional: Delays in project implementation, and particularly in the development of infrastructure interventions	Impact: 1 Prob: 2	The ownership by both Governments has been high during the project preparation phase which will reduce this risk. Partnerships with key government agencies and infrastructure and community resilience project planning will start early on – in tandem with the community action planning. Institutional arrangements will be put in place well before the finalization of community action plans.
8.	Institutional: A lack of coordination between and within national government Ministries and Departments as well as regional partners	Impact: 1 Prob: 2	The Project Management Committee to ensure coordination. Should UN-Habitat observe coordination problems, the agency will try to resolve issues directly with concerned parties and or the PMC.

C. Measures for the management of environmental and social risks

The proposed project seeks to fully align with the Adaptation Fund's Environmental and Social Policy (ESP). For that purpose, environmental and social risks and impacts of the project and related activities need to be identified and addressed so that the project does not unnecessarily harm the environment, public health or vulnerable communities. Systematic screening and assessment has been done based on broad consultation with national and local government stakeholders, a wide range of other concerned stakeholders and the target communities. The project design has benefitted from this process.

To ensure that remaining risks are well managed the project management, governance and monitoring and evaluation seek to fully account for the management of environmental and social risks. Additionally, an Environmental and Social Management Plan (ESMP) has been developed to ensure full compliance with the Adaptation Fund's Environmental and Social and Gender Policies.

The ESMP for this project identifies measures and actions that reduce potentially adverse environmental and social impacts to acceptable levels. Specifically, the ESMP:

(i) Identifies and summarizes all anticipated adverse environmental and social impacts in line with the Adaptation Fund's ESP principles;
(ii) Describes mitigation measures, both from the perspective of mitigating risks at each activity and from the perspective of upholding all ESP principles;
(iii) Describes a process which supports the screening and assessment of all project activities and the conditions under which screening and mitigation action is required;
(iv) Clearly assigns responsibilities for screening, assessment, mitigation actions and, approval and monitoring;
(v) Considers, and is consistent with, other technical standards required for the project, in particular, those that relate to national law.

For the activities under the three components of the project, the ESP will be upheld by ensuring that:

(i) All MoUs and Agreements of Cooperation with the Executing Entity will include detailed reference to the ESMP and the 15 ESP Principles.
(ii) The ToR of Committees and Advisory Groups, project personnel and focal points will include detailed references to the ESMP and the 15 ESP Principles.
(iii) The Executing Entity and other relevant government agencies will receive training/capacity development to understand the 15 Principles, the ESMP and their responsibilities. This will include members of the Project Management Committee, the Local Committees and the Communities.
(iv) A Monitoring and Evaluation Framework will be developed by the project management team and presented for approval to the Project Management Committee.
(v) All project monitoring will have the 15 environmental and social principles, and the ESMP Strategy mainstreamed into it. In addition to upholding the ESP of the

Adaptation Fund and familiarizing all project stakeholders with the 15 ESP principles, this will also ensure that all stakeholders fully take ownership of the environmental and social safeguards procedures of the project and that any activity that may have been altered or not yet assessed in detail is captured.

(vi) A grievance mechanism is also part of the plan. This will allow any affected stakeholder to raise concerns, anonymously if they wish, to the community leaders on the local coordinating committee, the project team or the PMC. The primary alternative means for affected beneficiaries and/or community members to raise grievances confidential telephone number. In addition to the grievance mechanism, local staff will be trained to have an 'open-door' policy with communities, so that communities can discuss any aspect of the project at any time. This less formal mechanism will also enable project staff to listen to communities' concerns or ideas and promote them in the implementation of the project. More formal consultations and workshops held at local and national levels throughout the project implementation will also serve as a means for stakeholders to raise concerns or suggestions with the project's implementation.

D. Arrangements for monitoring, reporting and evaluation

This project will comply with formal guidelines, protocols and toolkits issued by the AF, UN-Habitat and the GoAB and GoSL. Additionally, identified environmental and social risks, UN-Habitat's Environmental and Social Safeguard System and the ESMP, including those measures required to avoid, minimize, or mitigate environmental and social risks, will be monitored throughout the project (at the activity level and through annual project performance, mid-term and terminal reports). The same applies to financial and project management risks and mitigation measures.

With regards to gender, the project will target for 50% of the participants/beneficiaries to be female. Furthermore, to support data collection for gender mainstreaming, sex disagragaged data will be collected and shared.

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Monitoring and Evaluation Framework

UN-Habitat will ensure the timeliness and quality of project implementation. The oversight and general guidance of the project will be provided by the Project Management Committee. UN-Habitat will ensure that the project team and the key national executing partners are fully briefed on the M&E requirements.

Audit of the project's financial management will follow UN finance regulations and rules and applicable audit policies.

Participatory monitoring mechanisms (involving different levels of government and communities) will be put in place for the collection and recording of data to support the M&E of indicators.

The Project Manager will develop an **M&E Plan** during the project's inception phase, which will be distributed and presented to all stakeholders during the initial workshop. The emphasis of the M&E plan will be on (participatory) outcome/result monitoring, project risks (financial & project management risks and environmental social safeguard risks) and learning and sustainability of the project. Periodic monitoring will be conducted through visits to the intervention sites.

UN-Habitat will ensure that all executing partners are fully briefed on the M&E requirements to ensure that baseline and progress data is fully collected and that a connection between the Knowledge Management component and M&E is established. The Agreement of Cooperation will also reflect these.

An Annual Project Performance Review (PPR) will be prepared to monitor progress made since the project's start and for the previous reporting period. The PPR includes, but is not limited to, reporting on the following:

- Progress on the project's objective and outcomes – each with indicators, baseline data and end of project targets (cumulative);
- Project outputs delivered per project outcome (annual);
- Lessons learned/good practice;
- Annual Work Plan and expenditure;
- Annual management;
- Environmental and social risks (i.e., status of implementation of ESMP, including those measures required to avoid, minimize, or mitigate environmental and social risks. The reports shall also include, if necessary, a description of any corrective actions that are deemed necessary;
- Project financial and management risks (same as per above).

The **reports** that will be prepared specifically in the context of the M&E plan are:

(i) **the M&E plan,**
(ii) **the project inception report,**
(iii) **the annual, and terminal project performance reports and**
(iv) **the technical reports.**

For the M&E budget and a breakdown of how implementing entity fees will be utilized in the supervision of the M&E function, please see the detailed budget. For related data, targets and indicators, please see the project proposal results framework.

M&E Budget

Type of M&E Activity	Activity	Entity	Total	Y1	Y2	Y3	Y4
Measurements of means of verification (baseline assessment and M&E plans) as part of inception	Inception workshops (one in each country)	UN-H National Office	12,000	12,000	-	-	-
	Report preparation	UN-H	-	See overall project monitoring and evaluation (From Cycle Management Fees)			
Direct Project Monitoring and Quality Assurance including annual progress and financial reporting, project revisions, technical assistance and ESP and GP compliance (from execution fee M&E safeguards)	M&E UN-Habitat Offices	UN-H National Office	95,500	40,500	20,000	20,000	15,000
Overall project monitoring and evaluation (From Cycle Management Fees)		UN-H ROLAC	23,971	7,000	5,000	5,000	6,971
Audits	In line with AF requirements	OIOS	-	-	-	-	-
Terminal external evaluations		Independent	40,000	-	-	-	40,000
TOTAL			171,471	59,500	25,000	25,000	61,971

From Project Execution Fee	135,500	123,000	125,000	125,000	55,000
From Project Cycle Management Fees	23,971	7,000	5,000	5,000	6,971

E. Project alignment with the Adaptation Fund Results Framework

Project Outcome	Project Objective Indicator(s)	Fund Outcome	AF Core Indicator	Fund Outcome Indicator	Grant Amount (USD)
Outcome 1. Strengthen the enabling environment for adaptation planning within the education sector at the national and regional level	No. of Model Safe School Policy updates.	Outcome 7: Improved policies and regulations that promote and enforce resilience measures	Assets produced, developed, improved, or strengthened	7.1. No. of policies introduced or adjusted to address climate change risks (by sector) 7.2. No. of targeted development strategies with incorporated climate change priorities enforced	3680,000

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			Number of beneficiaries (direct and indirect) Assets produced, developed, improved, or strengthened	2.1. Capacity of staff to respond to, and mitigate impacts of, climate-related events from targeted institutions increased 3.1. Percentage of targeted population aware of predicted adverse impacts of climate change, and of appropriate responses 3.2. Percentage of targeted population applying appropriate adaptation responses	997,000

Outcome 3. Climate proofing interventions implemented for select school buildings to improve climate resilience.	No. of manuals for site-specific operational procedures for long-term maintenance distributed. No. of schools with a defined monitoring framework for climate-proofing measures No. of schools infrastructures improved. No. of weather stations installed at select schools	Outcome 4: Increased adaptive capacity within relevant development and natural resource sectors	Number of beneficiaries (direct and indirect) Number of Early Warning Systems Assets produced, developed, improved, or strengthened	4.2. Physical infrastructure improved to withstand climate change and variability-induced stress	10,315,500

Outcome 3. Climate proofing interventions implemented for select school buildings to improve climate resilience.	No. of manuals for site-specific operational procedures for long-term maintenance distributed. No. of schools with a defined monitoring framework for climate-proofing measures No. of schools infrastructures improved. No. of weather stations installed at select schools	Outcome 4: Increased adaptive capacity within relevant development and natural resource sectors	Number of beneficiaries (direct and indirect) Number of Early Warning Systems Assets produced, developed, improved, or strengthened	4.2. Physical infrastructure improved to withstand climate change and variability-induced stress	10,315,500

F. Detailed budget

Component	Output	Activities	Total Budget (USD)	Year 1	Year 2	Year 3	Year 4
COMPONENT 1: Strengthen the enabling environment for adaptation planning within the education sector at the national and regional level	**Output 1.1: Policies, plans and lessons learned strengthened in alignment with the CDEMA Model Safe School Programme**	Activity 1.1.1 Annual regional meetings with CDEMA, OECS, SL and A&B and other key stakeholders. (both)	$120,000	$40,000	$40,000	$40,000	
		Activity 1.1.2 Biannual (2x per year) national review meetings in each country. (both)	$90,000	$30,000	$30,000	$30,000	
		Activity 1.1.3 Conduct Gap Analysis and stakeholder engagements to determine areas in need of improvement of the Model Safe School Policy for each country (both)	$40,000	$40,000			
		Activity 1.1.4 Develop an updated toolkit and action plan to guide the integration of climate resilience design and OECS guidelines into the Model Safe School Policy in each country (both)	$50,000	$50,000			
		Activity 1.1.5 Develop and validate an updated Model Safe School Policy and Toolkit for each country (both)	$40,000	$40,000			

		Activity 1.1.6 Collect data and capture lessons learned for the preparation of report (both)	$20,000			$20,000	
		Activity 1.1.7 OECS and CDEMA produce a joint lessons learned report with data analysis included based on the experiences of the project (both)	$20,000			$20,000	
		Component 1 Total	**380,000**	**200,000**	**70,000**	**110,000**	**0**
COMPONENT 2: Strengthen the capacity of schools, businesses, communities and households to understand climate risks and adaptation options, and cope with socio-emotional impacts	**Output 2.1: Schools, communities and households' capacity building to increase resilience to climate change**	Activity 2.1.1. Annual capacity building workshops to educate communities on the risks of climate change-related hazards and how to react in case of a disaster. (A&B)	$60,000	$15,000	$15,000	$15,000	$15,000
		Activity 2.1.2. Develop learning materials relating to climate change adaptation, resilience, and disaster recovery for integration into the Ministry of Education's Social Science Programme. (A&B)	$80,000	$80,000			
		Activity 2.1.3. Plan and host technology expos to improve knowledge-sharing of new and innovative technologies. (A&B)	$30,000	$10,000	$10,000	$5,000	$5,000

		Activity 2.1.4. Sensitize the public on resilience, recovery and adaptation efforts through awareness campaigns at Arbour month events. (A&B)	$30,000	$10,000	$10,000	$5,000	$5,000
		Activity 2.1.5. Integrate disaster risk reduction and resilience education into the school curriculum (A&B)	$30,000	$10,000	$10,000	$10,000	
		Activity 2.1.6 Demonstrations conducted by schools' industrial arts departments on adaptation and resilience-building benefits, as a part of School Based Assessment (SBA) projects (A&B)	$150,000	$37,500	$37,500	$37,500	$37,500
		Activity 2.1.7. Conduct capacity building workshops for schools to improve knowledge of Site Environmental Management Plans and grant proposal development (A&B)	$18,000	$18,000			
		Activity 2.1.8. Training of internal MOE team and technical evaluation committee team to evaluate submissions of proposals and SEMP Reports (A&B)	$6,000	$6,000			

		Activity 2.1.9. Develop proposals for climate-proofing school facilities (Linked to Sub-activity 3.2.1.) (A&B)	$150,000	$50,000	$50,000	$50,000	
		Activity 2.1.10. Develop Site Environmental Management Plans for 15 participating schools (A&B)	$30,000	$30,000			
		Activity 2.1.11 Design and conduct educational campaigns for 15 participating schools (A&B)	$30,000	$7,500	$7,500	$7,500	$7,500
		Activity 2.1.12 Develop Site Environmental Management Plans for additional schools (A&B)	$200,000		$66,667	$66,667	$66,667
		Activity 2.1.13 Participation of primary, secondary and tertiary students in DoE's annual Ecozone Summer Camp. (A&B)	$75,000	$18,750	$18,750	$18,750	$18,750
		Activity 2.1.14 Develop information products for conducting self-assessments for climate resiliency at homes and buildings within target school communities (A&B)	$50,000	$50,000			
		Activity 2.1.15 Student home climate resiliency self-assessment surveys conducted (A&B)	$10,000	$10,000			

		Activity 2.1.16 Design and conduct school programme for the enhancement of the resiliency and building of the adaptive capacity of students, parents, teachers, and school personnel to help them cope with the social-emotional impacts caused by exposure to extreme weather events, including hurricanes. (A&B)	$30,000	$7,500	$7,500	$7,500	$7,500
		Component 2 Total	**$979,000**	**360,250**	**232,917**	**222,917**	**162,917**
COMPONENT 3: Climate proofing interventions implemented for select school buildings to improve climate resilience.	**Output 3.1: Conduct Safe School assessments with adaptation needs and maintenance plans costed.**	Activity 3.1.1. Conduct baseline audits of school buildings in alignment with and in support of the Model Safe School Programme toolkit and OECS's Guidelines for the Locating and Designing of Disaster Resilient Schools (A&B)	$300,000	150,000	150,000		
		Activity 3.1.2. Develop site-specific operational procedures for long-term maintenance, and a monitoring framework, of climate-proofing measures for each priority building (both)	$140,000		70,000	70,000	
	Outcome 3.2: Improve the resilience of priority buildings through adaptation interventions	Activity 3.2.1 Implement climate-proofing measures to improve priority buildings climate resilience including engineering design & supervision (A&B)	$3,480,000	1,160,000	1,160,000	1,160,000	
		Activity 3.2.2 Implement climate-proofing measures to improve priority buildings	$6,295,500	2,098,500	2,098,500	2,098,500	

		climate resilience including engineering design & supervision (SL)					
		Activity 3.2.3 Design, procure and install weather stations at select schools (A&B)	100,000		50,000	50,000	
		Component 3 Total	**10,315,500**	**3,408,500**	**3,528,500**	**3,378,500**	**0**
	Total Components	**$11,674,500**					
	Project Execution costs (9.5%)	$1,225,500					
	Total Project Cost	**$12,900,000**					
	Implementing Entity Fee (8.5%)	$1,096,500					
	TOTAL FINANCING REQUESTED	**$13,996,500**					

G. Implementation, Execution and Monitoring and Evaluation Breakdown

			TOTAL	Y1	Y2	Y3	Y4
Total Components			**11,674,500**	**3,968,750**	**3,831,417**	**3,711,416**	**162,917**
PROJECT EXECUTION COSTS							
Project execution	Antigua & Barbuda	Project Manager - Regional Project Coordination (international P3)	432,000	144,000	144,000	144,000	-
		Admin / financial procurement (national)	100,000	30,000	30,000	30,000	10,000
		Safeguarding system (AF) compliance (national)	30,000	12,500	10,000	7,500	-
		M & E and communication (national)	47,500	10,000	10,000	12,500	15,000
	Saint Lucia	National Project coordination (national)	288,000	96,000	96,000	96,000	-
		Admin / financial procurement (national)	105,000	30,000	30,000	30,000	15,000
	Travel	Travel	36,000	10,000	10,000	10,000	6,000
	Operations	Vehicle Operations & Maintenance	31,000	12,000	10,000	9,000	-
		Office Rent	84,000	24,000	24,000	24,000	12,000
		Communication / publication / printing	18,000	3,000	5,000	5,000	5,000
		Office Supplies, Stationary, Computers	14,000	8,000	2,000	2,000	2,000
	Final Evaluation	Independent (lump sum)	40,000				40,000
TOTAL Execution Costs	**9.50%**		**1,225,500**	**379,500**	**371,000**	**370,000**	**105,000**
TOTAL Project Activities + Project Execution Cost (A+B)			**12,900,000**	**4,348,250**	**4,202,417**	**4,081,416**	**267,917**
Project cycle management fee costs							
	1.50%	UN-H ROLAC overall project supervision and M &E, incl. AF and UN-H policies (esp ESP and GP) and regulations compliance (Senior Human Settlements officer 5% + PMO 5% + PMA 25 % + M & E)	**156,870**	**49,747**	**54,165**	**38,918**	**14,040**
		UN-H ROLAC Travel	**23,971**	**7,000**	**5,000**	**5,000**	**6,971**
	7%	UN-H HQ Overall project supervision, incl .compliance to UN-H policies (gender, human rights, climate change, etc.)	**915,659**	**308,350**	**298,311**	**288,773**	**20,225**
Total management fee C	**8.50%**		**1,096,500**	**365,097**	**357,476**	**332,691**	**41,236**
Total amount of financing requested			**13,996,500**	**4,713,347**	**4,559,893**	**4,414,107**	**309,153**

