Readiness Proposal

with New York University for Grenada

5 January 2018 | Strategic Frameworks

Readiness and Preparatory Support Proposal

How to complete this document?

- A Readiness Guidebook is available to provide information on how to access funding under the GCF Readiness and Preparatory Support programme. It should be consulted to assist in the completion of this proposal template.
- This document should be completed by National Designated Authorities (NDAs) or focal points with support from their delivery partners where relevant.
- Please be concise. If you need to include any additional information, please attach it to the proposal.
- Information on the indicative list of activities eligible for readiness and preparatory support and the process for the submission, review and approval of this proposal can be found on pages 11-13 of the guidebook.
- For the final version submitted to GCF Secretariat, please delete all instructions indicated in italics in this template and provide information in regular text (not italics).

Where to get support?

- If you are not sure how to complete this document, or require support, please send an e-mail to countries@gcfund.org. We will aim to get back to you within 48 hours.
- You can also complete as much of this document as you can and then send it to countries@gcfund.org. We will get back to you within 5 working days to discuss your submission and the way forward.

Note: Environmental and Social Safeguards and Gender

Throughout this document, when answering questions and providing details, please make sure to pay special attention to environmental, social and gender issues, particularly to the situation of vulnerable populations, including women and men. Please be specific about proposed actions to address these issues. Consult page 7 of the readiness guidebook for more information.

SECTION 1: SUMMARY	
1. Country submitting the proposal	Country name: Grenada Name of institution (representing National Designated Authority or Focal Point): Ministry of Economic Development, Planning, and Trade Division of Economic & Technical Cooperation (DETC), Name of official: Mr. Fitzroy James; Position: Director of DETC Telephone: 1-473-435-8889/ 1-473-440-9480 Email: fitzroyjames@gmail.com/ fitzroyjamesgda@gmail.com Name of official: Mr. Titus Antoine; Position: Project Officer of DETC Telephone: +1-473-435-8889/ 1-473-440-2731/+1-473-440-2732 Email: titus_antoine@yahoo.com Full Office address: Ministry of Economic Development, Planning, and Trade Financial Complex, Carenage St. George's Grenada, West Indies Fax: 1-473-440-4115
2. Date of initial submission	05/01/2018
3. Last date of resubmission	03/15/2018
4. Which entity will implement the Readiness and Preparatory Support project?	○ National Designated Authority ○ Accredited Entity ■ Delivery Partner *(Please provide contact information if the implementing partner is not the NDA/focal point)* Name of institution: New York University Name of official: Nancy S. Daneau Position: Director, Office of Sponsored Programs Telephone: +1-212-998-2121 Email: osp.agency@nyu.edu Full Office address: 665 Broadway, Suite 801, New York, NY 10012-2331, USA
5. Title of the Readiness support proposal	**Climate Resilient Cities: Grenada**
6. Type of Readiness support sought	*Please select one option below (one box or circle)* □ Readiness ○ Establishing and strengthening national designated authorities or focal points **X Strategic frameworks, including the preparation of country programmes** ○ Support for accreditation and accredited direct access entities □ Adaptation Planning
7. Brief summary of the request	Grenada is extremely vulnerable to the adverse effects of climate change, particularly extreme weather events (hurricanes, storms, changing rainfall patterns, high

	temperatures etc), sea level rise[1] and storm surges, and ecosystem damage from untreated sewage causing significant damage its coral reefs. Grenada's continued reliance on fossil fuels limits its ability to reduce greenhouse gas emissions to meet its global climate mitigation targets. Grenada's climate change adaptation and mitigation commitment are presented in its Nationally Determined Contributions (NDCs) (Grenada has committed to reducing its Greenhouse gas emissions by 30% of 2010 by 2025, with an indicative reduction of 40% of 2010 by 2030[2]) and its National Adaptation Plan (NAP) which outlines 12 priority programs of actions [3]. The estimated cost of implementing these actions is US$406M (US$161 Mitigation; US$245M Adaptation). Grenada has also recently updated its National Climate Change Policy and Action Plan "To lay the foundation for an organized long-term response to climate change." To plan and implement the projects and programs that address its mitigation and adaptation needs in the years to come Grenada will need to rely on external resources given its limited human, and fiscal resources. To facilitate access to these resources the country has strengthened its fiscal management framework under the recently concluded homegrown structural adjustment program with the introduction a suite of public financial management legislation to: (i) improve the efficiency of its public expenditure management system; (ii) achieve greater alignment between resource allocation and the pursuit of its main policy goals; and (iii) provide improvements in the areas of service delivery and public accountability. Grenada is requesting support from the Green Climate Fund for a readiness and preparatory support proposal. The proposal focuses on St. George's, the largest city and its capital and Grenville the second largest city. This proposal is submitted to the Green Climate Fund taking under consideration an additional readiness proposal for a National Adaptation Plan (NAP) that will be submitted in the close future. The two proposals will complement and interact with each other. The proposal seeks to empower St. George's, Grenada, to lead the way on climate change, especially as it pertains to small coastal cities. St. George itself is built on the coast most of it at a very low elevation. A secondary city on the island, Grenville, is also built at very low elevations and its coastal homes are subject to regular flooding. Grenada's energy supply is almost entirely reliant on fossil fuels and its mitigation efforts are only beginning to bear fruit. Much of the island's ecosystem is threatened by climate change; water

[1] The IPCC Third Assessment Report (TAR) estimates SIDS projected sea-level rise of 5 mm per year for the next 100 years which would cause enhanced coastal erosion, loss of land and property, dislocation of people, increased risk from storm surges, reduced resilience of coastal ecosystems, saltwater intrusion into freshwater resources and high resource costs to respond to and adapt to these changes

[2] NDCs: MITIGATION: Electricity [48% Emissions]; Renewable Energy (Solar & Geothermal); Geothermal (15MW); Waste: Transport [39%] - Fuel Efficiency Measures; Bio-Fuel Blends: Waste [10%] Forestry: Terrestrial Protected Areas Targets
ADAPTATION: Institutional Capacity: Enhance capacity to integrate for CC activities in National Planning; Building Resilience; Building Coastal Resilience; Building Community Resilience – TNA's focal sectors: Agriculture, Tourism and water; Reducing Vulnerability: Improved Water Resource Management;

[3] NAP-POA: (Resilient Infrastructure and Sustainable Land Management; Water availability; Food Security; Ecosystem Resilience; Integrated Coastal Zone Management; Climate and sea-level rise data and projections; Adaptation Financing; Systematic integration of adaptation into development policies, plans, programmes, projects, budgets and processes; Institutional arrangements, inter-sectoral coordination and participation; Sustained Public Education and Participation; Disaster risk reduction and disease prevention; Monitoring and Evaluation

shortages are becoming more pronounced with reduced rainfall and droughts; and its beaches and its key infrastructure--including its international airport--are threatened by inundation and erosion.

The proposal focuses on five key components of a comprehensive readiness program to make the cities of St. George and Grenville climate resilient, in the short-, medium-, and long-run. They are:

1. **A comprehensive mitigation strategy**: Measurement of greenhouse gas (GHG) baseline emissions on the island and empowerment of nationals to repeat these measurements in the future to measure progress toward emissions targets and comply with UNFCCC reporting process; assessment of the potential of supply-side interventions by the gradual transformation from fossil fuel to renewable energy supplies; taking into consideration the recommendations from the SNC report, assessment of the potential of demand-side interventions to reduce emissions including improvements to residential appliances, to vehicles, to the practices of large electricity consumers, to landfills, to traffic congestion, and to public lighting; evaluation of proposals for making St. George's University and the International Airport energy independent; and assessment of the potential of greening the Grenadian legal and regulatory system in reducing emissions and accelerating the shift to renewables.
2. **Active preparations for sea level rise and hurricanes**: Identification and implement a downscaled and localized model for estimating sea level rise, precipitation, temperature change, and the frequency of extreme events in the coming decades, building on existing research; examination of alternative engineering, architectural, and financial proposals for flexible adaptation to sea level rise in four critical locations in St. George in the coming years: the Carenage, the Grand Anse beach, the beachfront in Grenville, and the Maurice Bishop International airport; assessment of alternative for increasing the resilience to hurricanes by creating incentives and regulations that will accelerate shifting to concrete roofs, by protecting the electrical distribution network, by creating early warning systems, and by developing disaster management protocols.
3. **Ecosystem restoration and water-system reinforcement**: Assessment of the vulnerability of various ecosystem components within St. George Parish to climate change; assessment of the vulnerability of the coral reefs to sea warming as well as to sewerage disposal; assessment of the vulnerability of the water supply to droughts and reduced precipitation, to seawater intrusion, to the penetration of sewerage to watersheds; prepare conceptual plans for sewage treatment, including plans for using solar energy to power sewerage treatment plants; preparation of conceptual plans for St. George's University to treat its own sewerage; and preparation of an omnibus of conceptual plans for community-based ecosystem restoration throughout St. George Parish.
4. **Urban densification and climate-resilient urban expansion**: Creation of maps and metrics that document and measure urban expansion and the anatomy of urban population density in St. George Parish and in Grenville; measurement and assessment of the potential for the densification of the built-up area of St. George; assessment of the possibility of integrating the economy of St. George by improving connectivity and reducing congestion, thereby contributing to reducing greenhouse gas emissions; design of plans and action programs for increasing the capacity of the main Southern corridor, in connection with making it the main western wall to protect against sea level rise and storm surges;

exploration of alternatives for orderly urban development through as denser arterial road network; and improve the land subdivision process.

