

Concept Note

Project/Programme Title: **ENHANCING CLIMATE RESILIENCE IN GRENADA'S HEALTH SECTOR**

Country(ies): GRENADA

National Designated Authority(ies) (NDA): Department of Economic and Technical Cooperation, Ministry of Finance

Accredited Entity(ies) (AE): Caribbean Community Climate Change Center (CCCCC) **(To be confirmed)**

Date of first submission/
version number: [YYYY-MM-DD] [V.0]

Date of current submission/
version number: [YYYY-MM-DD] [V.0]



Notes

- The maximum number of pages should **not exceed 12 pages**, excluding annexes. Proposals exceeding the prescribed length will not be assessed within the indicative service standard time of 30 days.
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- NDA can also submit the concept note directly with or without an identified accredited entity at this stage. In this case, they can leave blank the section related to the accredited entity. The Secretariat will inform the accredited entity(ies) nominated by the NDA, if any.
- Accredited Entities and/or NDAs are encouraged to submit a Concept Note before making a request for project preparation support from the Project Preparation Facility (PPF).
- Further information on GCF concept note preparation can be found on GCF website [Funding Projects Fine Print](#).

A. Project/Programme Summary (max. 1 page)			
A.1. Project or programme	<input type="checkbox"/> Project <input checked="" type="checkbox"/> Programme	A.2. Public or private sector	<input checked="" type="checkbox"/> Public sector <input type="checkbox"/> Private sector
A.3. Is the CN submitted in response to an RFP?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If yes, specify the RFP: _____	A.4. Confidentiality¹	<input type="checkbox"/> Confidential <input checked="" type="checkbox"/> Not confidential (Please confirm)
A.5. Indicate the result areas for the project/programme	<p>Mitigation: Reduced emissions from:</p> <input checked="" type="checkbox"/> Energy access and power generation <input checked="" type="checkbox"/> Low emission transport <input type="checkbox"/> Buildings, cities and industries and appliances <input type="checkbox"/> Forestry and land use <p>Adaptation: Increased resilience of:</p> <input checked="" type="checkbox"/> Most vulnerable people and communities <input checked="" type="checkbox"/> Health and well-being, and food and water security <input checked="" type="checkbox"/> Infrastructure and built environment <input type="checkbox"/> Ecosystem and ecosystem services		
A.6. Estimated mitigation impact (tCO₂eq over lifespan)	38,273 tCO ₂ eq (preliminary estimate)	A.7. Estimated adaptation impact (number of direct beneficiaries and % of population)	112,003 (100% Population)
A.8. Indicative total project cost (GCF + co-finance)	Amount: USD 36.6 Million	A.9. Indicative GCF funding requested	Amount: USD 35.3 Million
A.10. Mark the type of financial instrument requested for the GCF funding	<input checked="" type="checkbox"/> Grant <input type="checkbox"/> Reimbursable grant <input type="checkbox"/> Guarantees <input type="checkbox"/> Equity <input type="checkbox"/> Subordinated loan <input checked="" type="checkbox"/> Senior Loan <input type="checkbox"/> Other: specify _____		
A.11. Estimated duration of project/ programme:	5 Years (Still pending final number after consultation)	A.12. Estimated project/ Programme lifespan	20 years
A.13. Is funding from the Project Preparation Facility requested?²	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other support received <input type="checkbox"/> If so, by who:	A.14. ESS category³	<input type="checkbox"/> A or I-1 <input checked="" type="checkbox"/> B or I-2 <input type="checkbox"/> C or I-3
A.15. Is the CN aligned with your accreditation standard?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	A.16. Has the CN been shared with the NDA?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
A.17. AMA signed (if submitted by AE)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If no, specify the status of AMA negotiations and expected date of signing:	A.18. Is the CN included in the Entity Work Programme?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
A.19. Project/Programme rationale, objectives and approach of programme/project (max 100 words)	Grenada's Health sector is vulnerable to climate change impacts, directly through impacts on the population's health and health infrastructure system from natural hazards and extreme weather events such as tropical storms, hurricanes and floods, and indirectly through shifting patterns and increased incidence of infectious and vector-borne diseases. Several incidents have already occurred with hurricane Ivan in 2004 and Emily in 2005 with major		

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² See [here](#) for access to project preparation support request template and guidelines

³ Refer to the Fund's environmental and social safeguards ([Decision B.07/02](#))

losses and damages to the health infrastructure making delivery of health services limited in the aftermath of the incidents.