H. Disbursement Schedule

Schedule date	Upon Signing	One year after project inception	Two years after project inception	Three years after project inception	Grand Total
A. Project Funds (US $)	3,968,750	3,831,417	3,711,416	162,917	11,674,500
B. Programme Execution (US $)	379,500	371,000	370,000	105,000	1,225,500
C. Programme Cycle Managment (US $)	365,097	357,476	332,691	41,236	1,096,500
Grand Total	4,713,347	4,559,893	4,414,107	309,153	13,996,500

PART IV: ENDORSEMENT BY GOVERNMENTS AND CERTIFICATION BY THE IMPLEMENTING ENTITY

A. Record of endorsement on behalf of the government[9]

Antigua and Barbuda Diann Black-Layne Director Department of Environment within the Ministry of Health, Wellness and the Environment	7 Jan 2022
Saint Lucia Ms. Caroline Eugene Permanent Secretary Department of Sustainable Development Ministry of Education, Innovation, Gender Relations and Sustainable Development	29 Nov 2021

[9] 6. 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

Department of Environment
Ministry of Health, Wellness the Environment
#1 Victoria Park, Botanical Garden
P.O. Box W693
St. John's Antigua,
W.I.
Tel: (268) 462-4625
Tel: (268) 462-6265
Email:doe@ab.gov.ag

January 7, 2022

REF: DOE/38/Donor Agencies

The Adaptation Fund Board c/o
Adaptation Fund Board Secretariat
Email: 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 UNHabitat 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 Environment
Ministry of Health, Wellness and the Environment

MINISTRY OF EDUCATION, SUSTAINABLE DEVELOPMENT, INNOVATION,SCIENCE,TECHNOLOGY AND VOCATIONAL TRAINING

Department of Sustainable Development

Communication on this subject should be addressed to:
The Permanent Secretary

Georgianna Court
John Compton Highway
Castries
SAINT LUCIA, W.I.
Tel No: (758) 468-5863
Email : sustainable.devt@govt.lc

November 29, 2021

The Adaptation Fund Board
c/o Adaptation Fund Board Secretariat
Email: Secretariat@Adaptation-Fund.org
Fax: 202 522 3240/5

Dear Sir/Madam:

Endorsement for Increasing Resilience of the Education Sector to Climate Change Impacts in the Eastern Caribbean Region

In my capacity as designated authority for the Adaptation Fund in Saint Lucia, 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 Saint Lucia and the Caribbean region.

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 UN-Habitat and executed by Ministry of Education, Sustainable Development, Innovation, Science, Technology and Vocational Training.

Sincerely,

.....
Anita Montoute (Mrs.)
Permanent Secretary

B. Implementing Entity certification

I certify that this proposal has been prepared in accordance with the guidelines provided by the Adaptation Fund Board, and prevailing relevant National Development Plans in Antigua & Barbuda and Saint Lucia. Subject to approval by the Adaptation Fund Board, I commit to implement the project/programme in compliance with the Environmental and Social Policy of the Adaptation Fund Board and on the understanding that the implementing entity will be fully (legally and financially) responsible for the implementation of the project/programme.
Mr. Rafael Tuts, Director, Global Solutions Division, UN-Habitat Signature:    Implementing Entity Coordinator
Date: January 6th, 2022 | Tel. +254 20 76 23 726; Email: raf.tuts@un.org
Project Contact Person: Javier Torner; Bernhard Barth
Email: Javier.Torner@un.org; Bernhard.Barth@un.org

Annexes

Annex 1. Environmental and Social Impact Assessment and Management Plan – St Lucia

Executive Summary

Project Rationale

Saint Lucia is a Small Island Development State (SIDS) that is highly vulnerable to natural hazards. Hazard impacts are already being magnified by the effects of climate change, including more frequent and severe extreme weather events. These hazards negatively impact the educational system and thus children and youth. The associated vulnerabilities will increase unless the capacity of the population and the education sector to anticipate, prepare, adapt and become more resilient to such events improves.

The GOSL proposes to increase the resilience of schools to climate and other natural hazards, as well as man-made hazards.

CTN is supporting this technical assistance (TA) to assess the climate risk and the related negative impacts to the educational system and appraise improvement measures for preparation of a project proposal. The main aim of this technical assistance (TA) is to enable the Government of Saint Lucia to strategically assess climate risks to the educational system and to appraise measures required. This will inform a funding proposal to be developed for presentation to potential funding sources to support these improvements. Immediate emergency improvements will be achieved through structural reinforcements of the schools. Actions proposed should also increase 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 increasing the resilience of the education system for short and medium term multi-hazard risk cycle phases, and reducing dual use conflicts.

Project Scope

The twelve schools targeted through this initiative are:

1. Ave Maria Infant
2. Ave Maria Primary
3. Balata Combined
4. Bexon Primary
5. Corinth Secondary
6. Desruisseaux Combined
7. Fond Assau Combined
8. Micoud Primary
9. Patience Combined
10. Saltibus Combined
11. Vieux-Fort Infant
12. Vieux-Fort Primary

The project considers the following hazards:

1) hurricanes,
2) droughts,
3) floods,
4) Sea-Level rise,
5) Landslides.

This report is an Environmental and Social Impact Assessment (ESIA) and Environmental and Social Management Plan (ESMP) for the proposed project activities. The ESIA/ESMP is to ensure that significant environmental and social impacts, both beneficial and adverse, of each of the proposed interventions at the twelve targeted schools have been considered and assessed, and that gender-sensitive mitigation and enhancement measures are outlined where necessary inclusive of an initial assessment of costs and responsibilities for their implementation. This is required to be in line with national requirements, AF Environmental and Social Policy and Gender Policy, and CTCN procedures and guidelines on gender mainstreaming.

The School Environments

The targeted 12 schools are distributed across the island, in locations ranging from urban, low lying to sloping, rural areas. All are impacted by climate and climate change, with climate hazard vulnerability varying with location. Typically those in low lying areas are more vulnerable to flooding and sometimes sea level rise, while those on slopes are more landslide prone. Exposure to high wind speeds also varies with location.

As hurricanes become more intense with climate change, climate hazard risks will also increase, other factors remaining equal. All schools will be vulnerable to islandwide drying over time, as this has the potential to adversely affect water supplies for drinking and hygiene, and for irrigation of school gardens used to supplement school meals and for the study of agriculture. As temperatures and the number of hot days increase, all schools will also become less comfortable for occupants, unless they are retrofitted with cooling devices.

Ambient noise levels vary with location. Air quality at the schools is assumed to be roughly proportional to traffic volumes in the vicinity.

Some of these schools are accessed by only one motorable access road. All of these schools have waste collection, water, electricity and internet services, with onsite wastewater management.

The natural environment immediately surrounding those schools in urban areas is not significant. Schools in more rural settings have some flora and fauna in close proximity.

Most of the materials required are readily available locally, although, for some, materials may have to be transported significant distances between material sources and school locations. Some materials may have to be ordered from overseas suppliers for the projects.

The Proposed Projects

The proposed works at each of the twelve schools include some or all of the following interventions:

1. Structural retrofitting of elements or the entire structure
2. Retrofit and repairs to the roof structure
3. Retrofit and repairs of door and window systems
4. External works (including retaining walls, access roads, septic tank repairs, drainage, tree removal)
5. Water storage, plumbing and accessories (including rain water harvesting)
6. Electrical energy improvement (including solar PV systems, standby generation, improved lighting and re-wiring)
7. Air conditioning systems
8. Installation of intercom systems
9. Installation of fire protection systems (detectors, alarms, suppression and safety)
10. Disability access

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Project impacts are determined not likely to be diverse, widespread or irreversible, and may be readily mitigated. As such, the proposed project interventions are categorized as Category B. For Category B projects, the assessment is required to consider all potential direct, indirect, transboundary, and cumulative impacts and risks that could result from the proposed project/programme; assess alternatives to the project/programme; and assess possible measures to avoid, minimize, or mitigate environmental and social risks of the proposed project. The assessment is to be accompanied by an environmental and social management plan that identifies those measures necessary to avoid, minimize, or mitigate the potential environmental and social risks, and this is to inform the monitoring and reporting plan for that project.

Potential Environmental and Social Impacts Identified

As these projects are typically limited mainly to upgrading existing school plots, there will be very little impact of the proposed works on flora and fauna, eco-systems or bio-corridors, archeological and cultural resources and natural drainage systems. No land acquisition is envisaged. However, potentially significant social issues include the following:

- Access and equity.
- *Gender Equity and Women's Empowerment*
- *Core Labour Rights*

Environmental and social issues considered but with a much lower chance of becoming an actual conflict include during construction:

- Safety and convenience of facility and area users (school populations, area drivers, area pedestrians including the differently able, residents and workers in the vicinity) because of construction traffic and equipment operation; storage of materials, equipment and wastes; and public diversion.
- Noise and vibration from equipment operation.

• Pollution from construction equipment emissions, dust, chemical and fuel spills and surface runoff.

• Occupational safety and health of project staff.

• Disruption of normal traffic by construction traffic within narrow community roads. • Provision of employment.

• Disruption of classes depending on the nature of the intervention.

• Transfer of knowledge regarding infrastructural defects to staff.

• Threat of communicable disease including COVID-19 as workers occupy the various sites.

During operation:

• Improved performance and safety of school plots through extreme events and as shelters.

• Reduced frequency and/or duration of interruptions to school operations due to water shortages or other extreme events.

• Reduced flooding in school compounds and environs.

• Changes in government maintenance programme costs and implications for the national budget. • Enhanced school and community aesthetics.

• Appreciation of the school as a community asset and a place to facilitate community engagement. • Help in building community social capital.

• Could experience vandalism and theft.

• Greater ability to identify infrastructural defects.

• Greater awareness and appreciation through instruction in formal DRRE.

• Greater collaboration between school and community as adaptive capacity is enhanced.

• The school assumes a leadership rôle in climate change knowledge sharing through its staff and students.

• A more empowered staff and host community.

• Students and staff become champions and advocates for climate resilience.

Recommended Mitigations

Mitigations recommended are for best practice to be required of contractors through the contractual requirements and supervision of compliance. This will protect the surrounding air, land and water from pollution, noise and dust; the water bodies from sedimentation; the workers from occupational health and safety issues; and surrounding communities from traffic, health and safety impacts.

Framework for Implementation

The approach to management of environmental and social impacts is premised on the assumption that environmental management is integrated into the overall project management framework, and that environmental management skills and commitments are worked into the contractual requirements of contractors at the procurement stage. There are lead roles described for the following:

1. Ministry of Education (MOE) and Sustainable Development and Environment Department (SDED)
2. Construction Supervision Consultants

With support from the following agencies with statutory responsibilities:

1. Ministry of Physical Development
2. Ministry of Infrastructure
3. Fire Service
4. Department of Labor
5. Environmental Health Department (EHD) of the Ministry of Health
6. Water Resources Management Agency (WRMA)

In the operational phase, lead responsibility will be that of the MOE.

Conclusions

It is concluded that this project will yield significant benefits to the education sector and the communities where the schools are located, reducing levels of climate risk and increasing school building resilience, resilience of the education system, and shelter performance.

The projects are individually and collectively assessed to be Category B, with impacts that are not likely to be diverse, widespread or irreversible, and may be readily mitigated. Appropriate mitigation will be achieved primarily through a requirement for compliance with the law and best practice on the part of the contractor.

Building resilience in the education system has several short, medium, and long term benefits for the users of the school, in particular the staff and students. Apart from infrastructural improvement, climate reliant schools foster pride among students and members of the community. A conducive and safe environment that reduces exposure to hazard impacts and will induce greater motivation among those involved in the teaching learning process. The project is a timely initiative that will contribute to Saint Lucia's fulfillment of the Sustainable Development Goals aligned to education, climate change, poverty reduction, gender equality, health, safety and security, and leaving no one behind. Most importantly it is a fulfillment of the right to education as enshrined in the Constitution of Saint Lucia.

The full version of this document can be found at:

https://drive.google.com/file/d/11Qjrs_L28JcdCdSXd2wScDG9ADnVTYml/view?usp=sharing

Annex 2. Environmental and Social Impact Assessment and Management Plan – Antigua & Barbuda

This Environmental and Social Impact Assessment and Management Plan has been developed in accordance with the Adaptation Fund's ESS and Gender Policies and the Department of Environment ESS and Gender Policies. For the purposes of this project, "climate proofing" is understood to be the application of adaptation measures so as to achieve a predetermined level of resilience to various slow-onset and extreme hydro-meteorological events, events which are deemed to have become more intense and extreme due to the onset of climate change, and are projected to intensify in the future according to the best available climate science.

The schools under this project are considered "climate-proofed" when they can withstand a predetermined Category of hurricane (preferably 5) and a 3-year extended meteorological drought as well as to continue operating at adequate levels.

The environmental, social and gender risks assessed under this project were assessed and the project rated as a category B project i.e. risks are limited adverse environmental or social risks and/or impacts that are few in number, generally site-specific, largely reversible, and readily addressed through mitigation measures.

Potential Environmental and Social Impacts Identified

As these projects are typically limited mainly to upgrading existing school plots, there will be very little impact of the proposed works on flora and fauna, eco-systems or bio-corridors, archeological and cultural resources and natural drainage systems. No land acquisition is envisaged. However, potentially significant social issues include the following:

- Access and equity.
- *Gender Equity and Women's Empowerment*
- *Core Labour Rights*

The Environmental and Social Management Plan identifies mitigation measures, including:

- to appoint an accident prevention officer at each Site, responsible for maintaining safety and protection against accident;
- contractor requirements for security, safety of the Facilities, gate control, sanitation, medical care, and fire prevention;
- operations and maintenance schedules;
- construction insurance policies;
- a project Sustainable Procurement Plan to ensure that building aggregates are sustainably sourced;
- a requirement for site-specific Environmental Management Systems (ISO 14001), and registering their EMS Plans in the Environment Registry;

- develop project partnerships for technical capacity around hazardous waste management; and clear responsibility and;
- budgeted costs for proper disposal of solid waste generated through project interventions.
- Implement the gender action plan based on the baseline gender assessment including the design of gender sensitive capacity building and awareness programmes, continuous engagement with vulnerable communities, extension of opportunities for the inclusion of women in technology fields through project partnerships

The full version of this document can be found at:

https://docs.google.com/document/d/1p3UvXwdmD8k4irAsE4t008AV7TS49fzM/edit

Annex 3. Technical Assessment and Technology Options (TATO) Report - St Lucia

Executive Summary

The need for this report is a consequence of the high vulnerability of Saint Lucia and Antigua and Barbuda to climate-related shocks. The impacts of these shocks on the education sectors of these countries are likely to increase unless efforts are made to improve their capacity to anticipate, prepare, adapt and become more resilient to such events. This report focuses on twelve schools in Saint Lucia, which are located throughout the country. The buildings, which comprise eleven (infant, primary and combined) schools and one secondary school, have been equally categorized into two zones – the north and south.

The TATO report is a follow up to the Rapid Climate Vulnerability Report which ranked the schools based on their susceptibility to climate hazards and the adaptive capacity of the immediate community and the schools. This ranking was used in establishing the overall ranking of the schools after the physical condition assessment was undertaken.

The main aspect of the TATO report is findings of the condition assessment of the schools, which were influential in determining the technology interventions and mitigation measures to address the issue of resilience of the school buildings and structures. The schools were found to be in generally good condition, with seven obtaining a rating of “Good”. Three schools (Vieux Fort Primary, Balata Combined, and Desruisseaux Combined) were rated as being in “Poor” condition. The condition assessment, which was conducted by ECMC, suggests that there are significant cases of structural deficiency, deferred maintenance as well as non-compliance with the OECS Building Code and international best practices. The key stakeholders advised on several occasions that a formal maintenance plan for the schools was non-existent and that emergency repair was usually the type of maintenance strategy which prevailed.

The mitigation measures and technology interventions proposed, range from basic repairs to cracks and repainting of the buildings, to significant structural retrofit and reconstruction of the entire roofing structure of the school buildings. The susceptibility of some of the schools to the drought hazard has resulted in recommendations to increase storage capacity for potable water at many of the schools and the introduction of rainwater harvesting (together with the use of a first-flush system) in all the schools. Technology options proposed include the use of roof and ground mounted solar panels and photovoltaic systems matching the current limit of 25 megawatts.

Accessibility to and within the schools’ compounds is a major issue to be addressed. Improvement to the access to the Balata, Ave Maria, Desruisseaux, and Saltibus schools was identified as mitigation measures and were included in the work packages developed for each school. Access to ground floors for the differently-able was found to be another critical mitigation measure.