5. **Capacity building for green development**: Assessment of the present knowledge and technical capacity of key stakeholders in Grenada with a view to meeting climate mitigation and adaptation targets in coming decades; creation of an inventory of available capacity building tools at all levels, including training manuals, courses offered at schools and universities, decision tools, vocational training, and public participation strategies; assess the potential of introducing new public health courses focused on climate change at St. George's University; preparation of a comprehensive action plan for increasing the capacity of Grenadians at all levels to engage in climate change projects and programs in coming years. A key role of New York University in this phase will be to assess the capacity of different stakeholders, to design interventions to increase this capacity, and to implement these interventions by supplying information and manuals, by conducting workshops, by executive training, and by academic training.

This readiness proposal is a key first step in a long-term action plan to meet the key challenges of climate change. It is designed to transfer knowledge from NYU and international consultants at the local level and generate a series of project concepts to be included in the Country Programme and that can then be advanced by the Green Climate Fund through more detailed feasibility studies.

The present readiness proposal will focus on generating proposals for the following potential nine project initiatives for inclusion in the country program.

1. **The Carenage, St. George's**: Proposal for protecting the Carenage from sea level rise, inundation, flooding, and storm surges (based on the climate model described in Activity 2 above), by building a raised promenade along its shores, and combining the construction of this promenade with an economic revival of its shorefront;
2. **The Southern Corridor**: Proposal for using green engineering, design the main road leading from the Carenage to the International Airport as a green corridor, to act as a barrier to sea level rise and storm surges, to provide improved vehicular, pedestrian and bicycle movement, in conjunction with viable alternatives for preparing Grand Anse beach for ocean level rise; explore possibilities for alternative routes to the main road, and the two arterial North-South roads;
3. **The Maurice Bishop International Airport**: Proposal with options for protecting the airport--now one of the most vulnerable airports in the Caribbean to sea level rise-- from erosion and inundation.;
4. **Grenville Coastal Road**: Proposal for transforming the Grenville coastal road into a barrier for protecting the city from ocean level rise and storm surges, in combination with a plan for the homes and businesses now located on the beach in front of the road.
5. **Sewage Treatment System**: Proposal for Stopping the flow of untreated sewage into the sea, and increasing the coverage of the piped sewer system in St. George parish, coupled with repairing damaged parts of the ecosystem and creating a decentralized system of sewerage treatment plants within the parish, including

	an independent system for St. George's University, that will be powered by alternative energy sources such as biomass and solar panels; 6. **Greenhouse Gas Emissions Reduction Initiative:** Creating a greenhouse gas emission model and using it to investigate the potential for reducing Grenada's current dependence on fossil fuels; increasing the use of solar panels in St. George parish, while seeking to optimize energy efficient measures through reducing residential energy consumption by improving lighting, refrigerators and air conditioners; improved public lighting; and greening the present system of solid waste disposal. 7. **Omnibus of Community-Based Ecosystem Restoration Projects**: Creating an evidence-based community-based program in the parish of St. George aimed at ecosystem restoration and focused on water system management, control of erosion and mudslides, watershed protection, sewage water management. forest restoration, a stream restoration program that will increase the capacity of the local watershed to absorb runoff from extreme events, and a program to install permeable paving in built-up neighborhoods; 8. **Densification and Climate-Resilient Urban Expansion Initiative**: Completing a preliminary cadastre map and using it to create an evidence-based urban densification and expansion plan for the parish of St. George based on historical patterns; encouraging the infill of communities; increasing the connectivity of St. George's parish to integrate its labour market; developing a network of arterial roads serving the built-up area and the expansion area; proposing alternatives to improving the land subdivisions process; examining proposals for widening the alternative North-South arterial roads; and proposing a plan to protect public open spaces and to protect areas of high environmental risk from development. 9. **A comprehensive Capacity Building Initiative**: Creating a comprehensive program for capacity building activities that will empower Grenada to confront challenges emanating from climate change; producing a state-of-the-art assessment of current capacity building activities available elsewhere; examining possibilities for executive education and decision tools; examining options for new courses, at the university level and community-college level, dealing with climate change; examine options for vocational training; examining possibilities for introducing climate change education in high schools; examining possibilities for public participation in climate change activities; discussing possibilities with St. George's University of introducing new courses on public health and climate change; discussing possibilities of bringing local subsidiaries to produce green technology in Grenada; discussing the potential of Grenada to export green technology, green services, and green education and training. This would also include developing a knowledge management system that will include a description of the evidence collected during this phase and an archive of all the documentation on climate change identified by the project team.
8. Total requested amount and currency	US$600,855
9. Anticipated duration	18 Months

SECTION 2: COUNTRY READINESS LOGICAL FRAMEWORK

Please complete the table below, which enables a country to assess its readiness for the GCF and set targets for strengthening its readiness, including proposed outputs and activities to improve the country's readiness. For further guidance on completing the table, please refer to the guidebook "Accessing the GCF Readiness and Preparatory Support Programme".

OUTCOMES[4]	BASELINE	TARGET	ACTIVITIES *(including key outputs or deliverables where applicable)*
Stakeholders engaged in consultative processes	**0-8**	**0-8**	
2.1 Stakeholders engaged in consultative processes	☐0 X1 ☐2	☐0 ☐1 X2	**Activity 1: A comprehensive mitigation strategy** - Identification of an appropriate strategy for measuring greenhouse gas (GHG) emissions on the island, measure the baseline level of GHG emissions, and empower nationals to repeat these measurements in the future; - Assessment of the potential of supply-side interventions by the gradual transformation from fossil fuel to renewable energy supplies; - Assessment of the potential of demand-side interventions to reduce emissions including improvements to residential appliances, to vehicles, to the practices of large electricity consumers, to landfills, to traffic congestion, and to public lighting; evaluate proposals for making St. George's University and the International Airport energy independent; and - Assessment of the potential of greening the Grenadian legal and regulatory system in reducing emissions and accelerating the shift to renewables. **Intermediate deliverables Activity 1**: (2) Minutes, materials, and list of participants from key stakeholder engagement meetings; **Timeframe**: Month 7 **Activity 2: Active preparations for sea level rise and hurricanes** - Development of a downscaled local climate model (building on existing work such as CARIWIG, Caribsave, and the work of Ryan Sims, among others) for

[4] Based on decisions: B.08/10, annexes XII, XIII & XIV; B.08/11; B.11/10, annex I; B.12/20, annex I

	☐0 X1 ☐2	☐0 ☐1 X2	estimating sea level rise, precipitation, temperature change, and the frequency of extreme events in the coming decades given global and local projections of global warming; - Examination of alternative engineering, architectural, and financial proposals for flexible adaptation to sea level rise in four critical locations in St. George in the coming years: the Carenage, the Grand Anse beach, the beachfront in Grenville, and the Maurice Bishop International airport; - Assessment of alternative for increasing the resilience to hurricanes by creating incentives and regulations that will accelerate shifting for example to concrete roofs, by protecting the electrical distribution network, by creating early warning systems, and by developing disaster management protocols. **Intermediate Deliverables Activity 2**: Minutes, materials, and list of participants from key stakeholder engagement meetings; **Activity 3: Ecosystem restoration and water-system reinforcement**
	☐0 X1 ☐2	☐0 ☐1 X2	- Assessment of the vulnerability of various ecosystem components within St. George Parish to climate change through geological, hydrological, and biological observation, consultation with stakeholders, and desk review; - Assessment of the vulnerability of the coral reefs to sea warming as well as to sewerage disposal; - Assessment of the vulnerability of the water supply to droughts and reduced precipitation, to seawater intrusion, to the penetration of sewerage to watersheds; - Preparation of conceptual plans for sewage treatment, including plans for using alternative energy to power sewerage treatment plants;

	☐0 X1 ☐2 ☐0 X1 ☐2	☐0 ☐1 X2 ☐0 ☐1 X2	- Preparation of conceptual plans for St. George's University to treat its own sewerage; and - Preparation of an omnibus of conceptual plans for community-based ecosystem restoration throughout St. George Parish. - **Intermediate deliverables Activity 3:** (1) Minutes, materials, and list of participants from key stakeholder engagement meetings and participating communities; Timeline: Month 7 **Activity 4: Urban densification and climate-resilient urban expansion Outcomes** - Creation of maps and metrics that document and measure urban expansion and the anatomy of urban population density in St. George Parish and in Grenville using the NYU Atlas of Urban Expansion methodology; - Measurement and assessment of the potential for the densification of the built-up area of St. George; - Assessment of the possibility of integrating the economy of St. George by improving connectivity and reducing congestion, thereby contributing to the reduction of greenhouse gas emissions from transit (both directly, by reducing fuel use, and indirectly, by increasing the structural feasibility of public transit); - Design plans and action programs for increasing the capacity of the main Southern corridor, in connection with making it the main western wall to protect against sea level rise and storm surges; explore alternatives for orderly urban development through as denser arterial road network; and improve the land subdivision process.