This programme is aimed at enhancing climate resilience in Grenada’s health sector with interventions planned at many levels of the healthcare structure,

The programme envisions implementing 5 different components as shown in Figure 1.



Figure 1 – Programme Components

B. Project/Programme Information (max. 8 pages)

B.1. Context and baseline (max. 2 pages)

Grenada as a Small Island Development State (SIDS) is particularly vulnerable to the impacts of climate change and natural disasters, which may become more frequent and more intense as the atmospheric temperature keeps increasing. In Grenada's First National Communication (FNC), the health sector was identified as particularly vulnerable to the impacts of climate change, and the government of Grenada designated it as a priority sector.

This project aims to enhance resilience in Grenada's Health sector by taking a holistic approach by implementing several improvements in different areas where gaps have been previously identified. The programme's objectives include creating a more robust surveillance and information system for communicable and non-communicable diseases, introducing low-carbon technologies for resilient electricity generation systems, and transportation for Grenada's health sector. Additionally, the programme aims to build local capacity to provide better healthcare services, among other outcomes which are explained in much more detail in section B2.

Background on Grenada's Health System

Grenada consists of a tri-island State of Grenada, Carriacou and Petite Martinique located to the north of Trinidad and Tobago and south of St. Vincent and the Grenadines in the Eastern Caribbean.

The ministry responsible for the health sector is Grenada's Ministry of Health and Social Security (MoHSS), responsible for health service delivery, policy formulation, and regulations. Health care is provided through six (6) district health centres and thirty (30) medical stations, which are located within a 5 km distance from their population catchment area and four (4) public hospitals (MoHSS, 2021). Figure 2 shows the location of the different public healthcare facilities in the country.

The private sector also offers health services at private facilities. The spending on private sector healthcare represents a high percentage of the total spending on health which amounted to approximately 54% in 2014.



Figure 2 – Map with public healthcare facilities in Grenada (MoHSS, 2021)

Climate Change and Health in Grenada

Grenada is highly vulnerable to the impacts of climate change. These impacts can either be categorised as climate hazards categorised which include extreme events or through slow onset events. These hazards have been increasing in intensity as well as frequency. The extreme weather events that affect Grenada include hurricanes and increased tropical storms intensity, coastal storm surges, droughts, floods, and landslides caused by heavy rainfalls, earthquakes, and in rare events, volcanic eruptions to which the entire island of Grenada is susceptible.

Table 1 shows the different climate change hazards to which Grenada is highly vulnerable, with a brief description of the implications for the health sector.

Table 1 – Climate Change Hazards that affect Grenada's Health Sector

Climate Change Hazard	Projected Change	Implications for the Health Sector
Tropical Storms	Increased Intensity	Loss and Damage to Health infrastructure and

		human lives
Droughts	Increased frequency and for prolonged periods	Decreased water available, which impacts food security
Floods and Storm Surges	Increased frequency and intensity	Loss and Damage to Health infrastructure and human lives
Sea-level rise	Higher sea levels	Loss and damage of health infrastructure near the coastline
Atmospheric Temperature	Annual mean increase	Change in patterns for vector-borne diseases

Source: Adaptation from Climate Analytics Climate Change Vulnerability Assessment (CA, 2021)

Extreme weather events have already caused significant damage to the health sector. In 2004, hurricane Ivan, a category 3 storm, passed through Grenada, leaving losses and damages estimated at 1.5 billion USD, representing 148% of Grenada's 2004 GDP (EURODAD, 2020). During this incident, 69% of the country's health infrastructure was damaged, including eleven health facilities and the second-largest hospital. As a result, health services were available only at a limited scale immediately after the disaster (GIZ, 2017). Then in 2005, Grenada was hit by hurricane Emily, a category 2 storm at the time and had devastating consequences on the already damaged infrastructure from hurricane Ivan. (GFDRR, 2012)

Climate change is expected to increase the severity of severe weather events in the Caribbean. Several studies indicate an increase in the annual number of tropical storms over the last 30 years influencing windspeeds and increasing also the intensity of hurricanes in the area (GoG, 2017). Model projections indicate potential for increases in hurricane activity (GIZ, 2017).