Twelve work packages comprising interventions to increase the schools’ resilience and

functioning as emergency shelters were developed. The estimated cost of the work packages ranged from circa USD 474,000 to USD1,200,000 (excluding design and project management cost). The total cost of the twelve packages (inclusive of all costs) is estimated at USD11,826,061. To ensure that disaster risk resilience features prominently in the curriculum of the schools, the work packages include an allowance of USD3,200.00 for each school for this aspect. The issue of fire safety issues at the schools, addressed by the Saint Lucia Fire Service, resulted in the inclusion of fire detection and alarm systems as well as fire suppression and safety measures as part of the interventions for all the schools.

The computation of the cost-effectiveness of the interventions proved to be a major challenge, as the information on the size of the beneficiary community was not readily available. The best option was to use the schools' populations as the direct beneficiary group; another option was to factor the number of students in each school by the national average household size, thereby giving rise to a combined direct and in-direct total beneficiaries. Notwithstanding the option used, when the cost-effectiveness ratio was combined with the overall ranking of the schools and the physical condition rating, Balata Combined was ranked to be the school most worthy of attention.

To address a critical concern of the stakeholders, a maintenance and sustainability framework was developed and included as part of the TATO report. The framework recommends that as per best practice, maintenance budgets should be around one per cent of the building/asset's replacement value.

The full version of this document can be found at:
https://drive.google.com/file/d/1rtExOboSXI_GAKlbbpuKqS6A_kDKg3QA/view?usp=sharing

Mitigation Measures and Options

Interventions			Sample Mitigation Measures
No.	Summary – Level 1	Subtask – Level 2	Mitigation Measures – Level 3
1	Structural Retrofitting of both Elements and the Whole Structure		Undertake detailed structural condition assessment of Bexon school before zoning as a disaster shelter
2	Retrofit and Repairs to Roof Structure		Install additional fasteners at every trough at the eaves, hips, ridges, and edges of gable roofs for the resistance of hurricane-force winds
3	Retrofit and Repairs of Door and Window Systems to Withstand Hurricane-force Winds		Install 150 mm concrete surround having minimum cube strength of 21 MPa at 28 days to all windows to ensure adequate anchorage
4	Internal and Superficial Works		Replace all termite infested timber and undertake termite treatment of buildings and compound
5	External Works	Structural	Improve access to school entrance - roadway and gate
		Environmental	Improve and introduce drainage of the school compound
6	Water Storage, Plumbing, and Accessories	Potable Water	Procurement and installation of additional potable water storage tanks
		Rainwater Harvesting	Allow for supply and installation of rainwater harvesting system with pump and first flush system
		Plumbing and fixture	Re-plumbing of buildings to facilitate dual water use - potable and rainwater harvesting
7	Electrical Energy Improvement	Alternative	Allow for supply and installation of the solar photovoltaic system as an alternative power supply
		Stand-by Generation	Allow for supply and installation of a generator
		Electrical Wiring & Lighting Systems	Improve electrical systems, inspection, and re-certification
8	Air Conditioning Systems		Increase capacity of system - cooling generating systems
9	Information Technology		Communication & Security - complete rewiring required
10	Fire Protection	Detection & Alarm	Procure and install smoke detectors
		Suppression	Install fire extinguishers at strategic locations throughout school
		Safety	Install illuminated exit signs at strategic points
11	Disability Accessibility		All ground floor classrooms to be made wheel-chair accessible
12	Access to Site		Improve existing ingress and egress to the site

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Annex 4. Consultations Report - Antigua and Barbuda & St Lucia

Executive Summary

This consultation report is a collection of views, insights and recommendations provided by stakeholders identified under the project. Special thanks to all those who participated and shared their experiences.

The purpose and objectives of the consultations were to: (i) obtain from beneficiaries (schools and communities) their specific needs and potential concerns; (ii) identify gaps in capacities of key stakeholders, communities and vulnerable groups to implement project activities and (iii) identify possible concerns related to potential risks and impacts.

The objectives of the meetings and discussions were to: (i) familiarize stakeholders with the project: its goals, design and expected outcomes; (ii) solicit stakeholder views, concerns, and recommendations on how to improve the resilience of schools and their host communities to climate change impacts and (iii) introduce stakeholders to Disaster Risk Reduction Education (DRRE) and sensitize them to its importance in promoting school safety. This was all part of assessing climate risk to the educational system and appraising improvement measures that will allow the governments of Antigua & Barbuda and Saint Lucia to submit a funding proposal to potential funding sources to implement these measures.

The methodology involved collection of qualitative data and simple narrative analysis as well as thematic analysis of the data. The main methods for collecting data were interviews - one-on-one conversations, group discussions, and self-administered questionnaires. In-person and virtual modalities facilitated the conversations and the discussions. Twelve (12) schools were selected by the Ministry of Education as potential schools to be ranked, based on vulnerability assessment outcomes and priority of stakeholders:

Infant/Primary - Fond Assau Combined School, Ave Maria Infant School, Ave Maria Primary School, Vieux Fort Infant School, Vieux Fort Primary School, Bexon Primary School, Micoud Primary School, Desruisseaux Combined School, Balata Combined School, Saltibus Combined School, Patience Combined School.

Secondary - Corinth Secondary School.

The findings are captured under the following headings: (i) Specific Needs and Potential Concerns Related to Potential Risks and Impacts; (i) Gaps in Capacities of Key Stakeholders, Communities, and Vulnerable Groups; Views on Approaches for Including DRRE in Schools.

The full version of this document can be found at:

https://drive.google.com/file/d/1jkjiXnxueQ8LNeYWukImah7AS3qSu9dm/view?usp=sharing

Annex 5. Schools' Work Packages St Lucia

INCREASING RESILIENCE OF THE EDUCATION SYSTEM TO CLIMATE CHANGE IN SAINT LUCIA

Summary of Indicative Costs for 12 Work Packages

No.	School	Costs in USD					
		Base Cost	Demolition of Defective Works	Prelims	Contingency	Value Added Tax	Total
1	Ave Maria Infant	317,831	9,535	23,837	70,241	52,680	474,124
2	Ave Maria Primary	372,373	11,171	27,928	82,294	61,721	555,488
3	Balata Combined	466,214	13,986	34,966	103,033	77,275	**695,474**
4	Bexon Primary	572,938	17,188	42,970	126,619	94,965	854,681
5	Corinth Secondary	812,138	24,364	60,910	179,483	134,612	1,211,507
6	Fond Assau Combined	431,873	12,956	32,390	95,444	71,583	644,247
7	Piatience Combined	415,474	12,464	31,161	91,820	68,865	619,783
8	Micoud Primary	636,568	19,097	47,743	140,682	105,511	949,601
9	Desruisseaux Combined	1,052,295	31,569	78,922	232,557	174,418	1,569,761
10	Vieux Fort Primary	774,490	23,235	58,087	171,162	128,372	**1,155,345**
11	Vieux Fort Infant	437,270	13,118	32,795	96,637	72,477	652,297
12	Saltibus Combined	344,546	10,336	25,841	76,145	57,109	**513,977**
	Base Cost	**6,634,011**	**199,020**	**497,551**	**1,466,116**	**1,099,587**	**9,896,286**
Allow 15% detailed engineering design and supervision		995,102	29,853	74,633	219,917	164,938	1,484,443
Allow 10% of engineering fees as reimbursable cost		99,510	2,985	7,463	21,992	16,494	148,444
Project Administration cost - 3% of base cost		199,020	5,971	14,927	43,983	32,988	296,889
	Total	**7,927,643**	**237,829**	**594,573**	**1,752,009**	**1,314,007**	**11,826,061**

Ave Maria Infant

Task No.	Interventions/Improvements	Unit	Quantity	Unit Rate (USD)	Total (USD)
AMI-01	**Condition of the building - as per Engineer's drawings and specifications**				
	Allow for scaling off the rust on the structural beams and columns, applying a rust inhibitor and repainting	sum	1		2,500.00
AMI-02	**Exterior Doors, Exits and Entrances**				
	Install thresholds on external doors as required.	nr	20	100.00	2,000.00
	Install a third hinge at mid-height of all the doors - minimum 100 mm hinges to be used.	nr	34	25.00	850.00
	Fasten door frames into concrete surrounds with bolts or screws	nr	20	60.00	1,200.00
	Replace exterior doors with impact resistant doors suitable for use in HVHZ	nr	24	1,000.00	24,000.00
	Install panic bar locks in the library, computer room and music room which are likely to have occupants while the doors are closed	nr	1	950.00	950.00
AMI-03	**Windows and shutters**				
	Install 150 mm concrete surround having minimum cube strength of 21 MPa at 28 day to all windows to ensure adequate anchorage.	sum	1	5,040.00	5,040.00
	Install insect screens	m^2	86	20.00	1,722.00
	Install hurricane shutters which are able to resist the impact of flying objects where standard windows are used	m^2	86	600.00	51,660.00
AMI-04	**Safety of roofing**				
	Allow for replacing deteriorated sections or all of the fascia boards	lm	142	8.50	1,207.00
	Install additional fasteners at every trough at the eaves, hips, ridges and edges of gable roofs for the resistance of hurricane force winds.	nr	300	1.00	300.00
	Replace all fasteners and comply with OECS-BC 7th Edition	m^2	817	16.00	13,070.40
AMI-05	**Parapets and other outside Elements (railings, ornaments)**				
	Cover open concrete drains	lm	20	145.00	2,900.00
AMI-06	**Internal walls**				
	Repainting of building internal and external walls after completion of works	m^2	1,206	10.00	12,063.00
	Replace all termite infested timber	sum	1	2,500.00	2,500.00
	Undertake termite treatment of buildings and compound	sum	1	1,500.00	1,500.00
AMI-07	**Safety of stairways and Ramps**				
	install handrails along stairways	lm	15	275.00	4,125.00
AMI-08	**Disabiliy Accessibility**				
	Equip washrooms with adequate handicap access	sum	1	2,500.00	2,500.00
	All ground floor class rooms to be made wheel-chair accessible	sum	1	8,500.00	8,500.00
	Increase all exit doors to match the requirements of the OECS Building Code	sum	1	9,000.00	9,000.00
	To Collection				**147,587.40**

Ave Maria Infant

Task No.	Interventions/Improvements	Unit	Quantity	Unit Rate (USD)	Total (USD)
AMI-09	**Water Reserves**				
	Allow for supply and installation of rainwater harvesting system with pump and first flush system	litres	6,750	0.75	5,062.50
AMI-10	**Water Distribution System**				
	Re-plumbing of buildings to facilitate dual water use - potable and rain water harvesting	sum	1	9,045.00	9,045.00
	Remove and replace all faucets in the lavatory sinks low volume water fixtures	nr	15	500.00	7,500.00
	Replace water closets with vandal-proof low-flush systems	nr	15	800.00	12,000.00
AMI-11	**Wastewater System**				
	Clean septic tank and inspect condition. Repair as necessary.	sum	1	2,500.00	2,500.00
AMI-12	**Storm Drainage System - roof and gutters**				
	Allow for supply and replacement of damaged sections of roof gutters	lm	142	50.00	7,075.00
AMI-13	**Alternate Sources of Electricity**				
	Allow for supply and installation of a 15 KVA solar photovoltaic system as alternative power supply	sum	1	36,000.00	36,000.00
	Allow for supply and installation of a 15 KVA generator with accessories	sum	1	25,000.00	25,000.00
	Fuel Reserve - Procure and develop stores of fuel	sum	1	6,000.00	6,000.00
AMI-14	**Safety of Electrical Equipment**				
	Re-inspection and re-certification of building as required	sum	1	2,110.50	2,110.50
	Improve electrical systems; undertake up to 50% rewiring of the building as required	m^2	302	35.00	10,552.50
	Install waterproof switches	nr	9	18.75	168.75
	Install waterproof outlets	nr	10	25.00	250.00
	Replace/Service all ceiling fans	nr	20	640.00	12,800.00
	Make provision for protection of emergency lighting	sum	1	500.00	500.00
	Perform routine repairs and maintenance - Energy supply	sum	1	5,000.00	5,000.00
AMI-15	**Lighting System**				
	Improve the lighting in all areas based on the international standard for light levels.	m^2	603	5.00	3,017.25
	Install emergency lighting with battery power packs; includes 4 signs and 5 lights	nr	9	100.00	900.00
AMI-16	**Safety of HVAC Components**				
	Perform routine servicing of all split units	nr	1	80.00	80.00
AMI-17	**Information Technology**				
	Install an intercom system for the school	sum	1	1,400.00	1,400.00
	To Collection				**146,961.50**

Ave Maria Primary

Task No.	Interventions/Improvements	Unit	Quantity	Unit Rate (USD)	Total (USD)
AMP-01	**Condition of the building - as per Engineer's drawings and specifications**				
	Allow for scaling off the rust on the structural beams and columns, applying a rust inhibitor and repainting	sum	1	2,500.00	2,500.00
AMP-02	**Safety of Foundations - as per Engineer's details and specifications**				
	Reconstruct severely damaged foundation walls, strip and spread footings for the walkway	m²	20	116.00	2,320.00
AMP-03	**Disabiliy Accessibility**				
	Equip washrooms with adequate handicap access	sum	1	2,500.00	2,500.00
	All ground floor class rooms to be made wheel-chair accessible	sum	1	10,500.00	10,500.00
	Increase all exit doors to match the requirements of the OECS Building Code	sum	1	5,250.00	5,250.00
AMP-04	**Exterior Doors, Exits and Entrances**				
	Install thresholds on external doors as required.	nr	30	100.00	3,000.00
	Install a third hinge at mid-height of all the doors - minimum 100 mm hinges to be used.	nr	40	25.00	1,000.00
	Fasten door frames into concrete surrounds with bolts or screws	nr	40	60.00	2,400.00
	Replace exterior doors with impact resistant doors suitable for use in HVHZ	nr	40	1,000.00	40,000.00
	Install panic bar locks in the library, computer room and music room which are likely to have occupants while the doors are closed	nr	3	950.00	2,850.00
AMP-05	**Windows and shutters**				
	Install 150 mm concrete surround having minimum cube strength of 21 MPa at 28 day to all windows to ensure adequate anchorage.	sum	1	7,210.00	7,210.00
	Install insect screens	m²	234	20.00	4,685.80
	Install hurricane shutters which are able to resist the impact of flying objects where standard windows are used	m²	170	600.00	101,868.00
AMP-06	**Safety of roofing**				
	Install additional fasteners at every trough at the eaves, hips, ridges and edges of gable roofs for the resistance of hurricane force winds.	nr	300	1.00	300.00
	Replace all fasteners and comply with OECS-BC 7th Edition	m²	628	16.00	10,048.00
AMP-07	**Parapets and other outside Elements (railings, ornaments)**				
	Cover open concrete drains	lm	20	145.00	2,900.00
AMP-08	**Internal walls**				
	Repainting of building internal and external walls after completion of works	m²	1,276	5.00	6,380.00
	Replace all termite infested timber	sum	1	2,500.00	2,500.00
	Undertake termite treatment of buildings and compound	sum	1	1,500.00	1,500.00
AMP-09	**Safety of stairways and Ramps**				
	Install handrails along stairways	lm	20	275.00	5,500.00
	Repair/Retrofit the stairwell on the western side	sum	1		-
AMP-10	**Water Reserves**				
	Allow for supply and installation of rainwater harvesting system with pump and first flush system	litres	71,415	0.75	53,561.25
	To Collection				**268,773.05**

Ave Maria Primary

Task No.	Interventions/Improvements	Unit	Quantity	Unit Rate (USD)	Total (USD)
AMP-11	**Alternate water supply to regular water supply**				
	Re-plumbing of buildings to facilitate dual water use- potable and rain water harvesting	sum	1	5,415.00	5,415.00
AMP-12	**Wastewater System**				
	Clean septic tank and inspect condition. Repair as necessary.	sum	1	2,500.00	2,500.00
AMP-13	**Storm Drainage System - roof and gutters**				
	Allow for supply and replacement of damaged sections of roof gutters	lm	122	50.00	6,100.00
AMP-14	**Alternate Sources of Electricity**				
	Allow for supply and installation of a 15 KVA solar photovoltaic system as alternative power supply	sum	1	36,000.00	36,000.00
	Allow for supply and installation of a 15 KVA generator with accessories	sum	1	15,000.00	15,000.00
	Fuel Reserve - Procure and develop stores of fuel	sum	1	6,000.00	6,000.00
AMP-15	**Safety of Electrical Equipment**				
	Re-inspection and re-certification of building as required	sum	1	1,263.50	1,263.50
	Improve electrical systems; undertake up to 50% rewiring of the building as required	m^2	181	35.00	6,317.50
	Replace broken outlets and secure all exposed wires using trunking	sum	1	129.67	129.67
	Perform routine repairs and maintenance - Energy supply	sum	1	5,000.00	5,000.00
AMP-16	**Lighting System**				
	Improve the lighting in all areas based on the international standard for light levels.	nr	90	20.00	1,800.00
	Install emergency lighting with battery power packs; includes 4 signs and 8 lights	nr	12	100.00	1,200.00
	Make provision for protection of emergency lighting	sum	1	500.00	500.00
AMP-17	**Safety of HVAC Components**				
	Perform routine servicing of all split units	nr	2	80.00	160.00
AMP-18	**Information Technology**				
	Install an intercom system for the school	sum	1	1,400.00	1,400.00
AMP-19	**Fire Protection**				
	Procure and install smoke detectors	nr	7	120.00	840.00
	Procure and install fire alarm system; includes Manual Call Points (8), Wall mounted ringers (4), fire alarm control panels to suit 240V/1Ph/50Hz power supply and accessories.	sum	1	3,760.00	3,760.00
	Install 10lb. (Carbon Dioxide Type) should be installed in the kitchen, ICT/Resource room, Library and Principals Office.	nr	4	253.70	1,014.80
	Install a 5lb. (Dry Chemical Type) should be installed centrally in a cabinet centrally along the upper and lower floors of each block	nr	4	113.70	454.80
	Service all extinguishers	sum	1	44.75	44.75
	Fire proof steel beams and columns	sum	1		-
	Make provision for an emergency plan to be developed and approved by the Fire Service.	sum	1	500.00	500.00
	To Collection				95,400.02