			Intermediate Deliverables Activity 4: (2) Minutes, materials, and list of participants from key stakeholder engagement meetings Timeframe: Month 7 **Activity 5: Capacity building for green development** - Assessment of the present knowledge and technical capacity of key stakeholders in Grenada with a view to meeting climate mitigation and adaptation targets in coming decades through expert visits between workshops, and through the workshops themselves; - Development of an inventory of available capacity building tools at all levels, including training manuals, courses offered at schools and universities, decision tools, vocational training, and public participation strategies; - Assessment of the potential of introducing new public health courses focused on climate change at St. George's University; **Intermediate Deliverables Activity 5**: - Minutes, materials, and list of participants from key stakeholder engagement meetings, including St. George's University; - Inventory of capacity building tools at all levels, including training manuals, courses offered at schools and universities, decision tools, vocational training, and public participation strategies; **Timeframe**: Month 7
2.2 Country programmes, including adaptation priorities, developed and continuously updated			**Activity 1: A comprehensive mitigation strategy**

	X0 ☐1 ☐2	☐0 ☐1 X2	- Identification of an appropriate strategy for measuring greenhouse gas (GHG) emissions on the island, measure the baseline level of GHG emissions, and empower nationals to repeat these measurements in the future; - Assessment of the potential of supply-side interventions by the gradual transformation from fossil fuel to renewable energy supplies; - Assessment of the potential of demand-side interventions to reduce emissions including improvements to residential appliances, to vehicles, to the practices of large electricity consumers, to landfills, to traffic congestion, and to public lighting; - Evaluation of proposals for making St. George's University and the International Airport energy independent; and - Assessment of the potential of greening the Grenadian legal and regulatory system in reducing emissions and accelerating the shift to renewables. **Intermediate deliverables Activity 1**: - A preliminary Greenhouse Gas Emission Model for the main island of Grenada; - A draft plan on action on proposed demand-side and supply-side interventions to reduce GHG emissions. **Timeframe**: Month 7
	☐0 X1 ☐2	☐0 X1 ☐2	**Activity 2: Active preparations for sea level rise and hurricanes** - Development of a downscaled local climate model (building on existing work such as CARIWIG, Caribsave, and the work of Ryan Sims, among others) for estimating sea level rise, precipitation, temperature change, and the frequency of extreme events in the coming decades given global and local projections of global warming; - Examination of alternative engineering, architectural, and financial proposals for flexible adaptation to sea level rise in four critical locations in St. George in

	☐0 X1 ☐2	☐0 ☐1 X2	the coming years: the Carenage, the Grand Anse beach, the beachfront in Grenville, and the Maurice Bishop International airport; - Assessment of alternative for increasing the resilience to hurricanes by creating incentives and regulations that will accelerate shifting for example to concrete roofs, by protecting the electrical distribution network, by creating early warning systems, and by developing disaster management protocols. **Intermediate Deliverables Activity 2**: - A downscaled local climate model for estimating sea level rise, precipitation, temperature change and the frequency of extreme events in the coming decades for the main island of Grenada; - Preliminary design ideas for four climate resilient projects in Saint George, Grenada such as: (i) The Promenade; (ii) The Southern Corridor; (iii) The International Airport; and (iv) The Grenville Coastal Road. Timeframe: Month 7 **Activity 3: Ecosystem restoration and water-system reinforcement** - Assessment of the vulnerability of various ecosystem components within St. George Parish to climate change through geological, hydrological, and biological observation, consultation with stakeholders, and desk review; - Assessment of the vulnerability of the coral reefs to sea warming as well as to sewerage disposal; assess the vulnerability of the water supply to droughts and reduced precipitation, to seawater intrusion, to the penetration of sewerage to watersheds; - Preparation of a conceptual plans for sewage treatment, including plans for using alternative energy to power sewerage treatment plants;

	☐0 X1 ☐2	☐0 ☐1 X2	- Preparation of conceptual plans for St. George's University to treat its own sewerage; and - Prepare of an omnibus of conceptual plans for community-based ecosystem restoration throughout St. George Parish. **Intermediate deliverables Activity 3:** - Preliminary conceptual designs for three (3) ecosystem restoration projects - Ecosystem restoration program; - Preliminary assessment and a conceptual design for a decentralized sewerage system in St. George. Timeline: Month 7 **Activity 5: Capacity building for green development** - Preparation of a comprehensive action plan for increasing the capacity of Grenadians at all levels to engage in climate change projects and programs in coming years. **Intermediate Deliverables Activity 5**: - Minutes, materials, and list of participants from key stakeholder engagement meetings, including St. George's University; - Inventory of capacity building tools at all levels, including training manuals, courses offered at schools and universities, decision tools, vocational training, and public participation strategies; **Activity 6: Production of final report and knowledge management system in Grenada**

			- Assembling of the notes, writings, sketches, maps, and photographs from workshop participants, stakeholders, and international experts and write a final Preparedness Report that will summarize the knowledge and information gathered in the course of the project. **Final Deliverables Activity 6:** - Drafting and publishing of final project report; - Drafting, illustrating, and publishing project book containing the essence of the pre-feasibility studies for as many as ten high-priority projects for possible feasibility study funding by the Green Climate Fund and others. - Creation of web-based knowledge management system to enhance sharing and utilization of project materials. **Timeframe**: Month 12.
Access to finance	**0-8**	**0-8**	
4.2 Country programmes, concept notes, including on adaptation, developed that implement high-impact priorities identified in INDCs and other national strategies or plans			**Activity 1: A comprehensive mitigation strategy** Outcomes - Identification of an appropriate strategy for measuring greenhouse gas (GHG) emissions on the island, measure the baseline level of GHG emissions, and empower nationals to repeat these measurements in the future; - Assessment of the potential of supply-side interventions by the gradual transformation from fossil fuel to renewable energy supplies; - Assessment of the potential of demand-side interventions to reduce emissions including improvements to residential appliances, to vehicles, to the practices of large electricity consumers, to landfills, to traffic congestion, and to public lighting;

	☐0 X1 ☐2	☐0 ☐1 X2	- Evaluation of proposals for making St. George's University and the International Airport energy independent; and - Assessment of the potential of greening the Grenadian legal and regulatory system in reducing emissions and accelerating the shift to renewables. **Final Deliverable:** - A completed Greenhouse Gas Emission Model for the main island of Grenada; and - A plan on action on proposed demand-side and supply-side interventions to reduce GHG emissions. **Timeframe:** Month 12 **Activity 2: Active preparations for sea level rise and hurricanes** - Development of a downscaled local climate model (building on existing work such as CARIWIG, Caribsave, and the work of Ryan Sims, among others) for estimating sea level rise, precipitation, temperature change, and the frequency of extreme events in the coming decades given global and local projections of global warming; - Examination of alternative engineering, architectural, and financial proposals for flexible adaptation to sea level rise in four critical locations in St. George in the coming years: the Carenage, the Grand Anse beach, the beachfront in Grenville, and the Maurice Bishop International airport; - Assessment of alternative for increasing the resilience to hurricanes by creating incentives and regulations that will accelerate shifting for example to concrete roofs, by protecting the electrical distribution network, by creating early warning systems, and by developing disaster management protocols. **Final Deliverables Activity 2**:
	☐0 X1 ☐2	☐0 ☐1 X2	

	☐0 X1 ☐2 ☐0 X1 ☐2	☐0 ☐1 X2 ☐0 ☐1 X2	- Baseline data from the downscaled climate model Timeframe: Month 12 **Activity 4: Urban densification and climate-resilient urban expansion** **Outcomes** - Creation of maps and metrics that document and measure urban expansion and the anatomy of urban population density in St. George Parish and in Grenville using the NYU Atlas of Urban Expansion methodology; - Measurement and assessment of the potential for the densification of the built-up area of St. George; - Assessment of the possibility of integrating the economy of St. George by improving connectivity and reducing congestion, thereby contributing to the reduction of greenhouse gas emissions from transit (both directly, by reducing fuel use, and indirectly, by increasing the structural feasibility of public transit); - Preparation of design plans and action programs for increasing the capacity of the main Southern corridor, in connection with making it the main western wall to protect against sea level rise and storm surges; - Explore alternatives for orderly urban development through as denser arterial road network; and improve the land subdivision process. **Intermediate Deliverables Activity 4**: - A preliminary cadater map of St. George parish; - Densification concept plan; and - Climate-resilient expansion concept plan.

			Timeframe: Month 7. **Activity 5: Capacity building for green development** - Assessment of the present knowledge and technical capacity of key stakeholders in Grenada with a view to meeting climate mitigation and adaptation targets in coming decades through expert visits between workshops, and through the workshops themselves; - Development of an inventory of available capacity building tools at all levels, including training manuals, courses offered at schools and universities, decision tools, vocational training, and public participation strategies; assess the potential of introducing new public health courses focused on climate change at St. George's University; - Preparation of comprehensive action plan for increasing the capacity of Grenadians at all levels to engage in climate change projects and programs in coming years. **Final Deliverables Activity 5**: - A comprehensive action plan, designed as a fundable project, for increasing the capacity of Grenadians at all levels to engage in climate change projects and programs in coming years. **Timeframe**: Month 12.
4.3 Project/programme preparation support, including for adaptation, to develop funding proposals provided			**Activity 2: Active preparations for sea level rise and hurricanes** - Development of a downscaled local climate model (building on existing work such as CARIWIG, Caribsave, and the work of Ryan Sims, among others) for estimating sea level rise, precipitation, temperature change, and the frequency

	☐0 X1 ☐2	☐0 ☐1 X2	of extreme events in the coming decades given global and local projections of global warming; - Examination of alternative engineering, architectural, and financial proposals for flexible adaptation to sea level rise in four critical locations in St. George in the coming years: the Carenage, the Grand Anse beach, the beachfront in Grenville, and the Maurice Bishop International airport; - Assessment of alternative for increasing the resilience to hurricanes by creating incentives and regulations that will accelerate shifting for example to concrete roofs, by protecting the electrical distribution network, by creating early warning systems, and by developing disaster management protocols. **Final Deliverables Activity 2**: - Pre-feasibility designs and descriptions of four projects that address expected sea level rise in Saint George, Grenada such as: (i) The Promenade; (ii) The Southern Corridor; (iii) The International Airport; and (iv) The Grenville Coastal Road. Timeframe: Month 12 **Activity 3: Ecosystem restoration and water-system reinforcement** - Assessment of the vulnerability of various ecosystem components within St. George Parish to climate change through geological, hydrological, and biological observation, consultation with stakeholders, and desk review; - Assessment of the vulnerability of the coral reefs to sea warming as well as to sewerage disposal;
	☐0 X1 ☐2	☐0 ☐1 X2	