Observations indicate that the mean regional Sea Level Rise (SLR) in Grenada is consistent with the global trend ranging between 1.64 to 2.78 mm/year with an expected increase of 0.6 meters by 2080-2100, however, models which include land ice contributions estimate a more dramatic increase with a SLR of 1.4 meters by 2100 (GoG, 2017). Vital elements of Grenada's health infrastructure, including the hospital general, are located in coastal areas and are thus potentially threatened by Sea Level Rise and/or storm surge caused by climate change.

Some of these effects can already be observed with implications on water security with health impacts due to lack of proper sanitation and water quality, shifting patterns of vector-borne diseases, stress to the healthcare system, and increased incidence in communicable and non-communicable diseases. Furthermore, increasing amounts of airborne particles from Saharan dust during the rainy season may increase chronic respiratory diseases and acute respiratory infections.

PAHO SMART Hospitals Initiative

The SMART Hospitals project was developed by the Pan American Health Organisation (PAHO) in 2012 with a pilot project in Saint Vincent and the Grenadines and Saint Kitts and Nevis, with support from the UK Department for International Development (DFID). The project aims to make health facilities "safe" and "green" and creates a framework for evaluating progress toward that end. The initiative has developed checklists for evaluating facilities in each of these areas.

In Grenada, with PAHO's help, Princess Alice hospital has been already retrofitted to the SMART facility concept (PAHO, 2018) along with Hillsborough Medical Centre which was completed in April 2021. There are additionally three (3) more facilities in the process of being retrofitted: Princess Royale Hospital; Richmond Home for the Elderly; and the Central Medical Stores.

Climate-sensitive diseases and disorders

Grenada is vulnerable to vector-borne, communicable, and non-communicable diseases that are sensitive to climate impacts. Grenada's population is primarily exposed to the Dengue, Chikungunya and Zika viruses

(all three being vector-borne disease) with infection rates increasing in SIDS. The mosquito *Aedes aegypti*, responsible for the transmission of these viruses, can be affected by small changes in atmospheric temperature and rainfall, which affects the patterns of the mosquito vector. Some studies suggest that cases of vector-borne diseases will exceed projections from a baseline scenario (GIZ, 2017).

Some activities have already been undertaken in Grenada responding to this need for climate resilience, more precisely for water quality and security, by introducing vector-proof water storage containers. There is also a funding proposal approved by the GCF for Grenada's Climate Resilient Water Sector (G-CREWS) with an intervention to improve drinking water storage, plumbing and rainwater harvesting infrastructure at 16 community health facilities and related services. However, broader efforts are still required to enhance the country's ability to identify and address issues related to climate-sensitive disease and disorder monitoring.

National priorities on climate resilience in the health sector

This programme builds on policies and plans to address weaknesses and challenges that the health sector in Grenada faces. Some of the weaknesses and challenges identified by the MoHSS while preparing the National Health Strategic Plan 2016-2025 (NHSP) (MoHSS, 2015) and Corporate Plan 2015-2017 (MoHSS, 2014) include inadequate integration of services and standards to measure the quality of healthcare services, lack of clearly defined protocols, inequitable distribution of health resources, inadequate finances, infrastructure and equipment, weak enforcement of health legislation and outdated public health legislation and regulations. (CA, 2021)

Grenada's second National Determined Contribution to the UNFCCC, submitted in November 2020, references human health as one of the key focus areas and aims to link also the NDC implementation.

Enhancing the resilience of the health sector is a priority for the Government of Grenada as identified in the FNC, and it goes in line with the national plans such as the NHSP 2016-2025, the National Climate Change Adaptation Plan (NCCAP) 2017-2021 and Grenada's second NDC. Building resilience in the public health sector could benefit the whole population of Grenada by enhancing resilience to climate change impacts in the health as well as establishing proper response systems to address potential hazards while mainstreaming the introduction of health into the decision-making processes for the creation of new policies and regulations.