Ave Maria Primary

Task No.	Interventions/Improvements	Unit	Quantity	Unit Rate (USD)	Total (USD)
AMP-20	**Including DRR Education in the School Curriculum** The inclusion of DRR Education at the school level through the integration of DRR topics and themes in regular classroom teaching and engaging students in DRR community outreach initiatives through co and extra-curricular activities.	sum	1	3,200.00	3,200.00
AMP-21	**ESIA Recommendations** Allow a provisional sum to address recommendations made under the ESIA as it particularly relates to physical improvements at the school	sum	1	5,000.00	5,000.00
	To Collection				**8,200.00**
	Collection				
		Page 1			268,773.05
		Page 2			95,400.02
		Page 3			8,200.00
	Base Cost				**372,373.07**
	Allowance for Demolition of works to be repaired - 3% of Base Cost				11,171.19
	Allowance for preliminaries - 7.5% of Base Cost				27,927.98
	Sub-total				**411,472.24**
	Allow 20% contingencies due to the nature of repairs and retrofit works				82,294.45
	Total				**493,766.69**
	Value Added Tax - 12.5% of Total				61,720.84
	Total Construction cost of repairs and retrofit works -Ave Maria Primary School				**555,487.53**

Balata Combined

Task No.	Interventions/Improvements	Unit	Quantity	Unit Rate (USD)	Total (USD)
BC-01	**Condition of the building - as per Engineer's drawings and specifications**				
	Repair cracks in reinforced concrete floor slab surface	sum	1	650.00	650.00
	Repair and increase strength of concrete columns	sum	1	9,000.00	9,000.00
	Repair cracks in concrete walls and structural elements	sum	1	500.00	500.00
	Repair beams and columns with heavy spalling and honeycombing	lm	24	150.00	3,600.00
	Undertake design check and retrofit beams with excessive deflection	sum	1		-
	Floor Construction- Introducing additional supports to repair damaged floor	sum	1		-
	Undertake detailed structural condition assessment before zoning as disaster shelter	sum	1	1,500.00	1,500.00
BC-02	**Disability Access**				
	Equip washrooms with adequate handicap access	sum	1	2,500.00	2,500.00
	All ground floor class rooms to be made wheel-chair accessible	sum	1	5,000.00	5,000.00
BC-03	**Exterior Doors, Exits and Entrances**				
	Install thresholds on external doors as required.	nr	14	100.00	1,400.00
	Install a third hinge at mid-height of all the doors - minimum 100 mm hinges to be used.	nr	14	25.00	350.00
	Fasten door frames into concrete surrounds with bolts or screws	nr	14	60.00	840.00
	Replace exterior doors with impact resistant doors suitable for use in HVHZ	nr	14	1,000.00	14,000.00
	Install panic bar locks in the library, computer room and music room which are likely to have occupants while the doors are closed	nr	3	950.00	2,850.00
BC-04	**Windows and shutters**				
	Install insect screens	m²	126	20.00	2,520.00
	Install hurricane shutters which are able to resist the impact of flying objects where standard windows are used	m²	126	600.00	75,780.00
	Install 150 mm concrete surround having minimum cube strength of 21 MPa at 28 day to all windows to ensure adequate anchorage.	sum	1	3,010.00	3,010.00
BC-05	**Safety of roofing**				
	~~Make up slopes on concrete roofs and apply waterproofing membrane~~	m²		135.00	-
	Remove and reconstruct entire roof truss system	m²	328	200.00	65,580.00
BC-06	**Parapets and other outside Elements (railings, ornaments)**				
	Improve access to school entrance - roadway and gate	sum	1	3,000.00	3,000.00
	Install handrails along stairs on the western side of the compound	lm	12	275.00	3,300.00
	Cover all open concrete drains	lm	100	145.00	14,500.00
BC-07	**Internal walls**				
	Repainting of building internal and external walls after completion of works	m²	643	10.00	6,425.80
	Replace all termite infested timber	sum	1	5,000.00	5,000.00
	Undertake termite treatment of buildings and compound	sum	1	1,500.00	1,500.00
BC-08	**Water Reserves**				
	Procurement and installation of additional potable water storage tanks	litres	100,837	0.75	75,627.53
	Removal of tanks from the roof could be considered. Construct ground slab and install a solar powered water pump.	sum	1	2,500.00	2,500.00
	To Collection				**300,933.33**

Balata Combined

Task No.	Interventions/Improvements	Unit	Quantity	Unit Rate (USD)	Total (USD)
BC-09	**Alternate water supply to regular water supply**				
	Allow for supply and installation of rainwater harvesting system with pump and first flush system	litres	30,251	0.75	22,688.26
BC-10	**Water Distribution System**				
	Re-plumbing of buildings to facilitate dual water use - potable and rain water harvesting	sum	1	5,167.50	5,167.50
	Remove and replace all faucets in the lavatory sinks low volume water fixtures	nr	13	500.00	6,500.00
	Replace water closets with vandal-proof low-flush systems	nr	14	800.00	11,200.00
BC-11	**Wastewater System**				
	Clean septic tank and inspect condition. Repair as necessary.	sum	1	2,500.00	2,500.00
BC-12	**Storm Drainage System - site**				
	Improve and introduce drainage of the school compound	lm	63	110.00	6,930.00
	Allow for routine maintenance and cleaning of site storm water management system	sum	1	5,000.00	5,000.00
BC-13	**Alternate Sources of Electricity**				
	Allow for supply and installation of a 15 KVA solar photovoltaic system as alternative power supply	sum	1	36,000.00	36,000.00
	Allow for supply and installation of a 15 KVA generator with accessories	sum	1	15,000.00	15,000.00
	Fuel Reserve - Procure and develop stores of fuel	sum	1	6,000.00	6,000.00
BC-14	**Safety of Electrical Equipment**				
	Re-inspection and re-certification of building as required	sum	1	2,411.50	2,411.50
	Improve electrical systems; undertake up to 50% rewiring of the building as required	m²	345	35.00	12,057.50
	Install waterproof outlets in classrooms with open blockwork	nr	4	55.60	222.40
	Install waterproof switches in classrooms with open blockwork	nr	4	54.40	217.60
	Perform routine repairs and maintenance - Energy supply	sum	1	5,000.00	5,000.00
BC-15	**Lighting System**				
	Improve the lighting in all areas based on the international standard for light levels.	m²	689	5.00	3,443.00
	Replace all damaged lighting fixtures in the corridors	nr	10	92.00	920.00
	Replace all damaged lighting fixtures in the classrooms	nr	60	55.56	3,333.60
	Replace all damaged ceiling fans	nr	4	360.00	1,440.00
	Install emergency lighting with battery power packs	nr	10	100.00	1,000.00
	Make provision for protection of emergency lighting	sum	1	500.00	500.00
BC-16	**Safety of HVAC Components**				
	Routine servicing of all split units	nr	7	$ 80.00	560.00
	Replace broken isolators	nr	1	$ 80.00	80.00
BC-17	**Information Technology**				
	Install an intercom system for the school	sum	1	1,400.00	1,400.00
	To Collection				**149,571.36**

Balata Combined

Task No.	Interventions/Improvements	Unit	Quantity	Unit Rate (USD)	Total (USD)
BC-18	**Fire Protection**				
	Procure and install smoke detectors	nr	6	120.00	720.00
	Procure and install fire alarm system; includes Manual Call Points, Wall mounted ringer, fire alarm control panels to suit 240V/1Ph/50Hz power supply and accessories.	sum	1	3,940.00	3,940.00
	Install 10lb (Carbon Dioxide Type) fire extinguishers at strategic locations throughout school	nr	4	253.70	1,014.80
	Servicing of fire extinuishers	nr	3	44.75	134.25
	Install permanent exit signage around the compound including indications of stairways, exists and muster points	nr	6	200.00	1,200.00
	Make provision for an emergency plan to be developed and approved by the Fire Service.	sum	1	500.00	500.00
BC-19	**Including DRR Education in the School Curriculum**				
	The inclusion of DRR Education at the school level through the integration of DRR topics and themes in regular classroom teaching and engaging students in DRR community outreach initiatives through co and extra-curricular activities.	sum	1	3,200.00	3,200.00
BC-20	**ESIA Recommendations**				
	Allow a provisional sum to address recommendations made under the ESIA as it particularly relates to physical improvements at the school	sum	1	5,000.00	5,000.00
	To Collection				**15,709.05**
	Collection				
		Page 1			300,933.33
		Page 2			149,571.36
		Page 3			15,709.05
	Base Cost				**466,213.73**
	Allowance for Demolition of works to be repaired - 3% of Base Cost				13,986.41
	Allowance for preliminaries - 7.5% of Base Cost				34,966.03
	Sub-total				**515,166.17**
	Allow 20% contingencies due to the nature of repairs and retrofit works				103,033.23
	Total				**618,199.41**
	Value Added Tax - 12.5% of Total				77,274.93
	Total Construction cost of repairs and retrofit works - Balata Combined School				**695,474.34**

Bexon Primary

Task No.	Interventions/Improvements	Unit	Quantity	Unit Rate (USD)	Total (USD)
BP-01	**Condition of the building - as per Engineer's drawings and specifications**				
	Floor Construction- Introducing additional supports to repair damaged floor	sum	1		5,000.00
	Undertake detailed structural condition assessment of Bexon school before zoning as disaster shelter	sum	1	15,000.00	15,000.00
	Repair cracks in the walls in the electricla room and other areas in the building	sum	1	500.00	500.00
BP-02	**Disability Accessibility**				
	Equip washrooms with adequate handicap access	sum	1	2,500.00	2,500.00
	All ground floor class rooms to be made wheel-chair accessible	sum	1	10,000.00	10,000.00
BP-03	**Structural Integrity of Roofs**				
	Allowance for investigating the structural capacity of roof and to undertake any retrofit	Sum			20,000.00
BP-04	**Exterior Doors, Exits and Entrances**				
	Install thresholds on external doors as required.	nr	63	100.00	6,300.00
	Install a third hinge at mid-height of all the doors - minimum 100 mm hinges to be used.	nr	63	25.00	1,575.00
	Fasten door frames into concrete surrounds with bolts or screws	nr	63	60.00	3,780.00
	Replace exterior doors with impact resistant doors suitable for use in HVHZ	nr	63	1,000.00	63,000.00
	Install panic bar locks in the library, computer room and music room which are likely to have occupants while the doors are closed	nr	3	950.00	2,850.00
	Increase all exit doors to match requirements of the OECS Building Code	nr	83	250.00	20,750.00
BP-05	**Windows and shutters**				
	Install 150 mm concrete surround having minimum cube strength of 21 MPa at 28 day to all windows to ensure adequate anchorage.	sum	1	6,300.00	6,300.00
	Install insect screens	m^2	210	20.00	4,200.00
	Install hurricane shutters which are able to resist the impact of flying objects where standard windows are used	m^2	210	600.00	126,240.00
BP-06	**Safety of roofing**				
	Allow a provision sum to address leaking roof and any repairs to roof slab soffit	sum			15,000.00
BP-07	**Parapets and other outside Elements (railings, ornaments)**				
	Improve access to school entrance - roadway and gate	sum	1	3,000.00	3,000.00
	Install illuminated exit signs at strategic locations	nr	39	200.00	7,800.00
BP-08	**Internal walls - concrete masonry units finishd with mortar plastering**				
	Repainting of building internal and external walls after completion of works	m^2	1,236	10.00	12,360.00
	Replace all termite infested timber	sum	1	2,500.00	2,500.00
	Undertake termite treatment of buildings and compound	sum	1	1,200.00	1,200.00
BP-09	**Safety of stairways and Ramps**				
	Reconstruction of external staircase	sum	1	15,000.00	15,000.00
BP-10	**Water Reserves**				
	Procurement and installation of additional potable water storage tanks	litres	54,016	0.75	40,511.63
	To Collection				**385,366.63**

Bexon Primary

Task No.	Interventions/Improvements	Unit	Quantity	Unit Rate (USD)	Total (USD)
BP-11	**Alternate water supply to regular water supply**				
	Allow for supply and installation of rainwater harvesting system with pump and first flush system	litres	16,205	0.75	12,153.49
BP-12	**Water Distribution System**				
	Re-plumbing of buildings to facilitate dual water use - potable and rain water harvesting	sum	1	6,495.00	6,495.00
	Remove and replace all faucets in the lavatory sinks low volume water fixtures	nr	36	500.00	18,000.00
	Replace water closets with vandal-proof low-flush systems	nr	30	800.00	24,000.00
BP-13	**Wastewater System**				
	Clean septic tank and inspect condition. Repair as necessary.	sum	1	2,500.00	2,500.00
BP-14	**Storm Drainage System - site**				
	Improve and introduce drainage of the school compound	lm	128	110.00	14,025.00
	Allow for routine maintenance and cleaning of site storm water management system	sum	1	3,000.00	3,000.00
BP-15	**Alternate Sources of Electricity**				
	Allow for supply and installation of a 15 KVA solar photovoltaic system as alternative power supply	sum	1	36,000.00	36,000.00
	Allow for supply and installation of a 15 KVA generator with accessories	sum	1	15,000.00	15,000.00
	Fuel Reserve - Procure and develop stores of fuel	sum	1	6,000.00	6,000.00
BP-16	**Safety of Electrical Equipment**				
	Re-inspection and re-certification of building as required	sum	1	10,000.00	10,000.00
	Improve electrical systems; undertake up to 50% rewiring of the building as required	m^2	433	35.00	15,155.00
	Perform routine repairs and maintenance - Energy supply	sum	1	5,000.00	5,000.00
BP-17	**Lighting System**				
	Improve the lighting in all areas based on the international standard for light levels.	m^2	866	5.00	4,329.50
	Install emergency lighing with battery power packs	nr	9	100.00	900.00
	Make provision for protection of emergency lighting	sum	1	500.00	500.00
BP-18	**Information Technology**				
	Install an intercom system for the school	sum	1	1,400.00	1,400.00
BP-19	**Fire Protection**				
	Procure and install smoke detectors	nr	1	120.00	120.00
	Procure and install fire alarm system; includes Manual Call Points, Wall mounted ringer, fire alarm control panels to suit 240V/1Ph/50Hz power supply and accessories.	sum	1	3,520.00	3,520.00
	Install 5 lb. (Dry Chemcial Type) fire extinguisher near the exit of the Principal's Office, the Lab and the ground floor corridor	nr	3	113.70	341.10
	Install 5 lb. (Carbon DioxideType) fire extinguisher in the kitchen and near the canteen exit	nr	2	216.30	432.60
	Make provision for an emergency plan to be developed and approved by the Fire Service.	sum	1	500.00	500.00
	To Collection				**179,371.69**

Bexon Primary

Task No.	Interventions/Improvements	Unit	Quantity	Unit Rate (USD)	Total (USD)
BP-20	**Including DRR Education in the School Curriculum** The inclusion of DRR Education at the school level through the integration of DRR topics and themes in regular classroom teaching and engaging students in DRR community outreach initiatives through co and extra-curricular activities.	sum	1	3,200.00	3,200.00
BP-21	**ESIA Recommendations** Allow a provisional sum to address recommendations made under the ESIA as it particularly relates to physical improvements at the school	sum	1	5,000.00	5,000.00
	To Collection				**8,200.00**
	Collection				
		Page 1			385,366.63
		Page 2			179,371.69
		Page 3			8,200.00
	Base Cost				**572,938.31**
	Allowance for Demolition of works to be repaired - 3% of Base Cost				17,188.15
	Allowance for preliminaries - 7.5% of Base Cost				42,970.37
	Sub-total				**633,096.84**
	Allow 20% contingencies due to the nature of repairs and retrofit works				126,619.37
	Total				**759,716.20**
	Value Added Tax - 12.5% of Total				94,964.53
	Total Construction cost of repairs and retrofit works - Bexon Primary School				**854,680.73**