	☐0 X1 ☐2	☐0 ☐1 X2	- Assessment of the vulnerability of the water supply to droughts and reduced precipitation, to seawater intrusion, to the penetration of sewerage to watersheds; - Preparation of conceptual plans for sewage treatment, including plans for using alternative energy to power sewerage treatment plants; - Preparation of conceptual plans for St. George's University to treat its own sewerage; and prepare an omnibus of conceptual plans for community-based ecosystem restoration throughout St. George Parish. **Final Deliverables Activity 3**: - Advanced designs and pre-feasibility study for a proposal for an omnibus of ecosystem restoration and water system reinforcement for St. George; - Advanced conceptual design and a pre-feasibility study for a project focused on alternative energy powered sewerage treatment system for St. George. Timeline: Month 12 **Activity 4: Urban densification and climate-resilient urban expansion** - Creation of maps and metrics that document and measure urban expansion and the anatomy of urban population density in St. George Parish and in Grenville using the NYU Atlas of Urban Expansion methodology; - Measurement and assessment of the potential for the densification of the built-up area of St. George; - Assessment of the possibility of integrating the economy of St. George by improving connectivity and reducing congestion, thereby contributing to the reduction of greenhouse gas emissions from transit (both directly, by reducing fuel use, and indirectly, by increasing the structural feasibility of public transit);

			- Design plans and action programs for increasing the capacity of the main Southern corridor, in connection with making it the main western wall to protect against sea level rise and storm surges; - Explore alternatives for orderly urban development through as denser arterial road network; and - Improvement of the land subdivision process. **Final Deliverables**: - A pre-feasibility study, action plan, GCF Concept Note and PPF template proposal for a project focused on the densification and climate-resilient urban expansion of St. George, including maps, budget estimates, identifying realistic financial instruments for funding climate-resilient interventions and regulatory reform proposals. Timeframe: Month 12.
TOTAL	**0-40**	**0-40**	

IMPLEMENTATION TIMETABLE

Outcomes	Activities	Anticipated Duration (Months)											
		1	2	3	4	5	6	7	8	9	10	11	12
2.1, 2.2, 4.2	**Activity 1: A comprehensive mitigation strategy**												
	Intermediate deliverables												
	(1) A preliminary Greenhouse Gas Emission Model for the main island of Grenada						X						

	(2) Minutes, materials, and list of participants from key stakeholder engagement meetings	Field Mission I		Workshop 1		Field Mission 2		Worksh op 2		Field Mission 2		Worksh op 3	
	(3) A draft plan on action on proposed demand-side and supply-side interventions to reduce GHG emissions.						X						
	Final Deliverable:												
	(1) A completed Greenhouse Gas Emission Model for the main island of Grenada;												X
	(2) A plan on action on proposed demand-side and supply-side interventions to reduce GHG emissions.												X
2.1, 2.2, 4.2, 4.3	Activity 2: Active preparations for sea level rise and hurricanes												
	Intermediate deliverables												
	(1) A downscaled local climate model for estimating sea level rise, precipitation, temperature change and the frequency of extreme events in the coming decades for the main island of Grenada;								X				
	(2) Minutes, materials, and list of participants from key stakeholder engagement meetings	Field Miss-ion I		Work-shop 1		Field Mission 2		Work-shop 2		Field Mission 2		Work-shop 3	
	(3) Preliminary design ideas for four climate resilient projects in Saint George								X				
	Final Deliverable:												
	(1) Baseline data from the downscaled climate model												X
	(2) Pre-feasibility designs and descriptions of four projects that address expected sea level rise in Saint George, Grenada												X
2.1, 2.2, 4.3	Activity 3: Ecosystem restoration and water-system reinforcement												
	Intermediate deliverables												
	(1) Minutes, materials, and list of participants from key stakeholder engagement meetings	Field Miss-ion I		Work-shop 1		Field Mission 2		Work-shop 2		Field Mission 2		Work-shop 3	
	(2) Preliminary conceptual designs for three (3) ecosystem restoration projects								X				
	(3) preliminary assessment and a conceptual design for a decentralized sewerage system in St. George.									X			
	Final Deliverable:												
	(1) Advanced designs and pre-feasibility study for a proposal for an omnibus of ecosystem restoration and water system reinforcement for St. George;												X

	(2) Advanced conceptual design and a pre-feasibility study for a project focused on alternative energy powered sewerage treatment system for St. George.												X
2.1, 4.2, 4.3	Activity 4: Urban densification and climate-resilient urban expansion												
	Intermediate deliverables												
	(1) A preliminary cadaster map of St. George parish				X								
	(2) Minutes, materials, and list of participants from key stakeholder engagement meetings	Field Miss-ion I		Work-shop 1		Field Mission 2		Work-shop 2		Field Mission 2		Work-shop 3	
	(3) Densification concept plan						X						
	(4) climate-resilient expansion concept plan.							X					
	Final Deliverable:												
	(1) A pre-feasibility study, action plan, GCF Concept Note and PPF template proposal for a project focused on the densification and climate-resilient urban expansion of St. George, including maps, budget estimates, identifying realistic financial instruments for funding climate-resilient interventions and regulatory reform proposals.												X
2.1, 4.2	Activity 5: Capacity building for green development												
	Intermediate deliverables												
	(1) Minutes, materials, and list of participants from key stakeholder engagement meetings	Field Miss-ion I		Work-shop 1		Field Mission 2		Work-shop 2		Field Mission 2		Work-shop 3	
	(2) an inventory of capacity building tools at all levels, including training manuals, courses offered at schools and universities, decision tools, vocational training, and public participation strategies;								X				
	Final Deliverable:												
	(1) A comprehensive action plan, designed as a fundable project, for increasing the capacity of Grenadians at all levels to engage in climate change projects and programs in coming years.												X
2.2	Activity 6: Production of final report and knowledge management system in Grenada												
	Final Deliverable:												
	(1) Drafting and publishing of final project report;												x

	(2) Drafting, illustrating, and publishing project book containing the essence of the pre-feasibility studies for as many as ten high-priority projects for possible feasibility study funding by the Green Climate Fund and others.												**x**
	(3) Creating web-based knowledge management system to enhance sharing and utilization of project materials.												**x**

SECTION 3: ADDITIONAL INFORMATION

The proposed Readiness proposal is the focus on preparing a mitigation and adaptation strategy for St. George and Grenville, with the accompanying changes in regulations, with recommended plans and investment projects, and with strong capacity building activities for stakeholders. This will include, among others: (1) stakeholder analysis and engagement; (2) mitigation baseline and roadmap; (3) Vulnerability analysis for St. George; (4) urban footprint and urban growth analysis; and (5) capacity building in Granada, with the intention of benefiting other countries in the Caribbean. The intention is also to use this work as a generalizable model for cities in island states in general and for cities in Caribbean island states, and to include local capacity building materials for the region as well as part of NYU's intervention.

The NYU Urban Expansion Program is a research and action program based at the Marron Institute of Urban Management and the Stern School of Business of New York University. The primary mission of the Program is to lend direct assistance and capacity building to municipalities of rapidly growing cities so that they can make room adequate for their expansion, and so that they grow in a productive, inclusive, sustainable, and resilient manner.

Its overall mission is to advance evidence-based policy making and planning, using scientific methods and techniques to collect evidence that will ground planning and policy making in better data and better analysis. Work at the Institute thus focuses on data collection and analysis on a global scale, as well as on collecting and analyzing data at the municipal level in cities with which we are engaged building their local capacities and expertise to update, analyse and manage data to better identify, develop, implement and monitor planning strategies and climate resilient projects and programmes.

Summary of Exploratory Mission to St. George's and Grenville, Grenada

Introduction

The exploratory mission consisted of a visit by the expert team organized by New York University to Grenada from February 17 to February 20 2018. The purpose of this mission was to gather information to support the development of a proposal for the Global Climate Fund, through site visits and through engagement with stakeholders.

The mission started with a stakeholder engagement meeting mediated by the Green Climate Fund, with the Ministry of Economic Development, Division of Economic and Technical Cooperation, and the Minister of Education and Human Resources. Information on possible interventions was gathered throughout the mission over many conversations and engagements.

Electricity Sector

The electricity sector was identified as a key sector for the reduction of GHG emissions. One fixed-source provider, Grenelec, dominates the electricity sector in Grenada. Grenelec is a U.S.-owned company that has secured a monopoly on supply and distribution on the island, and this monopoly expires only in 2073. A 50MW diesel generator provides electricity. Current peak load is approximately 35MW. Some solar power has been installed, but the tariff scheme is highly unfavorable in two respects. First, self-generators are required to sell their power to the grid at a fixed price that is approximately 40% of the cost charged for electricity, and the utility practices net billing, rather than net metering. This means that the total cost recovery time for a solar system is on the order of 30 years, which is also approximately its design life span. This discourages individuals and institutions from investing in solar power. Second, the government charges an import tariff on solar cells that raises the cost. In addition, the government has failed to set up an effective regulatory authority (though it does have statutory authority to do so), meaning the utility is effectively

unregulated. Consultations with stakeholders indicated that it would be difficult politically to address GHG emissions reductions by shifting the bulk of power generation from fossil fuels to renewables.

Grenlec diesel generating unit

The NYU team then consulted with Philip Vanicek, a consultant for Grenelec, to discuss the possibility of addressing mitigation and GHG emissions through the demand side. This would consist, potentially, of following the program laid out by Simon Gaviria, in which households would be offered a package of efficiency boosting appliances and lighting (a new refrigerator, a new air conditioner, and new lighting) in order to reduce household electricity demand. The package would be negotiated in bulk by the government to secure discounts, and subsidized loans would be offered to consumers so that they could purchase it. A discussion about public lighting as a possible demand side intervention also took place, as well as a follow-up discussion about addressing the greening of major consumers in order to reduce demand in that way. Information was requested from the stakeholders regarding consumption, as a preliminary step toward developing an apropriate intervention.