Grenada's National Climate Change Adaptation Plan prioritises establishing a climate-sensitive disease surveillance and control system. There is also a knowledge and research gap on climate change effects and the correlation between disease patterns in Grenada (GoG, 2017).

Barriers

Several barriers have been identified related to enhancing the resilience of the healthcare system in Grenada and reducing its carbon footprint:

- **Financial:** The healthcare structure needs improvements on the infrastructure and operation with needed capital improvements including structural, non-structural and green interventions. However there are insufficient capital resources available to invest in measures to improve safety and resilience of the healthcare infrastructure.
- **Regulatory and operational:** The available regulatory framework for the health sector in Grenada is outdated and there is a lack of capacity for enforcement. There is also a lack of proper procedural and operational guidelines in place for the health facilities in general and for response in case of extreme weather events.
- **Human resources:** The government of Grenada has limited human capacity in the health sector to address issues such as developing a surveillance and disease system and lack of expertise in

some knowledge areas.

- **Technological:** There are technological awareness gaps that need to be addressed with areas of opportunity to improve energy efficiency and mitigate greenhouse gas emissions. There is a lack of awareness in the low-carbon technologies available. In the Rapid Assessment and Trend Analysis (PAHO, 2019) for Grenada 16 healthcare facilities out of 38 assessed were assigned a B classification according to the Hospital Safety Index (WHO/PAHO, 2019)⁴, 37 facilities out of 38 reached a Green checklist score of 30%⁵, however to be certified a 70% is required (PAHO, 2019), this means that there exists a technological gap in the Grenada's health sector with possibility to be addressed.
- **Institutional:** There is a lack of inter-agency and inter-sectoral cooperation to create to mainstream the drafting and decision-making to protect human health from the adverse effects of climate change.
- **Social:** There exist lack of awareness on the threats, effects and impacts of climate change to the population's health. Moreover, the healthcare workforce lacks also from awareness on the climate change impacts and the benefits transitioning to environmentally sustainable healthcare facilities.

B.2. Project/Programme description (max. 3 pages)

The programme's overall goal is to take an integrated approach and create an environmentally sustainable and climate-resilient health sector in Grenada while helping mitigate and adapt to the impacts of climate change.

This programme is aimed at building resilience in Grenada's health sector with interventions on the underlying regulatory and procedural issues, but also with mitigation interventions reducing environmental pollution and increasing energy reliability through the introduction of low-carbon electricity generation systems and the electrification of the transportation fleet for the health sector, additionally there are planned interventions to include sustainable practices for healthcare waste management.

Furthermore, this programme is envisioned to build local capacity for the healthcare sector for better preparedness to climate crises and implement a more robust surveillance, monitoring and research system for communicable, non-communicable and vector-borne diseases.

The interventions planned in this programme follow the approach outlined by the World Health Organization in their guidance for climate-resilient and environmentally sustainable health care facilities (WHO, 2020), as shown in Figure 3 with interventions aiming at the healthcare workforce, the general public and the healthcare facilities and infrastructure to reduce vulnerabilities and risks through reduced hazards and exposures.

⁴ The HSI score is separated into three categories of safety, with the final index score derived by totalling rankings of the status of a hospital's structural (e.g., roof integrity), non-structural (e.g. emergency lighting systems) and functional (e.g. disaster response plan) features. These are divided into three classifications depending on the safety of the hospital:

A: Facility is deemed capable of protecting patients' lives, and is likely to continue operating in case of a disaster

B: Facility is deemed capable of resisting a disaster, but with equipment and essential services at risk

C: Facility where lives and safety of patients is deemed to be at risk during disasters. (PAHO/WHO, 2017)

⁵ The Green Checklist, similarly, awards points based on the existence of environmentally friendly practices across various categories. For this category to be considered green a 70% score must be achieved. (PAHO/WHO, 2017)