Corinth Secondary

Task No.	Interventions/Improvements	Unit	Quantity	Unit Rate (USD)	Total (USD)
CS-01	**Condition of the building - as per Engineer's drawings and specifications**				
	Allow for scaling off the rust on the structural beams and columns, applying a rust inhibitor and repainting	sum	1		1,000.00
CS-02	**Safety of Foundations - as per Engineer's details and specifications**				
	Retrofit the severely damaged foundation walls / strip and spread footings.	sum	1	9,400.00	9,400.00
CS-03	**Disability Accessibility**				
	Equip washrooms with adequate handicap access	sum	1	2,500.00	2,500.00
	All ground floor class rooms to be made wheel-chair accessible	sum	1	17,000.00	17,000.00
	Increase all exit doors to match the requirements of the OECS Building Code	sum	1	27,000.00	27,000.00
					-
CS-04	**Structural Integrity of Roofs**				
	Replacement of metal purlins and roofing; Block A&B	m²	409	68.00	27,778.00
CS-05	**Exterior Doors, Exits and Entrances**				
	Install thresholds on external doors as required.	nr	52	100.00	5,200.00
	Install a third hinge at mid-height of all the doors - minimum 100 mm hinges to be used.	nr	96	25.00	2,400.00
	Fasten door frames into concrete surrounds with bolts or screws	nr	74	60.00	4,440.00
	Replace exterior doors with impact resistant doors suitable for use in HVHZ	nr	96	2,500.00	240,000.00
	Install panic bar locks in the library, computer room and music room which are likely to have occupants while the doors are closed	nr	5	950.00	4,750.00
CS-06	**Windows and shutters**				
	Install 150 mm concrete surround having minimum cube strength of 21 MPa at 28 day to all windows to ensure adequate anchorage.	sum	1	4,200.00	4,200.00
	Install insect screens	m²	474	20.00	9,484.00
	Install hurricane shutters which are able to resist the impact of flying objects where standard windows are used	m²	237	600.00	142,200.00
CS-07	**Other Elements of the Building Envelope**				
	Replace all termite infested timber	sum	1		-
	Undertake termite treatment of buildings and compound	sum	1	1,200.00	1,200.00
CS-08	**Safety of roofing**				
	Install additional fasteners at every trough at the eaves, hips, ridges and edges of gable roofs for the resistance of hurricane force winds.	nr	400	1.00	400.00
	Replace all fasteners and comply with OECS-BC 7th Edition	m²	1,007	16.00	16,105.60
CS-09	**Internal walls - concrete masonry units finishd with mortar plastering**				
	Repainting of building internal and external walls after completion of works	m²	1,596	10.00	15,962.00
	False or Suspended Ceilings				
	Replace and/or patch the leaking ceilings	sum	1	5,000.00	5,000.00
CS-10	**Alternate water supply to regular water supply**				
	Allow for supply and installation of rainwater harvesting system with pump and first flush system	litres	87,063	0.75	65,297.54
	To Collection				**601,317.14**

Corinth Secondary

Task No.	Interventions/Improvements	Unit	Quantity	Unit Rate (USD)	Total (USD)
CS-11	**Water Distribution System**				
	Re-plumbing of buildings to facilitate dual water use - potable and rain water harvesting	sum	1	7,411.50	7,411.50
	Remove and replace all faucets in the lavatory sinks low volume water fixtures	nr	26	500.00	13,000.00
	Replace water closets with vandal-proof low-flush systems	nr	30	800.00	24,000.00
CS-12	**Wastewater System**				
	Clean septic tank and inspect condition. Repair as necessary.	sum	1	2,500.00	2,500.00
CS-13	**Storm Drainage System - site**				
	Improve and introduce drainage of the school compound	lm	50	110.00	5,500.00
	Allow for routine maintenance and cleaning of site storm water management system	sum	1	5,000.00	5,000.00
CS-14	**Storm Drainage System - roof and gutters**				
	Allow for supply and replacement of damaged sections of roof gutters	lm	157	50.00	7,862.50
CS-15	**Alternate Sources of Electricity**				
	Allow for supply and installation of a 15 KVA solar photovoltaic system as alternative power supply	sum	1	36,000.00	36,000.00
	Allow for supply and installation of a 15 KVA generator with accessories	sum	1	15,000.00	15,000.00
	Fuel Reserve - Procure and develop stores of 500-litres fuel	sum	1	6,000.00	6,000.00
CS-16	**Safety of Electrical Equipment**				
	Re-inspection and re-certification of the building as required.	sum	1	4,214.00	4,214.00
	Improve electrical systems; undertake up to 50% rewiring of the building as required	m²	1,204	35.00	42,140.00
	Replace waterproof light switches in the corridors	nr	18	18.75	337.50
	Perform routine repairs and maintenance - Energy supply	sum	1	3,000.00	3,000.00
CS-17	**Lighting System**				
	Improve the lighting in all areas based on the international standard for light levels.	m²	1,204	5.00	6,020.00
	Repairs to damage light fixtures and replace cover to panel in science lab	sum	1	1,000.00	1,000.00
	Install emergency lighting with battery power packs	nr	23	100.00	2,300.00
	Make provision for protection of emergency lighting	sum	1	500.00	-
CS-18	**Safety of HVAC Components**				
	Perform major repairs and maintenance - Pipes and Insulation	sum	1	480.00	480.00
	Increase capacity of system - Cooling generating systems	sum	1		-
	Allow for supply and installation of new individual AC units	nr	4	1,500.00	6,000.00
CS-19	**Information Technology**				
	Install an intercom system for the school	sum	1	1,400.00	1,400.00
	To Collection				**189,165.50**

Corinth Secondary

Task No.	Interventions/Improvements	Unit	Quantity	Unit Rate (USD)	Total (USD)
CS-20	**Fire Protection**				
	Procure and install smoke detectors	nr	14	120.00	1,680.00
	Procure and install fire alarm system; includes Manual Call Points, Wall mounted ringer, fire alarm control panels to suit 240V/1Ph/50Hz power supply and accessories.	sum	1	4,420.00	4,420.00
	Procure and install 5lb (Carbon dioxide type) fire extinguishers in the canteens and staffroom	nr	3	216.20	648.60
	Procure and install 10lb (Carbon dioxide type) fire extinguishers in the Recourse room. IT room and F&N Room	nr	3	253.70	761.10
	Recharge and service all fire extinguishers	nr	5	44.75	223.75
	Service and replace all fire hose reel cases	nr	5	444.44	2,222.20
	Install illuminated exit signs at strategic locations	nr	15	200.00	3,000.00
	Make provision for an emergency plan to be developed and approved by the Fire Service.	sum	1	500.00	500.00
CS-21	**Including DRR Education in the School Curriculum**				
	The inclusion of DRR Education at the school level through the integration of DRR topics and themes in regular classroom teaching and engaging students in DRR community outreach initiatives through co and extra-curricular activities.	sum	1	3,200.00	3,200.00
CS-22	**ESIA Recommendations**				
	Allow a provisional sum to address recommendations made under the ESIA as it particularly relates to physical improvements at the school	sum	1		5,000.00
	To Collection				**21,655.65**
	Collection				
		Page 1			601,317.14
		Page 2			189,165.50
		Page 3			21,655.65
	Base Cost				**812,138.29**
	Allowance for Demolition of works to be repaired - 3% of Base Cost				24,364.15
	Allowance for preliminaries - 7.5% of Base Cost				60,910.37
	Sub-total				**897,412.81**
	Allow 20% contingencies due to the nature of repairs and retrofit works				179,482.56
	Total				**1,076,895.38**
	Value Added Tax - 12.5% of Total				134,611.92
	Total Construction cost of repairs and retrofit works - Corinth Secondary School				**1,211,507.30**

Fond Assau Combined

Task No.	Interventions/Improvements	Unit	Quantity	Unit Rate (USD)	Total (USD)
FAC-01	**Disability Accessibility**				
	Equip washrooms with adequate handicap access	sum	1	2,500.00	2,500.00
	All ground floor class rooms to be made wheel-chair accessible	sum	1	10,000.00	10,000.00
	Increase all exit doors to match the requirements of the OECS Building Code	sum	1	17,750.00	17,750.00
FAC-02	**Exterior Doors, Exits and Entrances**				
	Install thresholds on external doors as required.	nr	71	100.00	7,100.00
	Install a third hinge at mid-height of all the doors - minimum 100 mm hinges to be used.	nr	70	25.00	1,750.00
	Fasten door frames into concrete surrounds with bolts or screws	nr	71	60.00	4,260.00
	Replace exterior doors with impact resistant doors suitable for use in HVHZ	nr	71	1,000.00	71,000.00
FAC-03	**Windows and shutters**				
	Install 150 mm concrete surround having minimum cube strength of 21 MPa at 28 day to all windows to ensure adequate anchorage.	sum	1	6,300.00	6,300.00
	Install insect screens	m²	186	20.00	3,714.00
	Install hurricane shutters which are able to resist the impact of flying objects where standard windows are used	m²	186	600.00	111,420.00
FAC-04	**Other Elements of the Building Envelope**				
	Replace all termite infested timber	sum	1	3,750.00	3,750.00
	Undertake termite treatment of buildings and compound	sum	1	1,200.00	1,200.00
FAC-05	**Safety of roofing**				
	Allow for replacing deteriorated sections or all of the fascia boards	lm	49	16.00	787.20
	Install additional fasteners at every trough at the eaves, hips, ridges and edges of gable roofs for the resistance of hurricane force winds.	nr	300	1.00	300.00
	Replace all fasteners and comply with OECS-BC 7th Edition	m²	145	16.00	2,320.00
FAC-06	**Internal walls**				
	Repainting of building internal and external walls after completion of works	m²	247	8.50	2,096.10
FAC-07	**Alternate water supply to regular water supply**				
	Allow for supply and installation of rainwater harvesting system with pump and first flush system	litres	19,170	0.75	14,377.50
FAC-08	**Water Distribution System**				
	Re-plumbing of buildings to facilitate dual water use - potable and rain water harvesting	sum	1	10,335.00	10,335.00
	Remove and replace all faucets in the lavatory sinks low volume water fixtures	nr	26	500.00	13,000.00
	Replace water closets with vandal-proof low-flush systems	nr	30	800.00	24,000.00
FAC-09	**Wastewater System**				
	Clean septic tank and inspect condition. Repair as necessary.	sum	1	2,000.00	2,000.00
	Storm Drainage System - roof and gutters				
	Allow for supply and replacement of damaged sections of roof gutters	lm	123	60.00	7,398.00
	To Collection				**317,357.80**

Fond Assau Combined

Task No.	Interventions/Improvements	Unit	Quantity	Unit Rate (USD)	Total (USD)
FAC-10	**Alternate Sources of Electricity**				
	Allow for supply and installation of a 15 KVA solar photovoltaic system as alternative power supply	sum	1	36,000.00	36,000.00
	Allow for supply and installation of a 15 KVA generator with accessories	sum	1	15,000.00	15,000.00
	Fuel Reserve - Procure and develop stores of fuel	sum	1	6,000.00	6,000.00
FAC-11	**Safety of Electrical Equipment**				
	Re-inspection and re-certification of building as required	sum	1	2,880.50	2,880.50
	Improve electrical systems; undertake up to 50% rewiring of the building as required	m²	689	35.00	24,097.50
	Replace corroded electrical panel and covers for junction boxes	sum	1	809.15	809.15
	Upgrade the size of the transformer to 5KVA	nr	1	2,785.71	2,785.71
	Perform routine repairs and maintenance - Energy supply	sum	1	5,000.00	5,000.00
FAC-12	**Lighting System**				
	Improve the lighting in all areas based on the international standard for light levels.	m²	689	5.00	3,443.50
	Install emergency lighting with battery power packs; 3 exit signs, 7 lights	nr	10	100.00	1,000.00
	Make provision for protection of emergency lighting	sum	1	500.00	500.00
FAC-13	**Safety of HVAC Components**				
	Perform routine serviceing of all spilt units	nr	4	80.00	320.00
FAC-14	**Information Technology**				
	Install an intercom system for the school	sum	1	1,400.00	1,400.00
FAC-15	**Fire Protection**				
	Procure and install smoke detectors	nr	10	120.00	1,200.00
	Procure and install fire alarm system; includes Manual Call Points (7), Wall mounted ringers (7), fire alarm control panels to suit 240V/1Ph/50Hz power supply and accessories.	sum	1	4,060.00	4,060.00
	Procure and install 10lb (Dry Chemical) fire extinguisher should be installed centrally on each block	nr	4	$ 162.22	648.88
	Procure and install a 5lb, (Carbon Dioxide) fire extinguisher should be installed near the exit of the Principal's Offcie	nr	1	$ 216.30	216.30
	Procure and install 10lb (Carbon Dioxide) fire extinguisher should be installed near the exit of the IT Lab	nr	1	$ 253.70	253.70
	Install permanent exits signage around the compund including indications of stairways, exits, and muster points.	nr	1	200.00	200.00
	Make provision for an emergency plan to be developed and approved by the Fire Service.	sum	1	500.00	500.00
FAC-16	**Including DRR Education in the School Curriculum**				
	The inclusion of DRR Education at the school level through the integration of DRR topics and themes in regular classroom teaching and engaging students in DRR community outreach initiatives through co and extra-curricular activities.	sum	1	3,200.00	3,200.00
	To Collection				**109,515.24**

Fond Assau Combined

Task No.	Interventions/Improvements	Unit	Quantity	Unit Rate (USD)	Total (USD)
	ESIA Recommendations				
	Allow a provisional sum to address recommendations made under the ESIA as it particularly relates to physical improvements at the school				5,000.00
	To Collection				**5,000.00**
	Collection				
		Page 1			317,357.80
		Page 2			109,515.24
		Page 3			5,000.00
	Base Cost				**431,873.04**
	Allowance for Demolition of works to be repaired - 3% of Base Cost				12,956.19
	Allowance for preliminaries - 7.5% of Base Cost				32,390.48
	Sub-total				**477,219.71**
	Allow 20% contingencies due to the nature of repairs and retrofit works				95,443.94
	Total				**572,663.65**
	Value Added Tax - 12.5% of Total				71,582.96
	Total Construction cost of repairs and retrofit works - Fond Assau Combine School				**644,246.61**

Patience Combined

Task No.	Interventions/Improvements	Unit	Quantity	Unit Rate (USD)	Total (USD)
PC-01	**Condition of the building - as per Engineer's drawings and specifications**				
	Undertake design check and retrofit beams with excessive deflection	sum	1		5,000.00
PC-02	**Disability Accessibility**				
	Equip washrooms with adequate handicap access	sum	1	2,500.00	2,500.00
	All ground floor class rooms to be made wheel-chair accessible	sum	1	11,000.00	11,000.00
	Increase all exit doors to match the requirements of the OECS Building Code	sum	1	14,000.00	14,000.00
PC-03	**Structural Integrity of Roofs**				
	Replacement of metal purlins and roofing	m^2	836	68.00	56,827.60
PC-04	**Exterior Doors, Exits and Entrances**				
	Install thresholds on external doors as required.	nr	20	100.00	2,000.00
	Install a third hinge at mid-height of all the doors - minimum 100 mm hinges to be used.	nr	45	25.00	1,125.00
	Fasten door frames into concrete surrounds with bolts or screws	nr	10	60.00	600.00
	Replace exterior doors with impact resistant doors suitable for use in HVHZ	nr	56	1,000.00	56,000.00
PC-05	**Windows and shutters**				
	Install 150 mm concrete surround having minimum cube strength of 21 MPa at 28 day to all windows to ensure adequate anchorage.	sum	1	780.00	780.00
	Install insect screens	m^2	175	20.00	3,502.00
	Install hurricane shutters which are able to resist the impact of flying objects where standard windows are used	m^2	46	600.00	27,840.00
PC-06	**Safety of roofing**				
	Allow for replacing deteriorated sections or all of the fascia boards	lm	170	8.50	1,447.47
	Install additional fasteners at every trough at the eaves, hips, ridges and edges of gable roofs for the resistance of hurricane force winds.	nr	300	1.00	300.00
	Replace all fasteners and comply with OECS-BC 7th Edition	m^2	836	16.00	13,376.00
PC-07	**Internal walls**				
	Repainting of building internal and external walls after completion of works	m^2	1,528	10.00	15,279.00
PC-08	**Alternate water supply to regular water supply**				
	Allow for supply and installation of rainwater harvesting system with pump and first flush system	litres	39,015	0.75	29,261.25
PC-09	**Water Distribution System**				
	Re-plumbing of buildings to facilitate dual water use - potable and rain water harvesting	sum	1	8,460.00	8,460.00
	Remove and replace all faucets in the lavatory sinks low volume water fixtures	nr	24	500.00	12,000.00
	Replace water closets with vandal-proof low-flush systems	nr	36	800.00	28,800.00
PC-10	**Storm Drainage System - site**				
	Improve and introduce drainage of the school compound	lm	50	110.00	5,500.00
	To Collection				**295,598.32**