Water and Sewerage

A consultation was held with Mr. Whyme Cox from NAWASA about water and sewerage. Potable water on Grenada is provided by a series of reservoirs that are highly susceptible to drought and distributed through a network of pipes that are currently undergoing gradual upgrades. There are planned programs to increase the capacity for storing both untreated and treated water through the development of new reservoirs and tanks, as well as residential tanks. Currently, the water supply runs short during the dry season and distribution becomes a challenge.

Drainage ditch near Grand Anse

Mr. Cox also explained that the majority (perhaps 90%) of residential customers on the island use septic tanks for sewage, and that these septic tanks are emptied infrequently and sometimes have maintenance issues. The remaining customers are connected to a sewage system that has two segments. One segment, in St. George's, collects sewage within the town and has an outflow that runs 300 - 400 meters into the ocean, originating near the River Road. The other segment serves St. George's University and has an outflow near the airport. An additional segment was installed in Grand Anse, but frequent flooding has made it unusable without the construction of a pumping station. Currently, none of the sewage is treated, and it is damaging the coral reefs around the island.

In addition, landslides and other hydrological issues pose a threat to water supplies and to unsecured septic tanks. These issues, particularly on the western slope of the island, need to be considered.

Stakeholder Engagement Meeting

A large stakeholder engagement meeting was held, hosted by the Ministry of Economic Development. This meeting focused on bringing together representatives from government and civil society actors in the affected sectors. The purpose of this meeting was to gather input from the relevant stakeholders, and also to share the ideas of the NYU team and receive feedback on those ideas. The meeting was approximately four hours long and included presentations by many participants, as well as introductions from the NYU team and a data gathering session. This was a productive and engaging meeting, but it was also clear that the stakeholders have been involved in many such workshops and are interested in programs that can put facts on the ground. The level of background knowledge was high. Follow up was done with individual stakeholders and government agencies, including the Ministry of Works, Physical Development and Public Utilities, and the Ministry of Agriculture, Forestry, and Fisheries. The meeting was attended by a range of future partners, including representatives of GIZ, the Nature Conservancy, the Grenada Development Bank, the Solid Waste Management Authority, the Grenada Industrial Development Corporation, the Airports Authority, the Bureau of Statistics, and Camper-Nicholson. A data sharing agreement was signed with the Ministry of Agriculture and with the Ministry of Works allowing for the exchange of GIS information as part of the preparatory process.

Grand Anse

Grand Anse is the main tourist area in Grenada, with the majority of the resorts and hotels on the island. It is a white sand beach and is regarded as a major asset, with tourism responsible for perhaps one-quarter of total GDP. Consultations with stakeholders including Minster Simon Stiell and Ambassador Angus Friday revealed the increased prevalence of nuisance flooding in the beach area, and the high probability that the beach will suffer from erosion in the event of sea level rise and by frequent storm surges. Inputs from German Camargo indicated that a comprehensive hydrological strategy will be needed in order to stabilize the beach and maintain beach frontage into the future, and a conversation was held regarding the possibility of retreat versus the fortification of existing resorts.

Grand Anse beach at sunset

It was also noted that the Grand Anse area is poorly served from a transportation standpoint, with only one road serving the resorts and carrying traffic from the airport to the town of St. George's. This road is highly congested, and there is great interest in exploring alternative means of transportation.

Carenage and St. George's

The team took a tour of the Carenage and of St. George's led by Angus Friday, Simon Stiell, Titus Antoine, Fitzroy James, and Jessica Jacobs. The immense potential of the Carenage was immediately clear. Issues discussed included business revitalization, the need for careful historical preservation, and threats to the Carenage from sea level rise. Some possible solutions were discussed, including the idea of creating a promenade, or perhaps a channel that could capture water. It is clear that many heritage structures will be lost without an intervention to protect the area from sea level rise. It was also observed that this preservation effort will depend in part on the economic revitalization of the area, which will bring in necessary funds for structural preservation.

Inside Fort George

The team also visited Fort George and discussed the layout of the area, including the location of the hospital and the current cruise ship terminal. A brief conversation was held to discuss the possibility of relocating the port, with an emphasis placed on the need to maintain a hurricane-protected location for the port. The current harbour is quite secure. Secondarily, stakeholders reported that the location of the yacht basin is extremely convenient and is very positive for the area. In general, it emerged that revitalization of the Carenage and of St. George's would be dependent on increasing foot traffic, on preserving historical structures, and on attracting investment. Additionally, the strategic locations of Fort George, the hospital, and the Ministry of Finance indicated that the relocation of these government functions and the repurposing of these sites could yield large amounts of revenue and dramatically improve the tourist potential of the area.

The Carenage

Grenville

As part of the development of the preparatory proposal, a visit to Grenville was organized. The purpose of this visit was to study the frequently flooded areas on the shorefront and to assess the opportunities for climate proofing the area. Several home sites are clearly in jeopardy, with frequent sunny-day nuisance flooding reported on the east side of the main road. Stakeholder engagement indicated that the residents of these houses have been unwilling to relocate, and may require additional government support in order to secure safe and convenient plots.

The level of beach erosion observed was significant, and stakeholders expressed concern that they would likely have to relocate to the other side of the main road and fortify that road to create a sea barrier.

Urban Development

NYU prepared a preliminary assessment of urban growth in Grenville and St. George's. Additional information about this can be found below, along with links to the pages. This information was shared at the stakeholder engagement meeting and sparked a prolonged interaction with officials from the Physical Planning office. Following the stakeholder engagement meeting, a session was held with the Ministry of Works to share information and to discuss possible areas of collaboration. Stakeholders and government officials reported that the current state of spatial planning is preliminary. Many plans have been developed but frameworks for implementation have been lacking. The officials present shared a great deal of GIS information, including information on streets and roads. This information revealed, among other things, that the current state of the land cadastre will not be sufficient to engage in urban planning (though it is adequate for property taxation purposes). The officials requested support for a capacity building effort to complete the land cadastre, and the NYU experts agreed that this would be generally useful.

A mix of formal and informal development south of St. George's

The need for improved land governance was made readily apparent during a tour organized by Michael Jessamy of the outlying areas of the city. From this, it was gathered that extensive fragmented development and squatting have taken place in the hills to the south and east of St. George's and Grand Anse. It was also explained that a number of roads were suggested for development of additional north-south transportation corridors, but that the plans had not been acted upon. It was observed that traffic congestion was severe and that roads were not wide enough to permit the passage of two vehicles, in most cases. Plans were made to follow up with Mr. Jessamy in the coming months.

St. George's University

St. George's University is a private medical university and a major employer on the island, accounting for perhaps one-quarter of total GDP. It has several thousand students. It also operates separate infrastructure to a certain degree, with all power lines on the campus buried to protect against hurricanes, and all buildings fortified to withstand a category 5 storm. The University has recently launched an institute called WINDREF jointly with the United Nations Framework Convention on Climate Change. The NYU team engaged with the university to discuss greening of St. George's University, and opportunities for collaboration.

In general, the university is interested in collaborating in several areas. Topics discussed included creating an off-grid power system, engaging in a comprehensive greening process, installation of a sewerage treatment facility, development of a public health program that would focus on tropic infectious diseases, and other matters. It is expected that the university will be a significant partner in capacity building efforts, as well as a leader in the introduction of green infrastructure and technology.

Preliminary Analysis of the Urban Areas of Grenville and St. George's

As part of the preliminary stakeholder engagement process, New York University and the India Urban Expansion Observatory prepared a basic analysis of the characteristics of the urban areas of Grenville and St. George. This analysis utilized the Atlas of Urban Expansion methodology, documented in materials available for download here and here. The fundamental aim of the analysis is to assess the quantity and quality of urban development between circa 1990 and circa 2015, using high-resolution satellite imagery. This analysis has been performed in a global sample of 200 cities (results can be found at the Atlas of Urban Expansion website) and provides a consistent, objective, and internationally recognized system for measuring and comparing the characteristics of cities.

In Grenada, the analysis revealed a high degree of spatial fragmentation in the areas developed between 1990 and 2015. The analysis also indicated that these areas have not been planned in a comprehensive manner and may have

issues with informality and road connectivity. This analysis was confirmed through stakeholder engagement during the exploratory mission. The analysis also revealed a sharp decline in population density and an increase in the total area of the city that far exceeds its rate of population growth. This is a common feature of urban development worldwide, as land use per person is increasing. This is often the result of positive factors such as higher GDP per capita and lower transportation costs. Unfortunately, it has consequences in terms of greenhouse gas emissions and lengthier trips, and can also impact the formation of metropolitan labor markets. It indicates the need for a strategy that will improve connectivity and allow for densification of existing areas, while also laying out new areas for development that will be better planned and integrated into the existing city.

The analysis took the form of four Atlas pages containing maps and metrics for Grenada and St. George's. Two of the pages focus on the physical extent of the urban area, and two of the pages focus on the quality of the urban layouts within that extent.

A PDF of the pages can be downloaded here.

During the exploratory mission to Grenada it was analysed with different ministries but mainly the NDA the existing data and human capacity in the country, based on that analysis the NYU team need to hire international consultants that will have a strong focus on building local capacities, supporting them to organize the available information in different institutional bodies and developing a web-based knowledge management system.

Two additional Annexes can be found at the end of this document. Annex 2 outlines the composition and schedule of the exploratory mission and the list of stakeholders. Annex 3 contains links to relevant papers and documents prepared by team members.