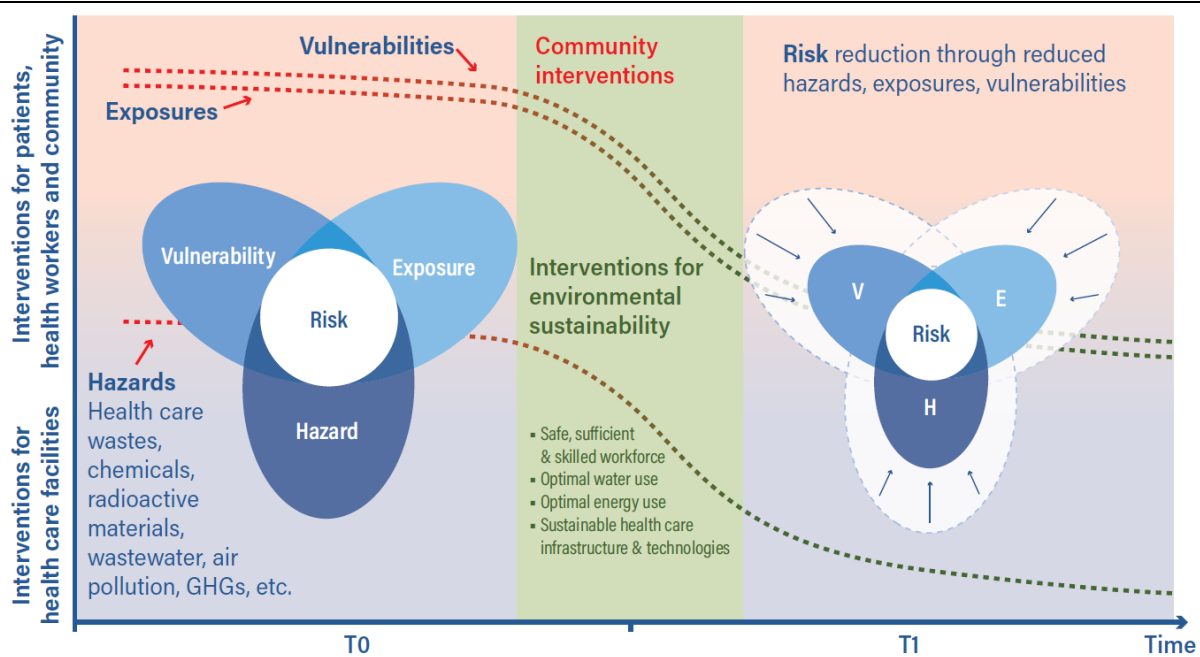


Figure 3 -Environmental sustainability in healthcare facilities (WHO, 2020)

To achieve the environmental sustainability for Grenada's health sector, the project is divided into 5 components with main outcomes from each component:

COMPONENT 1: Build capacity in the healthcare system for disease surveillance, research, monitoring and assessment of climate change health risks and diseases.

This component will support the implementation of the District Health Information Software Version 2.0(DHIS2) which is an open-source web-based platform used for disease, surveillance, response and information healthcare management system. The system will be set-up along with a National Information and Research Centre where regional, temporal, environmental and climatological data will be gathered and analysed to research inter-linkages between climate variables and implications on communicable and non-communicable diseases. This will enable evidence-based interventions including the evaluation of the progress, effectiveness, and efficiency of such interventions.

The main outputs from this component are as follows:

- Set-up of the National Information and Research Centre where the DHIS2 data will be safely gathered and analysed by a research team with in-country experts.
- Implement the DHIS2 in 40 facilities including:
 - Training and capacity building of a team with at least five (5) people to manage, operate and maintain the DHIS2 system with training for different system users.
 - Development of operational and administrative procedures for the DHIS2 system.

COMPONENT 2: Strengthen the regulatory and operational framework to mainstream the impacts of climate change into national health plans and policies.

This component is envisioned to conduct a regulatory assessment and produce draft regulations and legislations to be considered by the relevant government authorities. The main purpose of this component is to enhance the regulatory and procedural framework for the healthcare sector in Grenada by conducting a regulatory and legislative assessment to produce draft regulation and processes to be considered by the relevant national authorities. This will streamline the drafting process for enabling policies, regulations and

operational guidelines, which would improve preparedness and resilience to climate change impacts.