Patience Combined

Task No.	Interventions/Improvements	Unit	Quantity	Unit Rate (USD)	Total (USD)
PC-11	**Storm Drainage System - roof and gutters**				
	Allow for supply and replacement of damaged sections of roof gutters	lm	51	60.00	3,060.00
PC-12	**Alternate Sources of Electricity**				
	Allow for supply and installation of a 15 KVA solar photovoltaic system as alternative power supply	sum	1	36,000.00	36,000.00
	Allow for supply and installation of a 15 KVA generator with accessories	sum	1	15,000.00	15,000.00
	Replace the electric water heater with solar water heater properly fixed to the roof framing	sum	1	2,500.00	2,500.00
	Fuel Reserve - Procure and develop stores of fuel	sum	1	6,000.00	6,000.00
PC-13	**Safety of Electrical Equipment**				
	Re-inspection and re-certification of building as required	sum	1	4,942.00	4,942.00
	Improve electrical systems; undertake up to 50% rewiring of the building as required	m^2	564	35.00	19,740.00
	Replace corroded outlets	nr	20	25.00	500.00
	Perform routine repairs and maintenance - Energy supply	sum	1	5,000.00	5,000.00
PC-14	**Lighting System**				
	Improve the lighting in all areas based on the international standard for light levels.	m^2	564	5.00	2,817.50
	Properly mount all lights that have come loose	nr	10	25.00	250.00
	Install emergency lighting with battery power packs.	nr	15	100.00	1,500.00
	Make provision for protection of emergency lighting	sum	1	500.00	500.00
PC-15	**Safety of HVAC Components**				
	Perform routine sevicing of all spilt units	nr	4	80.00	320.00
PC-16	**Information Technology**				
	Install an intercom system for the school	sum	1	1,400.00	1,400.00
PC-17	**Fire Protection**				
	Procure and install smoke detectors	nr	14	120.00	1,680.00
	Procure and install fire alarm system; includes Manual Call Points (6), Wall mounted ringers (8), fire alarm control panels to suit 240V/1Ph/50Hz power supply and accessories.	sum	1	4,120.00	4,120.00
	Repair or replace damaged fire hose reels and cases	nr	8	444.44	3,555.52
	Procure and install One 10 lbs. (Dry Chemical Type) on every floor, on every block (A,B,C and D) near the manual call points to be installed	nr	6	162.22	973.32
	One 5 lbs. (Carbon Dioxide Type) should be placed near the exit of the Science Lab, IT Lab, Staffroom and Principal's Office	nr	4	215.93	863.72
	One 10 lbs. (Carbon Dioxide Type) should be placed near the kitchen, along with a fire blanket.	nr	1	253.70	253.70
	Fire proof steel beams and columns	sum	1		-
	Install permanent exits signage around the compund including indications of stairways, exits, and muster points.	sum	1	200.00	200.00
	Make provision for an emergency plan to be developed and approved by the Fire Service.	sum	1	500.00	500.00
PC-18	**Including DRR Education in the School Curriculum**				
	The inclusion of DRR Education at the school level through the integration of DRR topics and themes in regular classroom teaching and engaging students in DRR community outreach initiatives through co and extra-curricular activities.	sum	1	3,200.00	3,200.00
	To Collection				**114,875.76**

Patience Combined

Task No.	Interventions/Improvements	Unit	Quantity	Unit Rate (USD)	Total (USD)
PC-19	**ESIA Recommendations**				
	Allow a provisional sum to address recommendations made under the ESIA as it particularly relates to physical improvements at the school				5,000.00
	To Collection				**5,000.00**
	Collection				
		Page 1			295,598.32
		Page 2			114,875.76
		Page 3			5,000.00
	Base Cost				**415,474.08**
	Allowance for Demolition of works to be repaired - 3% of Base Cost				12,464.22
	Allowance for preliminaries - 7.5% of Base Cost				31,160.56
	Sub-total				**459,098.85**
	Allow 20% contingencies due to the nature of repairs and retrofit works				91,819.77
	Total				**550,918.62**
	Value Added Tax - 12.5% of Total				68,864.83
	Total Construction cost of repairs and retrofit works - Patience Combined School				**619,783.45**

Micoud Primary

Task No.	Interventions/Improvements	Unit	Quantity	Unit Rate (USD)	Total (USD)
MP-01	**Condition of the building - as per Engineer's drawings and specifications**				
	Repair cracks in concrete walls and structural elements	sum	1	5,000.00	5,000.00
	Allow for scaling off the rust on the structural beams and columns, applying a rust inhibitor and repainting	sum	1		-
MP-02	**Disability Accessibility**				
	Equip washrooms with adequate handicap access	sum	1	2,500.00	2,500.00
	All ground floor class rooms to be made wheel-chair accessible	sum	1	33,000.00	33,000.00
	Increase all exit doors to match the requirements of the OECS Building Code	sum	1	17,500.00	17,500.00
MP-03	**Exterior Doors, Exits and Entrances**				
	Install thresholds on external doors as required.	nr	70	100.00	7,000.00
	Install a third hinge at mid-height of all the doors - minimum 100 mm hinges to be used.	nr	48	25.00	1,200.00
	Fasten door frames into concrete surrounds with bolts or screws	nr	35	60.00	2,100.00
	Replace exterior doors with impact resistant doors suitable for use in HVHZ	nr	70	1,000.00	70,000.00
	Install panic bar locks in the library, computer room and music room which are likely to have occupants while the doors are closed	nr	4	650.00	2,600.00
MP-04	**Windows and shutters**				
	Install 150 mm concrete surround having minimum cube strength of 21 MPa at 28 day to all windows to ensure adequate anchorage.	sum	1	4,200.00	4,200.00
	Install insect screens	m^2	366	20.00	7,310.00
	Install hurricane shutters which are able to resist the impact of flying objects where standard windows are used	m^2	339	600.00	203,520.00
	Remove and replace the welded wire mesh openings with operable windows	nr	20	1,200.00	24,000.00
MP-05	**Safety of roofing**				
	Install additional fasteners at every trough at the eaves, hips, ridges and edges of gable roofs for the resistance of hurricane force winds.	nr	300	1.00	300.00
	Securing roof deck and replace roof covering gauge 24 sheets as a minimum	m^2	163	68.00	11,063.60
	Replace all fasteners and comply with OECS-BC 7th Edition	m^2	789	16.00	12,621.12
MP-06	**Alternate water supply to regular water supply**				
	Allow for supply and installation of rainwater harvesting system with pump and first flush system	litres	57,240	0.75	42,930.00
MP-07	**Water Distribution System**				
	Re-plumbing of buildings to facilitate dual water use - potable and rain water harvesting	sum	1	9,590.00	9,590.00
	Remove and replace all faucets in the lavatory sinks low volume water fixtures	nr	30	500.00	15,000.00
	Replace water closets with vandal-proof low-flush systems	nr	25	800.00	20,000.00
MP-08	**Storm Drainage System - roof and gutters**				
	Allow for supply and replacement of damaged sections of roof gutters	lm	169	60.00	10,167.60
MP-09	**Alternate Sources of Electricity**				
	Allow for supply and installation of a 15 KVA solar photovoltaic system as alternative power supply	nr	1	36,000.00	36,000.00
	Allow for supply and installation of a 15 KVA generator with accessories	nr	1	15,000.00	15,000.00
	Fuel Reserve - Procure and develop stores of fuel	sum	1	6,000.00	6,000.00
	To Collection				**558,602.32**

Micoud Primary

Task No.	Interventions/Improvements	Unit	Quantity	Unit Rate (USD)	Total (USD)
MP-10	**Safety of Electrical Equipment**				
	Re-inspection and re-certification of building as required	sum	1	7,605.50	7,605.50
	Improve electrical systems; undertake up to 50% rewiring of the building as required	m^2	959	35.00	33,565.00
	Replace/repair broken outlets and light switches	sum	1	197.51	197.51
	Replace outdated panel (6 Way 1Ph, 4 breakers)	sum	1	2,524.00	2,524.00
	Perform routine repairs and maintenance - Energy supply	sum	1	5,000.00	5,000.00
MP-11	**Lighting System**				
	Improve the lighting in all areas based on the international standard for light levels.	m^2	959	5.00	4,794.53
	Install emergency lighting with battery power packs	nr	18	100.00	1,800.00
	Replace all broken 4ft. LED Single Fixture	nr	12	49.60	595.20
	Replace all broken 4ft. LED Single Fixture (Waterbroof)	nr	11	111.11	1,222.21
	Replace all broken 4ft. LED Double Fixture	nr	1	56.91	56.91
	Change all necessary bulbs (4ft. LED Bulbs)	nr	21	27.78	583.38
	Make provision for protection of emergency lighting	sum	1	500.00	500.00
MP-12	**Safety of HVAC Components**				
	Perform major repairs and maintenance - Pipes and Insulation	sum	1	500.00	350.00
	Routine servicing of all spilt units	nr	3	80.00	240.00
	Increase capacity of system - Cooling generating systems	sum	1		-
MP-13	**Information Technology**				
	Install an intercom system for the school	sum	1	1,400.00	1,400.00
MP-14	**Fire Protection**				
	Procure and install smoke detectors	nr	7	120.00	840.00
	Procure and install fire alarm system; includes Manual Call Points (8), Wall mounted ringers (7), fire alarm control panels to suit 240V/1Ph/50Hz power supply and accessories.	sum	1	4,120.00	4,120.00
	Procure and install one 5lbs. (Dry Chemical Type) fire extinguisher in the Staffroom exit, Kitchen exit, Principal's Office, the reception area, Panel room and the Lab	nr	6	113.70	682.20
	Procure and install one 5lbs. (Carbon Dioxide Type) fire extinguisher in the Library	nr	1	216.30	216.30
	Procure and install one 10lbs. (Dry Chemical Type) fire extinguisher near the staircase landing on each block	nr	6	162.22	973.32
	Fire proof steel beams and columns	sum	1		-
	Install illuminated exit signs at strategic locations	nr	10	200.00	2,000.00
	Make provision for an emergency plan to be developed and approved by the Fire Service.	sum	1	500.00	500.00
MP-15	**Including DRR Education in the School Curriculum**				
	The inclusion of DRR Education at the school level through the integration of DRR topics and themes in regular classroom teaching and engaging students in DRR community outreach initiatives through co and extra-curricular activities.	sum	1	3,200.00	3,200.00
	To Collection				**72,966.06**

Micoud Primary

Task No.	Interventions/Improvements	Unit	Quantity	Unit Rate (USD)	Total (USD)
MP-16	**ESIA Recommendations**				
	Allow a provisional sum to address recommendations made under the ESIA as it particularly relates to physical improvements at the school				5,000.00
	To Collection				**5,000.00**
	Collection				
		Page 1			558,602.32
		Page 2			72,966.06
		Page 3			5,000.00
	Base Cost				**636,568.38**
	Allowance for Demolition of works to be repaired - 3% of Base Cost				19,097.05
	Allowance for preliminaries - 7.5% of Base Cost				47,742.63
	Sub-total				**703,408.05**
	Allow 20% contingencies due to the nature of repairs and retrofit works				140,681.61
	Total				**844,089.67**
	Value Added Tax - 12.5% of Total				105,511.21
	Total Construction cost of repairs and retrofit works - Micoud Primary School				**949,600.87**

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Desruisseaux Combined

Task No.	Interventions/Improvements	Unit	Quantity	Unit Rate (USD)	Total (USD)
DC-10	**Internal walls - concrete masonry units finishd with mortar plastering**				
	Replace badly damaged bifold doors separating the classrooms.	nr	3	850.00	2,550.00
DC-11	**Safety of stairways and Ramps**				
	Reconstruction of external staircase	sum	1	2,485.00	2,485.00
DC-12	**Alternate water supply to regular water supply**				
	Allow for supply and installation of rainwater harvesting system with pump and first flush system	litres	33,750	0.75	25,312.50
DC-13	**Water Distribution System**				
	Re-plumbing of buildings to facilitate dual water use - potable and rain water harvesting	sum	1	7,680.00	7,680.00
	Remove and replace all faucets in the lavatory sinks low volume water fixtures	nr	11	500.00	5,500.00
	Replace water closets with vandal-proof low-flush systems	nr	16	800.00	12,800.00
DC-14	**Wastewater System**				
	Clean septic tank and inspect condition. Repair as necessary.	sum	1	2,500.00	2,500.00
	Storm Drainage System - roof and gutters				
	Allow for supply and replacement of damaged sections of roof gutters	lm	99	60.00	5,922.00
DC-15	**Alternate Sources of Electricity**				
	Allow for supply and installation of a 15 KVA solar photovoltaic system as alternative power supply	nr	1	36,000.00	36,000.00
	Allow for supply and installation of a 15 KVA generator with accessories	nr	1	15,000.00	15,000.00
	Fuel Reserve - Procure and develop stores of fuel	sum	1	6,000.00	6,000.00
DC-16	**Safety of Electrical Equipment**				
	Re-inspection and re-certification of building as required	sum	1	5,383.00	5,383.00
	Improve electrical systems; undertake up to 50% rewiring of the building as required	m²	768	35.00	26,873.00
	Replace out dated electrical panel (6 way 1Ph, 3 breakers)	sum	1	2,118.00	2,118.00
	Replace broken outlets and switches	sum	1	43.20	43.20
	Perform routine repairs and maintenance - Energy supply	sum	1	5,000.00	5,000.00
DC-17	**Lighting System**				
	Improve the lighting in all areas based on the international standard for light levels.	m²	529	5.00	2,647.00
	Install emergency lighting with battery power packs	nr	16	100.00	1,600.00
	Make provision for protection of emergency lighting	sum	1	500.00	500.00
DC-18	**Safety of HVAC Components**				
	Perform routine servicing of all split units	nr	4	80.00	320.00
DC-19	**Information Technology**				
	Install an intercom system for the school	sum	1	1,400.00	1,400.00
	To Collection				**167,633.70**

Desruisseaux Combined

Task No.	Interventions/Improvements	Unit	Quantity	Unit Rate (USD)	Total (USD)
DC-20	**Fire Protection**				
	Procure and install smoke detectors	sum	5	120.00	600.00
	Procure and install fire alarm system; includes Manual Call Points (6), Wall mounted ringers (6), fire alarm control panels to suit 240V/1Ph/50Hz power supply and accessories.	sum	1	3,880.00	3,880.00
	Procure and install one 5lbs. (Carbon Dioxide Type) near the exit of the Resource Room	nr	1	216.30	216.30
	Procure ans install one 10bs. (Carbon Dioxide Type) near the exit of the IT Lab.	nr	1	253.70	253.70
	Procure and install one 10bs. (Dry Chemical Type) near the staircase landing on each floor of each block.	nr	5	113.70	568.50
	Service the disharged 5lbs Fire extinguisher found in the Principal's Office	nr	1	41.45	41.45
	Make provision for an emergency plan to be developed and approved by the Fire Service.	sum	1	500.00	500.00
DC-21	**Including DRR Education in the School Curriculum**				
	The inclusion of DRR Education at the school level through the integration of DRR topics and themes in regular classroom teaching and engaging students in DRR community outreach initiatives through co and extra-curricular activities.	sum	1	3,200.00	3,200.00
DC-22	**ESIA Recommendations**				
	Allow a provisional sum to address recommendations made under the ESIA as it particularly relates to physical improvements at the school	sum	1		5,000.00
	To Collection				**14,259.95**
	Collection				
		Page 1			870,401.59
		Page 2			167,633.70
		Page 3			14,259.95
	Base Cost				**1,052,295.24**
	Allowance for Demolition of works to be repaired - 3% of Base Cost				31,568.86
	Allowance for preliminaries - 7.5% of Base Cost				78,922.14
	Sub-total				**1,162,786.24**
	Allow 20% contingencies due to the nature of repairs and retrofit works				232,557.25
	Total				**1,395,343.49**
	Value Added Tax - 12.5% of Total				174,417.94
	Total Construction cost of repairs and retrofit works -Desruisseaux Combined School				**1,569,761.43**

Vieux Fort Primary

Task No.	Interventions/Improvements	Unit	Quantity	Unit Rate (USD)	Total (USD)
VFP-01	**Condition of the building - as per Engineer's drawings and specifications**				
	Allow for scaling off the rust on the structural beams and columns, applying a rust inhibitor and repainting	sum	1		7,500.00
VFP-02	**Disability Accessibility**				
	Equip washrooms with adequate handicap access	sum	1	2,500.00	2,500.00
	All ground floor class rooms to be made wheel-chair accessible	sum	1	13,500.00	13,500.00
	Increase all exit doors to match the requirements of the OECS Building Code	sum	1	15,750.00	15,750.00
VFP-03	**Structural Integrity of Roofs**				
	Replacement of metal purlins and roofing	m²	1,537	68.00	104,516.00
VFP-04	**Exterior Doors, Exits and Entrances**				
	Install thresholds on external doors as required	nr	63	100.00	6,300.00
	Install a third hinge at mid-height of all the doors - minimum 100 mm hinges to be used.	nr	63	25.00	1,575.00
	Fasten door frames into concrete surrounds with bolts or screws	nr	63	60.00	3,780.00
	Replace exterior doors with impact resistant doors suitable for use in HVHZ	nr	63	1,000.00	63,000.00
	Install panic bar locks in the library, computer room and music room which are likely to have occupants while the doors are closed	nr	4	650.00	2,600.00
VFP-05	**Windows and shutters**				
	Install 150 mm concrete surround having minimum cube strength of 21 MPa at 28 day to all windows to ensure adequate anchorage.	sum	1	490.00	490.00
	Install insect screens	m²	460	20.00	9,203.20
	Install hurricane shutters which are able to resist the impact of flying objects where standard windows are used	m²	460	600.00	276,096.00
VFP-06	**Other Elements of the Building Envelope**				
VFP-07	**Safety of roofing**				
	Allow for replacing deteriorated sections or all of the fascia boards	lm	199	8.50	1,693.20
	Install additional fasteners at every trough at the eaves, hips, ridges and edges of gable roofs for the resistance of hurricane force winds.	nr	500	1.00	500.00
	Replace all fasteners and comply with OECS-BC 7th Edition	m²	1,537	16.00	24,592.00
VFP-08	**Alternate water supply to regular water supply**				
	Allow for supply and installation of rainwater harvesting system with pump and first flush system	litres	60,750	0.75	45,562.50
VFP-09	**Water Distribution System**				
	Re-plumbing of buildings to facilitate dual water use - potable and rain water harvesting	sum	1	7,690.00	7,690.00
	Remove and replace all faucets in the lavatory sinks low volume water fixtures	nr	22	500.00	11,000.00
	Replace water closets with vandal-proof low-flush systems	nr	28	800.00	22,400.00
VFP-10	**Wastewater System**				
	Clean septic tank and inspect condition. Repair as necessary.	sum	1	2,000.00	2,000.00
VFP-11	**Storm Drainage System - site**				
	Improve and introduce drainage of the school compound	lm	50	110.00	5,500.00
	Allow for routine maintenance and cleaning of site storm water management system	sum	1	5,000.00	5,000.00
VFP-12	**Storm Drainage System - roof and gutters**				
	Allow for supply and replacement of damaged sections of roof gutters; 100%	lm	398	60.00	23,904.00
	To Collection				**656,651.90**