SECTION 4: BUDGET, PROCUREMENT, IMPLEMENTATION AND DISBURSEMENT

4.1. Budget Plan

OUTCOMES (same as in section 2)	**ACTIVITIES** (same as in section 2)	**TOTAL COST** (per activity)	**COST CATEGORIES – Additional Explanations for these Cost Categories can be found in Annex 1 and Notes 1, 2, and 3.**				**EXPENDITURE AND IMPLEMENTATION SCHEDULE** (add columns if >24 months)			
			Consultants	**Travel**	**Workshops/ Trainings**	**Others**	**6m**	**12m**	**18m**	**24m**
2.1 Stakeholders engaged in consultative processes	**Activity 1:** A comprehensive mitigation strategy **Intermediate deliverables Activity 1:** (2) Minutes, materials, and list of participants from key stakeholder engagement meetings;	$6,959	$3,701	$2,598	$660	$-	$6,959	$-	$-	$-
2.1 Stakeholders engaged in consultative processes	**Activity 2:** Active preparations for sea level rise and hurricanes **Intermediate Deliverables Activity 2:** (2) Minutes, materials, and list of participants from key stakeholder engagement meetings;	$36,961	$23,127	$12,514	$1,320	$-	$36,961	$-	$-	$-
2.1 Stakeholders engaged in consultative processes	**Activity 3:** Ecosystem restoration and water-system reinforcement **Intermediate deliverables Activity 3: (**1) Minutes, materials, and list of participants from key stakeholder engagement meetings and participating communities;	$9,143	$3,618	$5,025	$500	$-	$9,143.00	$-	$-	$-
2.1 Stakeholders engaged in consultative processes	**Activity 4:** Urban densification and climate-resilient urban expansion **Intermediate Deliverables Activity 4: (2**) Minutes, materials, and list of participants from key stakeholder engagement meetings	$13,301	$8,865	$3,936	$500	$750	$13,301	$-	$-	$-

2.1 Stakeholders engaged in consultative processes	**Activity 5:** Capacity building for green development **Intermediate Deliverable: (**1) Minutes, materials, and list of participants from key stakeholder engagement meetings, including St. George's University; (2) an inventory of capacity building tools at all levels, including training manuals, courses offered at schools and universities, decision tools, vocational training, and public participation strategies;	$27,922	$14,901	$11,022	$2,000	$-	$27,922	$-	$-	$-
2.2 Country programmes, including adaptation priorities, developed and continuously updated	**Activity 1:** A comprehensive mitigation strategy **Intermediate deliverables Activity 1: (1)** A preliminary Greenhouse Gas Emission Model for the main island of Grenada; (3) A draft plan on action on proposed demand-side and supply-side interventions to reduce GHG emissions.	$44,129	$7,515	$5,275	$1,340	$30,000	$44,129	$-	$-	$-
2.2 Country programmes, including adaptation priorities, developed and continuously updated	**Activity 2**: Active preparations for sea level rise and hurricanes **Intermediate deliverables Activity 2:** (1) A downscaled local climate model for estimating sea level rise, precipitation, temperature change and the frequency of extreme events in the coming decades for the main island of Grenada; (3) Preliminary design ideas for four climate resilient projects in Saint George, Grenada such as: (i) The Promenade; (ii) The Southern Corridor; (iii) The International **Airport; and (iv) The Grenville Coastal Road.**	$115,043	$46,955	$25,408	$2,680	$40,000	$115,043	$-	$-	$-
2.2 Country programmes, including adaptation priorities, developed and continuously updated	**Activity 3:** Ecosystem restoration and water-system reinforcement **Intermediate deliverables Activity 3:** (2) Preliminary conceptual designs for three (3) ecosystem restoration projects; (2) preliminary assessment and a conceptual design for a decentralized sewerage system in St. George.	$27,429	$10,854	$15,075	$1,500	$-	$27,429	$-	$-	$-
2.2 Country programmes, including	**Activity 6:** Production of final report and knowledge management system in Grenada Final Deliverables	$34,450	$15,750	$8,700	$-	$10,000	$-	$34,450	$-	$-

adaptation priorities, developed and continuously updated	**Activity 6: (1)** Drafting and publishing of final project report; (2) Drafting, illustrating, and publishing project book containing the essence of the pre-feasibility studies for as many as ten high-priority projects for possible feasibility study funding by the Green Climate Fund and others. (3) Creating web-based knowledge management system**.**									
4.2 Country programmes, concept notes, including on adaptation, developed that implement high-impact priorities identified in INDCs and other national strategies or plans	**Activity 1**: A comprehensive mitigation strategy **Final Deliverable: (1**) A completed Greenhouse Gas Emission Model for the main island of Grenada; and (2) A plan on action on proposed demand-side and supply-side interventions to reduce GHG emissions.	$10,402	$5,524	$3,878	$1,000	$-	$-	$10,402	$-	$-
4.2 Country programmes, concept notes, including on adaptation, developed that implement high-impact priorities identified in INDCs and other national strategies or plans	**Activity 2:** Active preparations for sea level rise and hurricanes **Final Deliverables Activity 2:** (1) Baseline data from the downscaled climate model	$27,598	$17,259	$9,339	$1,000	$-	$-	$27,598.0	$-	$-
4.2 Country programmes, concept notes, including on adaptation, developed that implement high-impact priorities identified in INDCs and other national strategies or plans	**Activity 4:** Urban densification and climate-resilient urban expansion **Intermediate Deliverables Activity 4: (1**) A preliminary cadater map of St. George parish; (3) Densification concept plan; and (4) climate-resilient expansion concept plan.	$42,904	$26,595	$11,809	$1,500	$3,000	$42,904	$-	$-	$-
4.2 Country programmes, concept notes, including on adaptation, developed that implement high-impact priorities identified in INDCs	**Activity 5**: Capacity building for green development **Final Deliverables Activity 5:** a comprehensive action plan, designed as a fundable project, for increasing the capacity of Grenadians at all levels to engage in climate change projects and programs in coming years.	$13,768	$7,339	$5,429	$1,000	$-	$-	$13,768		

and other national strategies or plans										
4.3 Project/programme preparation support, including for adaptation, to develop funding proposals provided	**Activity 2:** Active preparations for sea level rise and hurricanes **Final Deliverables Activity 2:** (2) Pre-feasibility designs and descriptions of four projects that address expected sea level rise in Saint George, Grenada such as: (i) The Promenade; (ii) The Southern Corridor; (iii) The International Airport; and (iv) The Grenville Coastal Road**.**	$27,598	$17,259	$9,339	$1,000	$-	$-	$27,598.0	$-	$-
4.3 Project/programme preparation support, including for adaptation, to develop funding proposals provided	**Activity 3**: Ecosystem restoration and water-system reinforcement **Final Deliverables Activity 3:** (1) Advanced designs and pre-feasibility study for a proposal for an omnibus of ecosystem restoration and water system reinforcement for St. George; (2) Advanced conceptual design and a pre-feasibility study for a project focused on alternative energy powered sewerage treatment system for St. George**.**	$18,028	$7,128	$9,900	$1,000	$-	$-	$18,028	$-	$-
4.3 Project/programme preparation support, including for adaptation, to develop funding proposals provided	**Activity 4:** Urban densification and climate-resilient urban expansion **Final Deliverables Activity 4: (1**) A pre-feasibility study, action plan, GCF Concept Note and PPF template proposal for a project focused on the densification and climate-resilient urban expansion of St. George, including maps, budget estimates, and regulatory reform proposals.	$26,220	$17,465	$7,755	$1,000	$-	$-	$26,220	$-	$-
Total cost of activities		$481,855	$233,855	$147,002	$18,000	$83,750	$323,791	$158,064		
PROJECT MANAGEMENT COST	Local senior advisor and junior assistant.	$35,000	$35,000	$-	$-	$-	$17,500	$17,500	$-	$-
	External audit.	$8,000	$8,000	$-	$-	$-	$4,000	$4,000	$-	$-

CONTINGENCY (UP TO 5%)		$24,000	$-	$-	$-	$24,000	$16,420	$7,580	$-	$-
DELIVERY PARTNER FEE (UP TO 10%)		$52,000	$-	$-	$-	$52,000	$34,840	$17,160	$-	$-
TOTAL		$600,855	$276,855	$147,002	$18,000	$161,750	$396,551	$204,304		

4.2. Procurement Plan

For goods, services, and consultancies to be procured, please list the items, descriptions in relation to the activities in section 2, estimated cost, procurement method, relevant threshold, and the estimated dates. Please include the procurement plan for at least the first tranche of disbursement requested below. Also, please feel free to replicate this table on Excel spreadsheet if needed.