The main outputs of this component are as follows:

- Implement a systematic process approach to the drafting of appropriate regulatory and legal documents for the health sector in Grenada, including capacity building to improve enforcing mechanisms and support from the relevant governmental agencies.
- Develop operational guidelines and response plans to make sure facilities operate at the level of International Health Regulations (IHR) to safeguard patients and the healthcare workforce. This will include guidelines and response plans for:
 - Vector-borne disease and control response plan
 - Disaster management and response plan
 - Waste management operational guidelines
- Establish an inter-agency and inter-sectoral cooperation platform through support in developing processes to recommend to the relevant governmental agencies in which there exists collaboration and cooperation at different levels to mainstream root issues affecting the delivery and quality of health services and into decision-making and policy drafting.

COMPONENT 3: Build climate resilience into the health infrastructure in line with the SMART (safe & green) Healthcare Facilities concept.

Component 3 is aimed at building climate resilience into the healthcare infrastructure following the SMART Healthcare Facilities concept. This component will support the retrofitting of all the facilities that are not in the process of being retrofitted to SMART standards which amount to 37 in total. Additionally, this component will reduce Grenada's health sector CO₂ emissions by introducing climate-friendly technologies into the sector's operation as well as increasing resilience in case of extreme weather events.

The main outputs of this component are as follows:

- Retrofit 37 facilities to the SMART Healthcare standards with support from the Project Preparation Facility to develop pre-feasibility studies as the ones that have already been done are outdated.
- Electrify the vehicle fleet (which consists of 6 ambulances) and installation of enabling infrastructure to charge the electric vehicle fleet at strategic locations (amounting to 6 charging stations in total).
- Introduce climate-resilient solar PV systems (2.5 MW) by outsourcing the design, construction, and installation to enable the generation of electricity in case of extreme weather events or to reduce grid electricity consumption of the healthcare facilities which would save costs from electricity bills and reduce CO₂ emissions.

COMPONENT 4: Improved response to climate change crisis through an integrated primary health care structure.

Increasing climate change hazards and impacts have stressed the primary healthcare structure, which affects health response to climate crises. Primary healthcare services must contribute to climate change adaptation by promoting preventive health interventions as well as integrated primary health services. This component is aimed at enhancing climate preparedness through the implementation of public awareness campaigns on climate change impacts and related health issues while enabling an integrated primary healthcare approach by equipping primary healthcare facilities with necessary equipment to provide essential healthcare services in case of extreme weather events or a climate crisis.

The main outputs envisioned for component 4 are as follows:

- Public awareness campaigns to address climate change related issues and impacts which include:

- Climate change and health risks.
 - Malnutrition and food security issues related to climate change impacts.
 - Immunization and vector-borne diseases.
- Establish an integrated primary healthcare structure by equipping the facilities with the necessary supplies and instrumentation to provide essential healthcare services in case of a climate crisis.

COMPONENT 5: Local capacity building and knowledge management and exchange for better preparedness to climate change.

The health workforce plays a vital role at building resilience to climate change as well as providing essential services in case of extreme weather events. Building awareness to climate change, training and empowering health workers for a crisis response plays a key role in dealing with the effects and impacts of climate change. This component is aimed towards building the local capacity in the healthcare workforce needed to deal with the impacts of climate change as well as enabling knowledge exchange and management for better preparedness to unforeseeable events such as COVID-19.

The outputs of this component are as follows:

- Local capacity building of the health workforce through specialized training on climate change preparedness and response as well as with inherent issues of the operation and delivery of essential services during a climate crisis.
- Promote knowledge and exchange in the healthcare sector to raise awareness of all the staff on climate change, its impacts, and the benefits of transitioning to environmentally sustainable healthcare facilities.

The theory of change for the programme is shown in Figure 4 where the overall vision is established, including the outcomes, outputs, activities and barriers to achieve the proposed vision of the programme.