Vieux Fort Primary

Task No.	Interventions/Improvements	Unit	Quantity	Unit Rate (USD)	Total (USD)
VFP-13	**Alternate Sources of Electricity**				
	Allow for supply and installation of a 15 KVA solar photovoltaic system as alternative power supply	sum	1	36,000.00	36,000.00
	Allow for supply and installation of a 15 KVA generator with accessories	sum	1	15,000.00	15,000.00
	Fuel Reserve - Procure and develop stores of fuel	sum	1	6,000.00	6,000.00
VFP-14	**Safety of Electrical Equipment**				
	Re-inspection and re-certification of building as required	sum	1	5,379.50	5,379.50
	Improve electrical systems; undertake up to 50% rewiring of the building as required	m²	769	35.00	26,915.00
	Replace corroded outlets and switches	sum	1	80.16	80.16
	Replace the outdated main switch with Main Panel	sum	1	1,000.00	1,000.00
	Perform routine repairs and maintenance - Energy supply	sum	1	3,000.00	3,000.00
VFP-15	**Lighting System**				
	Improve the lighting in all areas based on the international standard for light levels	m²	769	5.00	3,842.50
	Replace/Repair all broken 2ft LED Single Fixture	nr	1.00	25.93	25.93
	Replace/Repair all broken 4ft LED Single Fixture	nr	3.00	49.57	148.71
	Replace all broken 4ft LED Double Fixture	nr	21.00	56.91	1,195.11
	Change all necessary bulbs (4ft LED Bulbs)	nr	20.00	27.78	555.60
	Install emergency lighting with battery power packs	nr	8.00	100.00	800.00
	Make provision for protection of emergency lighting	sum	1	500.00	500.00
VFP-16	**Safety of HVAC Components**				
	Perform major repairs and maintenance - Pipes and Insulation	sum	1	200.00	200.00
VFP-17	**Information Technology**				
	Install an intercom system for the school	sum	1	1,400.00	1,400.00
VFP-18	**Fire Protection**				
	Procure and install smoke detectors	nr	8	120.00	960.00
	Procure and install fire alarm system; includes Manual Call Points (4), Wall mounted ringers (4), fire alarm control panels to suit 240V/1Ph/50Hz power supply and accessories.	sum	1	3,520.00	3,520.00
	Procure and install one 5lbs (Carbon Dioxide Type) near the exit of the canteen, Principal's Office, Staffroom and Library	nr	4	216.30	865.20
	Fire proof steel beams and columns	sum	1		-
	Install illuminated exit signs at strategic locations	nr	8	200.00	1,600.00
	Redesign the layout of the the stoves and gas tanks in the cramped area in the canteen or properly store the LPG Gas tanks to an acceptable distance away from the stoves	sum	1	150.00	150.00
	Make provision for an emergency plan to be developed and approved by the Fire Service.	sum	1	500.00	500.00
VFP-19	**Including DRR Education in the School Curriculum**				
	The inclusion of DRR Education at the school level through the integration of DRR topics and themes in regular classroom teaching and engaging students in DRR community outreach initiatives through co and extra-curricular activities.	sum	1	3,200.00	3,200.00
	To Collection				**112,837.71**

Vieux Fort Primary

Task No.	Interventions/Improvements	Unit	Quantity	Unit Rate (USD)	Total (USD)
VFP-20	**ESIA Recommendations**				
	Allow a provisional sum to address recommendations made under the ESIA as it particularly relates to physical improvements at the school				5,000.00
	To Collection				**5,000.00**
	Collection				
		Page 1			656,651.90
		Page 2			112,837.71
		Page 3			5,000.00
	Base Cost				**774,489.61**
	Allowance for Demolition of works to be repaired - 3% of Base Cost				23,234.69
	Allowance for preliminaries - 7.5% of Base Cost				58,086.72
	Sub-total				**855,811.02**
	Allow 20% contingencies due to the nature of repairs and retrofit works				171,162.20
	Total				**1,026,973.22**
	Value Added Tax - 12.5% of Total				128,371.65
	Total Construction cost of repairs and retrofit works - Vieux-Fort Primary School				**1,155,344.88**

Vieux Fort Infant

Task No.	Interventions/Improvements	Unit	Quantity	Unit Rate (USD)	Total (USD)
VFI-01	**Condition of the building - as per Engineer's drawings and specifications**				
	Demolish and reconstruct entire school Block; Blocks B and C	m²	119	1,720.00	204,267.20
VFI-02	**Safety of Foundations - as per Engineer's details and specifications**				
	Retrofit the severely damaged foundation walls / strip and spread footings.	sum	1	9,400.00	9,400.00
VFI-03	**Disability Accessibility**				
	Equip washrooms with adequate handicap access	sum	1	2,500.00	2,500.00
	All ground floor class rooms to be made wheel-chair accessible	sum	1	6,500.00	6,500.00
	Increase all exit doors to match the requirements of the OECS Building Code	sum	1	2,250.00	2,250.00
VFI-04	**Exterior Doors, Exits and Entrances**				
	Install thresholds on external doors as required.	nr	9	100.00	900.00
	Fasten door frames into concrete surrounds with bolts or screws	nr	9	60.00	540.00
	Replace exterior doors with impact resistant doors suitable for use in HVHZ	nr	9	1,000.00	9,000.00
VFI-05	**Windows and shutters**				
	Install 150 mm concrete surround having minimum cube strength of 21 MPa at 28 day to all windows to ensure adequate anchorage.	sum	1	1,680.00	1,680.00
	Install insect screens	m²	60	20.00	1,204.00
	Install hurricane shutters which are able to resist the impact of flying objects where standard windows are used	m²	60	600.00	36,120.00
VFI-06	**Safety of roofing**				
	Install additional fasteners at every trough at the eaves, hips, ridges and edges of gable roofs for the resistance of hurricane force winds.	nr	200	1.00	200.00
	Replace all fasteners and comply with OECS-BC 7th Edition	m²	632	16.00	10,118.72
VFI-07	**Internal walls - concrete masonry units finishd with mortar plastering**				
	Repainting of building internal and external walls after completion of works	m²	984	10.00	9,838.00
VFI-08	**Alternate water supply to regular water supply**				
	Allow for supply and installation of rainwater harvesting system with pump and first flush system	litres	13,500	0.75	10,125.00
VFI-09	**Water Distribution System**				
	Re-plumbing of buildings to facilitate dual water use - potable and rain water harvesting	sum	1	6,003.70	6,003.70
	Remove and replace all faucets in the lavatory sinks low volume water fixtures	nr	12	500.00	6,000.00
	Replace water closets with vandal-proof low-flush systems	nr	16	800.00	12,800.00
VFI-10	**Wastewater System**				
	Clean septic tank and inspect condition. Repair as necessary.	sum	1	2,000.00	2,000.00
VFI-11	**Storm Drainage System - roof and gutters**				
	Allow for supply and replacement of damaged sections of roof gutters	lm	109	60.00	6,561.60
	To Collection				**338,008.22**

Vieux Fort Infant

Task No.	Interventions/Improvements	Unit	Quantity	Unit Rate (USD)	Total (USD)
VFI-19	**ESIA Recommendations**				
	Allow a provisional sum to address recommendations made under the ESIA as it particularly relates to physical improvements at the school				5,000.00
	To Collection				5,000.00
	Collection				
		Page 1			338,008.22
		Page 2			91,261.50
		Page 3			5,000.00
	Base Cost				**437,269.72**
	Allowance for Demolition of works to be repaired - 3% of Base Cost				13,118.09
	Allowance for preliminaries - 7.5% of Base Cost				32,795.23
	Sub-total				**483,183.04**
	Allow 20% contingencies due to the nature of repairs and retrofit works				96,636.61
	Total				**579,819.65**
	Value Added Tax - 12.5% of Total				72,477.46
	Total Construction cost of repairs and retrofit works - Vieux Fort Infant School				**652,297.10**

Saltibus Combined

Task No.	Interventions/Improvements	Unit	Quantity	Unit Rate (USD)	Total (USD)
SC-01	**Exterior Doors, Exits and Entrances**				
	Install thresholds on external doors as required.	nr	44	100.00	4,400.00
	Install a third hinge at mid-height of all the doors - minimum 100 mm hinges to be used.	nr	31	25.00	775.00
	Fasten door frames into concrete surrounds with bolts or screws	nr	44	60.00	2,640.00
	Replace exterior doors with impact resistant doors suitable for use in HVHZ	nr	44	1,000.00	44,000.00
SC-02	**Windows and shutters**				
	Install 150 mm concrete surround having minimum cube strength of 21 MPa at 28 day to all windows to ensure adequate anchorage.	sum	1	1,610.00	1,610.00
	Install insect screens	m^2	229	20.00	4,570.00
	Install hurricane shutters which are able to resist the impact of flying objects where standard windows are used	m^2	116	600.00	69,300.00
	Remove & replace the welded wire mesh openings with operable windows	nr	8	1,200.00	9,600.00
SC-3	**Safety of roofing**				
	Securing roof deck and replace roof covering gauge 24 sheets as a minimum	m^2	167	68.00	11,383.20
SC-04	**Parapets and other outside Elements (railings, ornaments)**				
	Improve access to school entrance - roadway and gate	sum	1	5,000.00	5,000.00
SC-05	**Internal walls - concrete masonry units finishd with mortar plastering**				
	Repainting of building internal and external walls after completion of works	m^2	1,125	10.00	11,251.00
	Replace all termite infested timber	sum	1		-
	Undertake termite treatment of buildings and compound	sum	1	1,200.00	1,200.00
SC-06	**Water Reserves**				
	Procurement and installation of additional potable water storage tanks	litres	37,773	0.75	28,329.71
	Removal of tanks from the roof could be considered. Construct ground slab and install a solar powered water pump.	sum	1	2,500.00	2,500.00
SC-07	**Alternate water supply to regular water supply**				
	Allow for supply and installation of rainwater harvesting system with pump and first flush system with capacity equivalent to 30% of building consumption	litres	11,332	0.75	8,498.91
SC-08	**Water Distribution System**				
	Re-plumbing of buildings to facilitate dual water use - potable and rain water harvesting	sum	1	3,250.00	3,250.00
	Remove and replace all faucets in the lavatory sinks low volume water fixtures	nr	10	500.00	5,000.00
	Replace water closets with vandal-proof low-flush systems	nr	15	800.00	12,000.00
SC-09	**Wastewater System**				
	Clean septic tank and inspect condition. Repair as necessary.	sum	1	2,000.00	2,000.00
SC-10	**Alternate Sources of Electricity**				
	Allow for supply and installation of a 15 KVA solar photovoltaic system as alternative power supply	sum	1	36,000.00	36,000.00
	Allow for supply and installation of a 15 KVA generator with accessories	sum	1	15,000.00	15,000.00
	Fuel Reserve - Procure and develop stores of fuel	sum	1	6,000.00	6,000.00
	To Collection				**284,307.82**

Saltibus Combined

Task No.	Interventions/Improvements	Unit	Quantity	Unit Rate (USD)	Total (USD)
SC-11	**Safety of Electrical Equipment**				
	Re-inspection and re-certification of building as required	sum	1	2,271.50	2,271.50
	Improve electrical systems; undertake up to 50% rewiring of the building as required	m^2	325	35.00	11,357.50
	Replace broken 4ft LED Single Fixtures and change bulbs	nr	4	77.35	309.40
	Perform routine repairs and maintenance - Energy supply	sum	1	3,000.00	3,000.00
SC-12	**Lighting System**				
	Improve the lighting in all areas based on the international standard for light levels.	m^2	649	5.00	3,245.00
	Install emergency lighting with battery power packs; Includes 6 exit signs and 5 lights	sum	1	1,100.00	1,100.00
	Make provision for protection of emergency lighting	sum	1	500.00	500.00
SC-13	**Safety of HVAC Components**				
	Perform routine servicing of all split units	nr	5	80.00	400.00
SC-14	**Information Technology**				
	Install an intercom system for the school	sum	1	1,400.00	1,400.00
SC-15	**Fire Protection**				
	Procure and install smoke detectors	nr	10	120.00	1,200.00
	Procure and install fire alarm system; includes Manual Call Points (5), Wall mounted ringers (5), fire alarm control panels to suit 240V/1Ph/50Hz power supply and accessories.	sum	1	3,700.00	3,700.00
	Procure and install one 5lbs. (Dry Chemical Type) fire extinguisher near the exit of the kitchen, library and staffroom.	nr	3	113.70	341.10
	Procure and install one 10lbs. (Dry Chemical Type) fire extinguisher near the top and bottom of the staircase landing of each block and at each end of the infant block.	nr	7	216.30	1,514.10
	Install permanent exit signage around the compound including indications of stairways, exists and muster points	sum	1	200.00	200.00
	Make provision for an emergency plan to be developed and approved by the Fire Service.	sum	1	500.00	500.00
SC-16	**Disability Accessibility**				
	Equip washrooms with adequate handicap access	sum	1	2,500.00	2,500.00
	All ground floor class rooms to be made wheel-chair accessible	sum	1	7,500.00	7,500.00
	Increase all exit doors to match the requirements of the OECS Building Code	sum	1	11,000.00	11,000.00
SC-17	**Including DRR Education in the School Curriculum**				
	The inclusion of DRR Education at the school level through the integration of DRR topics and themes in regular classroom teaching and engaging students in DRR community outreach initiatives through co and extra-curricular activities.	sum	1	3,200.00	3,200.00
	To Collection				**55,238.60**

Saltibus Combined

Task No.	Interventions/Improvements	Unit	Quantity	Unit Rate (USD)	Total (USD)
SC-18	**ESIA Recommendations**				
	Allow a provisional sum to address recommendations made under the ESIA as it particularly relates to physical improvements at the school				5,000.00
	To Collection				**5,000.00**
	Collection				
		Page 1			284,307.82
		Page 2			55,238.60
		Page 3			5,000.00
	Base Cost				**344,546.42**
	Allowance for Demolition of works to be repaired - 3% of Base Cost				10,336.39
	Allowance for preliminaries - 7.5% of Base Cost				25,840.98
	Sub-total				**380,723.79**
	Allow 20% contingencies due to the nature of repairs and retrofit works				76,144.76
	Total				**456,868.55**
	Value Added Tax - 12.5% of Total				57,108.57
	Total Construction cost of repairs and retrofit works - Saltibus Combined School				**513,977.12**

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Annex 6. Project Roll-out Report

Introduction

The vulnerability of Small Island Development States (SIDS) to climate-related shocks is likely to increase unless their education sectors improve their capacity to anticipate, prepare, adapt, and become more resilient to such events. In particular, some of the public schools designated as emergency shelters in Saint Lucia and Antigua and Barbuda are considered inadequate in terms of their structural condition to withstand a Category 5 Hurricane as well as ensuring minimum disruption to the populations' education systems. Therefore, there is a need for a new approach to increase the resilience of these schools as emergency shelters for the communities. This need has resulted in the consultancy for a technical assessment to establish possible options for retrofitting the schools to improve their resilience to climate change.

In designing the road map, ECMC adopted some of the approaches promoted under the Global Program for Safer Schools by the Global Facility for Disaster Reduction and Recovery (2014). Through the project's mandate, and by extension, the road map, promoting the findings of the consultancy on a national basis; encouraging the OECS Commission to be a key stakeholder; and promoting the formulation or adoption of guidelines, are considered an absolute imperative for upscaling and replicating the project's outcomes.

Background

The Climate Technology Centre and Network (CTCN) is the operational arm of the United Nations Framework Convention on Climate Change (UNFCCC) Technology Mechanism and hosted by the United Nations Environment Programme (UNEP) in collaboration with the United Nations Industrial Development Organization (UNIDO) and supported by eleven partner institutions with expertise in climate technologies.

The mission of the CTCN is to promote accelerated deployment and transfer of climate technologies at the request of developing countries for energy-efficient, low-carbon, and climate-resilient development. The requests for Technical Assistance (TA) were submitted to the CTCN by the National Designated Entity (NDE) of Antigua and Barbuda and Saint Lucia.

The main aim of the CTCN technical assistance/consultancy is to enable the two SIDS to strategically assess the climate risk and related negative impacts to their educational system. The intention is to also appraise improvement measures that will allow both governments to remove technology barriers and deploy specific adaptation technology solutions in preparation of a project proposal to be submitted to the Adaptation Fund.

In the case of Saint Lucia, twelve schools were selected for investigation. However, at the time of award the consultancy, Antigua and Barbuda, had not selected the schools to be considered. Discussions during the consultancy suggested that twenty-eight schools were being considered by the Government of Antigua and Barbuda.