ITEM	ITEM DESCRIPTION	ESTIMATED COST (US $)	PROCUREMENT METHOD	THRESHOLDS *(Min-Max monetary value for which indicated procurement method must be used)*	ESTIMATED START DATE	PROJECTED CONTRACTING DATE
International Consultants						
Climate Scientist	See note 1	$18,480	NYU Consultant Contract	From more than $1,000 USD	Q1 after first disbursement	Q1 after first disbursement
Engineer I (Team 1)	See note 1	$18,000	NYU Consultant Contract	From more than $1,000 USD	Q1 after first disbursement	Q1 after first disbursement
Engineer II (Team 2)	See note 1	$18,000	NYU Consultant Contract	From more than $1,000 USD	Q1 after first disbursement	Q1 after first disbursement
Engineer III (Teams 1 & 2 + field trips)		$12,000	NYU Consultant Contract	From more than $1,000 USD	Q1 after first disbursement	Q1 after first disbursement
Urban Designer II (Team 1)		$9,000	NYU Consultant Contract	From more than $1,000 USD	Q1 after first disbursement	Q1 after first disbursement
Urban Designer III (Team 2)		$9,000	NYU Consultant Contract	From more than $1,000 USD	Q1 after first disbursement	Q1 after first disbursement
Urban Designer V		$4,125	NYU Consultant Contract	From more than $1,000 USD	Q1 after first disbursement	Q1 after first disbursement
Real Estate Developer (Team 1)	See note 1	$18,000	NYU Consultant Contract	From more than $1,000 USD	Q1 after first disbursement	Q1 after first disbursement
Ecologist		$12,600	NYU Consultant Contract	From more than $1,000 USD	Q1 after first disbursement	Q1 after first disbursement
Sociologist		$9,000	NYU Consultant Contract	From more than $1,000 USD	Q1 after first disbursement	Q1 after first disbursement

Public Health Expert	See note 1	$10,000	NYU Consultant Contract	From more than $1,000 USD	Q1 after first disbursement	Q1 after first disbursement
Editor		$6,000	NYU Consultant Contract	From more than $1,000 USD	Q1 after first disbursement	Q1 after first disbursement
Graphic Artist		$6,000	NYU Consultant Contract	From more than $1,000 USD	Q1 after first disbursement	Q1 after first disbursement
Junior Research Assistant		$6,000	NYU Consultant Contract	From more than $1,000 USD	Q1 after first disbursement	Q1 after first disbursement
Local Consultants						
Cadaster Study	Local consultant or firm to be hired for cadaster study	$24,000	NYU Consultant Contract	From more than $1,000 USD	Q1 after first disbursement	Q1 after first disbursement
Data Management Expert	For development of knowledge management platform	$3,750	NYU Consultant Contract	From more than $1,000 USD	Q1 after first disbursement	Q1 after first disbursement
Senior Advisor	Local senior project manager	$17,500	NYU Consultant Contract	From more than $1,000 USD	Q1 after first disbursement	Q1 after first disbursement
Junior Assistant	Local junior project manager	$17,500	NYU Consultant Contract	From more than $1,000 USD	Q1 after first disbursement	Q1 after first disbursement
NYU Staff						
Urban Designer I (Teams 1 &2)	See note 1	$28,600	Not procured - NYU Staff			
Urban Designer IV (field trips)		$16,800	Not procured - NYU Staff			
Travel						
International Flights	Travel to Grenada from New York, Philadelphia, Aspen, Bogota	$42,000	NYU Direct Procurement - NYU Business Expenses Policy	From more than $1,000 USD	Q1 after first disbursement	Q1 after first disbursement
Food and Ground Transportation Allowance		$16,800	NYU Direct Procurement - NYU Business Expenses Policy	From more than $1,000 USD	Q1 after first disbursement	Q1 after first disbursement
Accommodations	Hotel rooms / house rental in Grenada	$85,200	NYU Direct Procurement - NYU Business Expenses Policy	From more than $1,000 USD	Q1 after first disbursement	Q1 after first disbursement
Workshop						

Workshop Venue	Three workshops, with five separate meetings per workshop	$6,000	NYU Direct Procurement	From more than $1,000 USD	Q1 after first disbursement	Q1 after first disbursement
Workshop Catering	Three workshops, with five separate meetings per workshop	$9,000	NYU Direct Procurement	From more than $1,000 USD	Q1 after first disbursement	Q1 after first disbursement
Other						
GHG Model		$30,000	Bid by invitation	From more than $10,000 USD	Q1 after first disbursement	Q1 after first disbursement
Sea Level Rise Temperature, Precipitation and Extreme Events Model		$40,000	Bid by invitation	From more than $10,000 USD	Q1 after first disbursement	Q1 after first disbursement
Publication Expenses	Production of final report	$4,000	NYU Direct Procurement	From more than $1,000 USD	Q3 after second disbursement	Q3 after second disbursement
Web Development	Development of web portal for knowledge management platform	$2,000	NYU Direct Procurement	From more than $1,000 USD	Q3 after second disbursement	Q3 after second disbursement
External Audit						
Auditor	2 audits	$8,000	NYU Direct Procurement	From more than $1,000 USD	Q2 after first disbursement	Q2 after first disbursement
SUB-TOTAL (US $)		470,875				
TOTAL COST (US $)		470,875				

4.3. Disbursement schedule
1st Tranche: USD 403,501 (Four hundred and three thousand five hundred and one US Dollars) only will be disbursed upon or after effectiveness of the Grant Agreement and also upon fulfilment of the disbursement conditions specified in the Grant Agreement and Standard Conditions. **2nd Tranche: USD 150,165 (One hundred and fifty thousand one hundred and sixty five US Dollars)** only, will be transferred (provided that at least 70% of the 1st Tranche has been incurred) upon submission of an interim progress report and Certified Financial Report and also upon fulfilment of the disbursement conditions specified in the Grant Agreement and Standard Conditions. **Final Tranche: USD 47,188 (Forty seven thousand one hundred and eighty eight US Dollars)** only, will be transferred upon submission of a project completion report and final Audit Report. Submission of a completion and audit report will be furnished no later than three (3) months after the completion of the Readiness Support and also upon fulfilment of the disbursement conditions specified in the Grant Agreement and Standard Conditions.
4.4. Additional information
See Annex 1 for detailed indicative budget with assumptions to justify costs in 4.1.

SECTION 5: IMPLEMENTATION ARRANGEMENTS AND OTHER INFORMATION

5.1. Please attach an "implementation map" or describe how funds will be managed by the NDA/FP or delivery partner

If the entity implementing the readiness support is not an accredited entity of the GCF, please complete the Financial Management Capacity Assessment (FMCA) questionnaire and submit it with this proposal.

NYU will be responsible for the procurement, management, and execution of all activities in this proposal. The National Designated Authority will assist NYU with meeting spaces, logistics, and materials for workshops, to the extent to which they are able. All activities will be undertaken in consultation with the government and specifically with the NDA, and all deliverables will be submitted to the NDA before submission to the GCF. The NDA and NYU will work to align project activities with national policies. GCF will provide financing for the activities according to an agreed upon contract and disbursement schedule of payments. NYU will execute all the activities outlined in this proposal in the prescribed manner and will be responsible for all the deliverables outlined in this project proposal. NYU will use its own academic, professional, and administrative personnel to execute this contract, and will also hire both international and Grenadian academic, professional, and administrative personnel to augment its academic, professional, and administrative resources.

Annex 1: Indicative Detailed Budget

Category	Consultant Category	Daily Rate	Total Person Days	No. of Trips to Grenada	No. of Worshops Attended	Air Fare	Days in Grenada	Hotel/Per Diem/local Travel	Total Consultant Fees	Total Travel Expenses	Workshop Expenses	Other Expenses	Contract Total	Category Subtotal
1. Comprehensive mitigation strategy (Team 1)									$16,740	$1,750	$3,000	$30,000		$51,490
Climate Scientist	Intern'l	$840	11	1	1	$600	5	$350	$8,240	$2,350			$11,590	
Policy Expert	Intern'l		3	3	3	$600	15	$350		$7,050			$7,050	
Student Assistant	Intern'l	$200	15			$600			$3,000				$3,000	
GHG Emissions Climate Model												$30,000	$30,000	
Legal and Regulatory Advisor	Intern'l	$750	6	1	1	$600	5	$350	$4,500	$2,350			$6,850	
Workshops (3 workshops at $1000 per workshop)											$3,000		$3,000	
2. Active preparations for sea level rise and hurricanes (Teams 2 & 3)									$104,600	$6,600	$3,000	$90,000		$207,200
Engineer II (Team 1)	Intern'l	$1,000	18	3	3	$600	15	$350	$18,000	$7,050			$25,050	
Engineer I (Team 2)	Intern'l	$1,000	18	3	3	$600	15	$350	$18,000	$7,050			$25,050	
Engineer III (Teams 1 & 2 - Field trips)	Intern'l	$600	24	6	3	$600	24	$350	$12,000	$9,600			$21,600	
Urban Designer III (Teams 1 & 2)	NYU	$1,100	13	2	2	$600	10	$350	$14,300	$4,700			$19,000	
Urban Designer III (Team 1)	Intern'l	$600	18	3	3	$600	15	$350	$9,000	$7,050			$16,050	
Urban Designer III (Team 2)	Intern'l	$600	18	3	3	$600	15	$350	$9,000	$7,050			$16,050	
Urban Designer IV (field trips)	NYU	$350	18	3	3	$600	15	$350	$6,300	$7,050			$13,350	
Real Estate Developer (Team 1)	Intern'l	$1,000	18	3	3	$600	15	$350	$18,000	$7,050			$25,050	
Sea Level Rise, Precipation, Temp / Extreme Events Climate Model												$40,000	$40,000	
Workshops (6 workshops at $1000 per workshop)											$6,000		$6,000	
3. Ecosystem restoration and water-system reinforcement (Team 4)									$21,600	$10,000	$3,000			$34,600
Ecologist	Regional	$350	36	6	3	$1,000	36	$250	$12,600	$15,000			$27,600	
Sociologist	Regional	$250	36	6	3	$1,000	36	$250	$9,000	$15,000			$24,000	
Workshops (3 workshops at $1000 per workshop)											$3,000		$3,000	
4. Urban densification and climate-resilient urban expansion (Team 5)									$52,925	$23,500	$3,000	$3,000		$82,425
Urban Designer I	NYU	$1,100	13	1	1	$600	5	$350	$14,300	$2,350			$16,650	
Urban Designer IV	NYU	$350	30	6	3	$600	30	$250	$10,500	$11,100			$21,600	
Urban Designer V	Intern'l	$275	15	3	3	$600	15	$350	$4,125	$7,050			$11,175	
Cadaster Study	Local	$200	120						$24,000	$3,000		$3,000	$30,000	
Workshops (3 workshops at $1000 per workshop)											$3,000		$3,000	
5. Capacity building for green development (Team 6)									$22,240	$16,450	$3,000			$41,690
Climate Scientist	Intern'l	$840	11	2	2	$600	10	$350	$9,240	$4,700			$13,940	
Public Health Expert	Intern'l	$1,000	10	2	2	$600	10	$350	$10,000	$4,700			$14,700	
Student Assistant	Intern'l	$200	15	3	3	$600	15	$350	$3,000	$7,050			$10,050	
Workshops (3 workshops at $1000 per workshop)											$3,000		$3,000	
6. Production of final report and knowledge management platform									$15,750	$8,700		$6,000		$30,450
Editor	Intern'l	$400	15	1	1	$600	15	$250	$6,000	$4,350			$10,350	
Graphic Artist	Intern'l	$400	15	1	1	$600	15	$250	$6,000	$4,350			$10,350	
Data management expert	Local	$250	15						$3,750				$3,750	
Publication and website development												$6,000	$6,000	
7. Local Project Management									$35,000					$35,000
Senior Advisor	Local	$250	70						$17,500				$17,500	
Junior Assistant	Local	$125	140						$17,500				$17,500	
8. External Audit									$8,000					$8,000
Auditor (2 audits at $4,.000 each)	Intern'l								$8,000				$8,000	
SUBTOTAL									**$276,855**	**$47,000**	**$18,000**	**$79,000**		**$420,855**
9. Contingency (not more than 5% of total)													$26,000	
10. Delivery Partner Fee (not more than 10% of total)													$52,000	
TOTAL														**$498,855**
Summary Statistics														
Total Number of Person-Days of all Project Personnel			218											
Total Number of non-Grenadian days in Grenada							136							
Number of trips of Non-Grenadians to Grenada				52										
Number of workshops in Grenada (3 Worshops per Team, 6 Teams)		18												