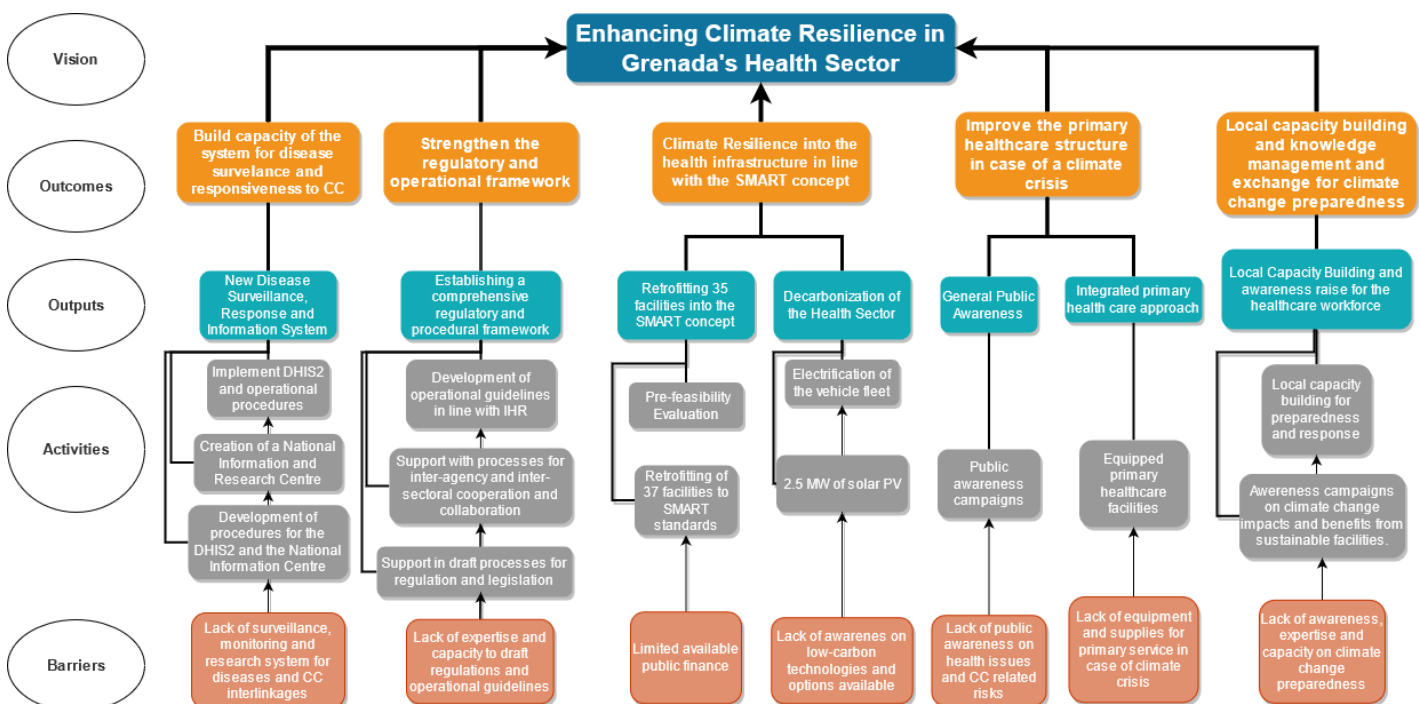


Figure 4 – Theory of Change diagram for the programme concept

Impact Potential

The programme implications will be cross-cutting, including mitigation and adaptation measures.

- **Mitigation Potential:** The mitigation component includes introducing low-carbon electricity generation and transportation technologies. The programme is estimated to help avoid 4,050 tonnes of CO₂eq in ten (10) years from the use of electric ambulances and 34,223 tonnes of CO₂eq in fifteen (15) years from the use of solar PV systems. These numbers were obtained by performing a preliminary analysis on the fuel consumption of petrol for the ambulances and in case the electricity generated was obtained from CO₂ emissions from diesel instead of solar PV.
- **Adaptation Potential:** The adaptation measures, which include a variety of subcomponents and activities, is expected to benefit 100% of the population of Grenada (112,003 Grenadians as of 2019) as the programme aims to address the regulatory gaps by mainstreaming the healthcare sector into policy drafting and decision-making at different institutional levels. The programme also aims to build local capacity to increase quality and healthcare service delivery and develop operational guidelines and response plans to enhance resilience to climate change impacts and hazards. Moreover, the programme will increase resilience by implementing a comprehensive surveillance, monitoring and research system to gather data on disease patterns and support evidence-based interventions to improve Grenadians' health and well-being.