Context

It is critical that the plan to roll out the project to schools within the two pilot SIDS (Saint Lucia and Antigua/Barbuda) and into the wider OECS region promotes efficiency and continuity. Due to the differences which may exist in countries across the sub-region, such as the structure of the education systems, administrative arrangements, local environmental risks and governmental priorities, the roll out plan would need to respond to individual country contexts and needs. One of the key steps in obtaining support for public sector projects is ensuring that key agents and stakeholders at all levels are informed of the benefits of the associated interventions. Within the education sector, principals and teachers possess a high level of autonomy in the performance of their work; therefore, their understanding of and support for government-led interventions are critical.

The Road Map

The road map is a strategic plan to realize one of the main objectives of the consultancy; which is to facilitate upscaling and replication of the project and its outcomes. The road map focuses on the sub region of the Organisation of Eastern Caribbean States. It outlines the steps and processes which will be required to achieve the goal of acceptance, upscaling and replication of the project and its outcomes.

This section of the Report presents the philosophy of a road map, defines the elements involved and the critical group of stakeholders that must be targeted.

The formation of the roadmap has been based on the philosophy that once accepted it will need to be considered as a "living" document which will be continually upgraded as it is being implemented. While it has been shown that effective road-mapping is best achieved through extensive stakeholder engagement, it was difficult to adopt this approach given the challenges in coordinating stakeholder discussions during the midst of the Coronavirus Pandemic. Notwithstanding, the acceptance of the methodologies used in Saint Lucia by the NDE of Antigua and Barbuda, is in itself, an adoption and replication of the methodology and processes developed under the project for the former.

Although best practice suggests that road maps should be updated every two to five years, due to the manner in which this one has been developed, it is recommended that the road map be updated within six months after its delivery. This approach will allow for the type of participation which would facilitate the effectiveness of the roadmap and engage the stakeholders, which should have been involved in its development.

To ensure completeness of the roadmap, several documents were reviewed. One of these documents was the UNESCO's Comprehensive School Safety (CSS) philosophy/framework (Figure 1), which is based on a multi-hazard risk assessment. Notably, the Project, "*Increasing resilience of the education system to climate change in Saint Lucia and Antigua & Barbuda*" is also based on a multi-hazard risk assessment as the foundation of the evaluation of the twelve schools, which is the focus of the consultancy. Additionally, two of the three Pillars (Safe Learning Facilities and Risk Reduction and Resilience Education depicted in Figure 1) of the CSS, are considered to be critical aspects of the Project.

Figure 1 - The Three Pillars of Comprehensive School Safety

Given the existence of national emergency organizations in Saint Lucia, Antigua and Barbuda and all the countries in the region, coupled with the use of the schools as emergency shelters, it should not be a major challenge to incorporate the third pillar – School Disaster Management – as part of the proposed roadmap. In Saint Lucia, the principals are the designated shelter managers, once a school is so categorized. Therefore, adoption of the three pillars of CSS is considered one of the action items for the road map, as Disaster Management could be included in the replication of the Project.

The full version of this document can be found at:

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Annex 7. Schools' Profile Reports – Saint Lucia

Methodology and Approach

Preparing brief school profiles to identify climate risk, basic information, location, and

preliminary cost estimations of interventions had to be developed through the combined efforts of the consulting team and key stakeholders. As a result, the method involved obtaining general information (Table 2.1) on the schools from the principals and managers, and the officials from the Ministry of Education, Innovation, Gender Relations and Sustainable Development.

Insofar as the other issues, the climate risk was addressed from the findings of the Rapid Climate Vulnerability Assessment. The location was obtained from the use of Government of Saint Lucia (GOSL) aerial photography maps and 1:2500 topographic map sheets. Preparing preliminary cost estimates was possible as a result of conducting the condition assessment of the school buildings early during the consultancy and developing a matrix of possible interventions for the schools. These cost estimates were developed using current construction unit rates in Saint Lucia.

The brief profile for each school is presented on a single page, designed to demonstrate a site plan of the schools' location at the top and table below providing all the critical information as stipulated in the Terms of Reference. Table 2.2 represents the template used to produce all the information contained in each profile. The following should be noted:

1. Risk Category – This is a categorization to assist with detailed design of retrofit solutions. Depends on the nature of occupancy. There are four risk categories per ASCE 7-16: https://www.asce.org/asce-7/;
2. Building Condition – This is an overall physical condition assessment of the buildings on the school compound using a condition index ranging from poor with a value of 1 and excellent with a value of 5;
3. Occupancy Group – A building code relater parameter which would assist in the design of retrofit interventions;
4. Original Design Code – A document which would assist in understanding and assessing the performance of the structural elements of the buildings;
5. Occupancy Group A and B Buildings – This makes reference to critical institutional buildings (health centers, hospitals, fire stations, and police stations, etc.);
6. Climate Vulnerability – Defines the findings of the Rapid CVA and presents a summary basis for the rating.

The overall methodology was shared with Antigua and Barbuda for the preparation of similar documents for the selected schools in that Country. ECMC then provided oversight of the work undertaken by the Country officials through a review of the profiles and dialogue with the NDE representative.

Schools Profiles

In addition to the reduced sized profile for the Vieux Fort Infant School, the twelve schools are presented in the following order in Appendix 1:

1. Ave Maria Infant
2. Ave Maria Primary

3. Balata Combined
4. Bexon Primary
5. Corinth Secondary
6. Desruisseaux Combined
7. Fond Assau Combined
8. Micoud Primary
9. Patience Combined
10. Saltibus Combined
11. Vieux-Fort Infant
12. Vieux-Fort Primary

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Annex 8. Rapid Climate Vulnerability Assessment for Twelve Schools – Saint Lucia

Executive Summary

The vulnerability of Saint Lucia and Antigua & Barbuda to climate-related shocks is likely to increase unless their education sectors improve their capacity to anticipate, prepare, adapt and become more resilient to such events. Some of the public schools designated as emergency shelters in these two Small Island Development States (SIDS) are considered insufficient in terms of structural capacity to withstand a Category 5 Hurricane as well as ensuring minimum disruption to the populations' education system. Therefore, it is necessary to implement a new approach to increase the resilience of those schools, particularly as they are often designated as emergency shelters for the communities in which they are located.

As part of this project – Increasing Resilience of the Education System to Climate Change in Saint Lucia and Antigua and Barbuda, ECMC was required to perform a Rapid Climate Vulnerability Assessment of 12 schools and associated areas in Saint Lucia. The report provides a geospatial hazard assessment for each of the identified schools. The geographic coordinates of each school are provided together with a general description of the school plant, site plans and relative locations.

The twelve schools are located throughout Saint Lucia. Based on their geographic coordinates, the northernmost school is Corinth Secondary and Southernmost, Vieux Fort Primary. Ave Maria Infant and Primary schools are at the lowest elevation of 5.0 meters while Saltibus Combined is at the highest estimated to be at 278.0 meters.

ECMC team of experts visited the selected schools and conducted in-depth site reconnaissance to obtain a clearer appreciation of the locations as well as the environmental and topographic conditions likely to contribute to the climate change impacts. To facilitate submission of the early Deliverables, a rapid condition assessment of the school plants was performed by the engineers on the reconnaissance team. At these visits, and as a means of stakeholder engagement, the schools' principals or their representatives were consulted to obtain information on priority issues and their assessment of adaptive capacities at a school, community, Ministry and national level.

Officials of the National Designated Entity of Saint Lucia – the Ministry of Education, Innovation, Gender Relations and Sustainable Development revealed that there are no mandated design standards for schools in the country. However, as part of the consultancy, the document "Guidelines for Locating and Designing of Disaster Resilient Schools for the Organization of Eastern Caribbean States" (OECS Schools Guidelines) had to be reviewed and a separate report prepared with reviewed criteria, cross-referenced with OECS Schools Guidelines. However, it was agreed with the Client that this report (Deliverable 2.2) be combined with this Rapid CVA Report. Whereas, the document suggests that schools are "specialized multi functional facilities" which often operate as emergency shelters, and as such, must be designed to "accommodate a wide range of occupants", it was brief on the necessary guidelines.

On the issue of landslides, the OECS Schools Guidelines recommend the use of landslide hazard maps during the preliminary design phase of structures and that the exposure to landslides be considered in the design of roads and civil infrastructure used to access schools. On the issue of floods, which is one of the critical climatic hazards, the OECS

Guidelines provide a list of reference documents, loads and return periods to be considered in the drainage design. Both fluvial and coastal flooding are discussed. As it specifically relates to designing for high winds, the OECS Schools Guidelines indicate that considerations should be given to designing schools in the OECS to resist high-speed wind loads due to the frequency and occurrence of intense hurricanes in the Islands. The document does not make any specific reference to design criteria and loads which need to be used.

Based on the review of the suggested OECS Schools Guidelines document, it is our view that, regarding the primary building code, designers should be referencing the OECS Building Code 7th Edition and that the ASCE/SEI 7-16 standard be used to guide the analysis and design of the structures at a minimum. ASCE 7-16 Chapter C1 notes that risk categories are used to relate the criteria for maximum environmental loads or distortions specified in the standard to the consequence of the loads being exceeded for the structure and its occupants. It is recommended that schools in Saint Lucia be classified as Risk Category III buildings and that schools that will be designated as emergency shelters should be classified as essential facilities.

The relative vulnerability of the twelve schools was established using the five stipulated hazards, namely; Landslides; Fluvial flooding; Coastal flooding and sea level rise; Droughts; and Wind speed/Hurricanes. Hazard mapping was obtained from the Caribbean Handbook on Risk and Information Management (CHARIM) GeoNode[1] in the case of landslides and fluvial flooding. Hazard mapping for high winds and coastal flooding was obtained from the Department of Physical Planning. However, in the case of the drought hazard, there was a paucity of data that was further exacerbated by less than timely responses from the sole producer of water in Saint Lucia. In that regard, the consulting team decided to undertake a qualitative assessment based on information from senior officers of the Water and Sewerage Company Inc and the knowledge of the Senior Advisor on the team. The following hazard maps were produced:

- National overview hazard maps for Wind, Drought, Flood, Landslide and general overview (Appendix A);
- Landslide hazard maps for each school (Appendix B);
- Flood hazard maps for each school (Appendix C);
- Wind hazard maps for north and south Saint Lucia (Appendix D).

Hazard risk scores were derived for each school and a summary table developed providing an overview of the hazard sensitivity associated with each school. The combined relative climate change vulnerability of each of the schools, resulted in an average score, giving rise to the eventual ranking of the schools.

The results indicate that Vieux Fort Primary School ranked number one as being the most susceptible to climate change impacts while Desruisseaux Combined and Corinth Secondary Schools ranked the least - number 11. Saltibus ranked as the second most susceptible followed by the Ave Maria and Balata Combined schools which jointly ranked the third most susceptible.

The full version of this document can be found at:

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Annex 9. Review and Evaluation Report of Schools and Climate Change Ranking

Executive Summary

This report presents the methodology and approach used to establish the relative level of climate change vulnerability of twelve schools, as part of the CTCN-UNIDO project - Technical Assistance for Increasing Resilience of the Education System to Climate Change in Saint Lucia and Antigua and Barbuda. A review of the findings of the Rapid Climate Vulnerability Assessment and the evaluation of the twelve schools in Saint Lucia is also presented in the report. Regarding Antigua and Barbuda, the report presents the approach adopted to assist that country in replicating the processes implemented in Saint Lucia.

The twelve schools considered in Saint Lucia are located throughout the Island. The northernmost school is Corinth Secondary and the southernmost is Vieux Fort Primary. Ave Maria Infant and Primary schools are at the lowest elevation of 3.5 to 5.0 meters, and Saltibus Combined at the highest – estimated to be at 278.0 to 280.0 meters.

As mandated by the Terms of Reference for the assignment, the relative vulnerability of the twelve schools was established using the five stipulated hazards, namely: Landslides; Fluvial Flooding; Coastal Flooding and Sea Level Rise; Droughts; and Wind Speed/Hurricanes. Where available, established hazard maps were used to identify the location of the schools, thereby assessing their relative climate change vulnerability. In the case of the drought hazard, there was a paucity of data further exacerbated by less than timely responses from the sole producer of water in Saint Lucia. In that regard, the consulting team decided to undertake a qualitative assessment based on information from senior officers of the Water and Sewerage Company Incorporated and the knowledge of the Senior Advisor on the team.

The combined relative climate change vulnerability of each of the schools resulted in an average score, giving rise to the eventual ranking of the schools. The results indicate that Vieux Fort Primary School is ranked number one as being most susceptible to climate change impacts, whereas both Desruisseaux Combined and Corinth Secondary Schools ranked last - 11th. As indicated below, three schools (Ave Maria Infant, Ave Maria Primary and Balata Combined Schools) were identified as having the same rank (third) in terms of high susceptibility.

- Vieux-FortPrimary 1
- SaltibusCombined 2
- Ave Maria Infant 3
- Ave Maria Primary 3
- Balata Combined 3
- PatienceCombined 6
- Micoud Primary 7
- Bexon Primary 7
- Fond Assau Combined 9
- Vieux-FortInfant 9

- CorinthSecondary 11
- DesruisseauxCombined 11

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Annex 10. Capacity Gaps and Needs Report

Executive Summary

This Capacity Gaps and Needs Report is one of the deliverables of the CTCN - UNIDO Consultancy – *Increasing Resilience of the Education System to Climate Change in Saint Lucia and Antigua & Barbuda.* The main aim of the consultancy is to enable the two Small Island Developing States to strategically assess the climate risk and related negative impacts to their educational system. The intention is to also appraise improvement measures that will allow both governments to remove technology barriers and deploy specific adaptation technology solutions in preparation of a project proposal to be submitted.

Twelve schools (infant, primary, combined, and one secondary) were selected by the Ministry of Education (MoE) of Saint Lucia to be ranked based on vulnerability assessment outcomes and the priority of stakeholders. At the time of the award the consultancy, Antigua and Barbuda, had not selected schools; it was later indicated that 28 schools were being considered by the Government of Antigua and Barbuda.

The purpose of the Capacity Gaps and Needs analysis was to obtain from beneficiaries (schools and communities) their specific needs and potential concerns and to identify gaps in capacities of stakeholders, communities, and vulnerable groups to implement the proposed project activities and to identify potential concerns about climate hazards and its negative impacts.

The methodology used to perform the Capacity Gaps and Needs analysis involved the collection of qualitative data and simple narrative analysis and thematic analysis of the data. The main methods for collecting data were interviews – one-on-one conversations, group discussions, and self-administered questionnaires. In-person and virtual modalities facilitated the conversations and the discussions.

The capacity gaps and needs were assessed, and recommendations were made with respect to the seven project activities outlined in the Terms of Reference. The following recommendations are put forward for each of these aspects:

i. Retrofitting of Schools – due to lack of information for decision-making and planning, develop a School Infrastructure Baseline.

ii. Operation of Schools as Emergency Shelters – Before the school can be assigned as a shelter, a complete SCA should be conducted. An Operations Manual to guide the operators of the facility be developed. Provide training in the identification of defects and in maintenance knowledge so that responsible action can be taken by staff and students.

iii. Awareness Building – Develop a Communications Strategy and Action Plan with user-friendly knowledge products in both English and Patois using various dissemination channels including social media platforms.

iv. Introduction of Disaster Risk Reduction Education in Schools – Articulate a policy to guide the successful rollout of a new initiative under a new dispensation that can contribute to building climate resilience of the education system. The MoE may have to procure specialist services to develop the policy and action plan.

v. Oversight Functions of National Institutions – Develop and adopt a school infrastructure policy. The policy should articulate actions to be pursued under normal conditions such as infrastructure requirements based on the current policy framework, identify key decision-makers

involved in school infrastructure management, and the development of ongoing infrastructure plans. An Operations Manual should be prepared and adopted as a companion document to the Policy and Action Plan.

Evaluate the institutional capacity of the various agencies which are involved in the implementation of project activities. Provide training to School Safety Committees in climate resilience issues including understanding Climate Vulnerability Analysis results. Enhance the security and safety measures at the school with appropriate and up-to-date technological features. The MoE should enter into a Memorandum of Understanding with other agencies/ministries which can facilitate meaningful collaboration in sharing resources and expertise that would lend themselves to the successful and timely implementation of the project activities.

vi. Community Support and Participation – Establish a Community Climate Resilience Committee (CRC) in each of the beneficiary communities comprising representatives of the district entities including the Principal of the beneficiary school and a member of its Safety Committee. Empower the provide training in climate resilience for schools, and techniques in community capacity designed to strengthen community support and participation in the various implementation activities of the project. Special attention should be placed on gender transformation initiatives to encourage greater participation of men in the resilience-building process. Establish protocols on the use of the school as a community resource that can be utilized to enhance the vitality of the community.

vii. Ability to Continue Operations in Drought Conditions – Undertake an assessment to determine the minimum water reserve required to enable the school to continue operations as an educational institution and as an emergency shelter. Embark on a fencing and surveillance program for schools that do not have such security and safety infrastructure for protecting water storage.

Overall, identifying the gaps and needs provides the justification for recommending strategies to build administrative, organizational, technical, and adaptive capacity which are critical to increasing resilience in the education system. To this end, individual, community, national, and institutional stakeholders and rights-holders must be empowered to be able to effectively implement the various project activities that will be coming on stream.

The DRRE component as an innovative capacity-building strategy among others makes this project unique in its outlook as it highlights the importance of building awareness at an early age. Schools and communities impacted by climate hazards are the main beneficiaries of the proposed resilience interventions, and therefore, the enabling capacity must be created and sustained in order to realize the goals and objectives of the project. It appears that this project has the potential to facilitate social protection as an unintended consequence.

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