GREEN CLIMATE FUND

Annex 2: Exploratory Mission Participants, Agenda and Stakeholder List

Dates of Mission: February 17, 2018 - February 20, 2018

Expert Group Members and Affiliations:

Prof. Shlomo Angel - NYU Marron Institute of Urban Management
Prof. William Rom, M.D., MPH - NYU Langone School of Medicine
Dr. Franco Montalto - Drexel University
Germán Camargo Ponce de León - Fundación Guayacanal, Colombia
Simón Gaviria Muñoz - NYU Marron institute of Urban Management
Patrick Lamson-Hall - NYU Marron Institute of Urban Management

Mission Timeline

Saturday, February 17, 2018

Afternoon - Arrival
Evening - Meeting with Fitzroy James, Titus Antoine, Jessica Jacobs from Green Climate Fund, and with the Minister of Education and Human Resource Development, Simon Stiell.

Sunday, February 18, 2018

Morning - Tour of St. George's and Carenage (sea level rise/economic development) with Fitzroy James, Jessica Jacobs, Titus Antoine, Minister Simon Stiell, Dr. Angus Friday (Ambassador of Grenada to the United States).
Afternoon - Tour of Sauteurs (beach erosion) and Grenville (sea level rise) with Titus Antoine.

Monday, February 19, 2018

Morning - Stakeholder engagement meeting t Ministry of Finance
Afternoon - Stakeholder engagement and data gathering at government ministries

Tuesday, February 20, 2018

Morning - Meetings and consultation with stakeholders and with Green Climate Fund and Government of Grenada, NAWASA (the water authority), and Grenelec (power company) consultant
Afternoon - Departure.

List of Stakeholders

A partial list of stakeholders who attended the consultation at the Ministry of Economic Development is given below, The list includes other stakeholders, not present at the meeting, that the team met with over the course of its visit.

Titus Antoine
Denise Ashton
Kto Baptiste
Joseph Childers
Whyme Cox
Angus Friday
Tamika George
Fitzroy James
Michael Jessamy
Allison Lewis
Richard Olds
Aria St. Louis
Stanford Simon
Isabelle Slinger
Simon Stiell
Trevor Thompson
Phillip Vanicek
Randall Waechter

Annex 3: Links and References to Relevant Papers and Documents

Planning and Research on Urban Growth and Densification:

https://drive.google.com/file/d/1cgoHZosRkp1AFmza3JgPSTayEmee74Yq/view?usp=sharing

https://marroninstitute.nyu.edu/uploads/content/Commuting_and_the_Spatial_Structure_of_American_Cities,_20_December_2014_Version2.pdf

https://marroninstitute.nyu.edu/uploads/content/A_New_Plan_for_African_Cities_Oct_19_2015.pdf

https://marroninstitute.nyu.edu/uploads/content/Measuring_the_Quality_of_Urban_Layouts_December_1_2016_Reduced_new.pdf

https://marroninstitute.nyu.edu/uploads/content/Colombia_Working_Paper,_15_October_2015.pdf

Ecology and Hydrology:

Camargo, G. & L. Agudelo. 2017. *Reading a stratified landscape: retoration proposal based on multiscale planning on the dales of Xéridas high plateau, Santander, Colombia.* Revista Biota. Número especial Restauración Ecológica. Instituto Alexander von Humboldt.

Camargo, G. & L. Agudelo. 2016. A wetlands restoration model for a gold mine operation in lower Nechí river. National Seminary of Ecological Restoration. Rionegro, Colombia. SER Colombia Proceedings.

Camargo, German. 2008. Participative Ecological Restoration. Technical Guide. National Parks of Colombia

Green Infrastructure Development and Water Infrastructure:

https://drive.google.com/drive/folders/1QT-wCcaVdywycCIldfUz-3IH5IQrVd8S?usp=sharing

Climate Change, Climate Science, and Risk Management:

https://drive.google.com/drive/folders/1zPWKVWmE_k51qxnBvdUQrWNOttgauI5b?usp=sharing

Note 1

This note is a justification for the rates of the five consultant positions that pay more than $600/day. In general, the argument in favor of these rates is that the positions require levels of expertise that can not be provided by average consultants. The qualifications for these positions are outlined below.

Climate Scientist - The Climate Scientist should be an internationally recognized expert in the urban impact of climate change, holding a doctorate in a related discipline. Practice background combining research and innovation in the field. University association preferred. The candidate should have an interdisciplinary focus, with desired activities including contribution and participation in IPCC process, active membership in national and international climate change associations, and contributions to the development of international climate strategies and targets. The ideal candidate will be the author of prominent scientific publications with at least three recent articles relating to the impact of climate change in urban areas in order to ensure contemporary relevance of their skillset.

Engineer I (Team 1) - Engineer I shall be a licensed civil engineer with a strong background in both applied and theoretical approaches to solving complex environmental problems. Their particular interest should be in the development of ecologically, economically, and socially sensible solutions to urban environmental problems, with a focus on sustainable water resources engineering. They should have at least twenty years of experience in a variety of eco-hydrologic research, planning, and design projects, as well as work with "green infrastructure" and "low impact development" technologies. The ideal candidate will also have a university affiliation that combines experiential learning and research with successful project implementation at various scales.

Engineer II (Team 2) - Engineer II shall be a hydrologist with at least twenty years of experience working on sustainability projects. Their experience should be focused on ecosystem restoration and resource planning within urban centers. Additional, a portion of their role will involve project management, and they should have a background in project management. This should include management of ecological systems at the sea - land interface, including stormwater and high-water management structures. Additionally, the ideal candidate will have experience in large scale development projects. They should have at least a Master's degree in a relevant discipline.

Real Estate Developer (Team 1) - The real estate developer shall require extensive experience in the assessment of distressed properties, including properties that are threatened by environmental challenges. They will have at least a Master's level education in urban economics or city planning. Additionally, they will have at least three decades of relevant consulting experience. This experience should include work nesting local development plans into regional development plans, with an emphasis on community development and sustainability.

Public Health Expert - The Public Health Expert should be an internationally recognized public health expert with at least three decades of experience in investigating and acting on core public health concerns. They should have a university affiliation and should also be a medical doctor. The ideal candidate will also hold a Master's in Public Health. They should also have an expertise on global environmental health, with an emphasis on climate change and global public health. Additionally, they should have experience in research and documentation and the capacity to organize large datasets and write relevant, applicable publications. They should have several publications that are related to climate change and global public health.

Note 2

This note is a justification for the rate of the Urban Designer I position, which will pay more than $600/day. In general, the argument in favor of this rate is that the position requires a level of expertise that can not be provided by average consultants. The qualifications for this position are outlined below.

Urban Designer I (Teams I & II) - Urban Designer I should be an internationally recognized expert on urban development policy, with a history of advising major international organizations including development banks. They should have a history of publishing groundbreaking research on international best practices in urban planning and design. Their background should include extensive international experience, including the leadership of research programs and programs of implementation and practice. They should have a doctorate in a relevant discipline and will ideally have a current university affiliation.

Note 3

The procurement of the greenhouse gas emissions model and the sea level rise, precipitation, temperature, and extreme event model will involve purchasing access to an existing model and adjusting that model in collaboration with the servicer to downscale it to Grenada and the relevant geographies. This is in the spirit of purchasing and customizing a piece of software, versus hiring a consultant or a consulting firm, and that is why it has been tallied in the Other budget category.

The climate model and the GHG model are similar in that they both involve taking off-the-shelf techniques and materials and then downscaling them to the Grenadian context and training Grenadians in how to use them. The final models will be Grenadian owned and operated and, in the course of developing them, we will build capacity in Grenada to ensure that they continue to be useful beyond the scope of the project.