Paradigm Shift Potential

This programme aims to transform Grenada's health sector infrastructure and operations by introducing low-carbon technologies for electricity generation and transportation, improving efficiency through better waste management practices and retrofitting healthcare facilities to a SMART concept to provide safer and greener health facilities to improve healthcare service delivery in general and in case of disasters.

This transformation will also address local capacity issues with training and exchange programmes to build healthcare workforce capacity and allow for knowledge exchange and learning. This training will create a health sector workforce that is more aware of the health impacts of climate change and is better prepared to address them.

The general public will also be part of this transformation with sensitization campaigns aimed at raising awareness on critical issues such as vector-borne diseases or malnutrition while also helping educate them on climate change issues by preparing a documentary.

Lastly, the regulatory and legal framework for the health sector in Grenada will be strengthened by implementing a systematic process approach to draft appropriate regulations as well as creating operational guidelines for response and management of the health system. Inter-agency and intra-sectoral collaboration and cooperation will also be enabled through defined processes to allow for interaction between different levels and be able to mainstream root issues affecting the operation and administration of the healthcare facilities into the drafting of policies and regulations.

Sustainable Development Potential

The programme contemplates co-benefits which including:

- **Economic co-benefits:** Several new jobs will be created, particularly in the construction industry, as well as for specialized equipment installers, such as solar photovoltaic systems. Moreover, a team of ten (10) people will be assembled to operate and maintain the DHIS2 system with some people dedicated to research from the data gathered.
- **Social co-benefits:** Improved health and safety through improved preparedness and response to climate change impacts with safer and greener healthcare facilities from which the entire population of Grenada will benefit. This will also provide continuous and uninterrupted service in case of a climate change hazard.

- **Environmental co-benefits:** Improved air quality from greenhouse gas emission reductions by utilizing electric ambulances and solar PV generation.

The project also goes in line with the sustainable development of Grenada by also helping address issues established in the Sustainable Development Goals (SDGs) as outlined in Table 2.

SDG #	Target	Indicator	Programme Contribution
2	Zero Hunger	Prevalence of undernourishment and Food Insecurity Experience Scale (FIES) for the prevalence of food insecurity	Reduction of food security issues through preventive interventions in schools and for child health as well as raising awareness on climate change and malnutrition issues
3	Good Health and Well-Being	Incidence of vector-borne, communicable and non-communicable diseases	Improved surveillance of diseases and vector populations
3	Good Health and Well-Being	Coverage of essential health services, including vaccination schemes	Integrated Primary Healthcare Structure to provide essential health services
3	Good Health and Well-Being	International Health Regulations (IHR) capacity and health emergency preparedness	Development of response and operation guidelines for emergency preparedness
9	Industry, Innovation and Infrastructure		SMART Healthcare standards for all the facilities in Grenada
13	Strengthen resilience and adaptive capacity to climate change and natural disasters	Number of deaths, missing persons and directly affected persons attributed to disasters per 100,000 population	Risk reduction by intervening the environmental sustainability of the health sector.

Table 2 - Sustainable Development Goals targeted by the programme.

Needs of Recipient

As mentioned in section B1, Grenada has previously identified the health sector as particularly vulnerable to the effects of climate change, with impacts from hurricanes, coastal storm surges, droughts, floods, and landslides caused by heavy rainfalls, among others. This has already caused significant losses and damages for the health sector. The situation only worsened as in 2019, a global pandemic was identified as COVID-19, which caused a worldwide economic downturn and which effects can still be seen worldwide. This situation led Grenada's Government to acquire a 25 million USD concessional loan funded by the World Bank as part of Grenada's COVID-19 Crisis Response and Fiscal Management DPC (World Bank, 2021).

This makes it complicated financially for the Government of Grenada to fund the necessary improvements in the health sector to enhance resilience as outlined in this programme, as the resources obtained from the COVID-19 Response and Fiscal Management loan will be used to mitigate the economic impacts left by the pandemic.

Country Ownership

Grenada has identified the health sector as a priority since their FNC submitted to the UNFCCC. Moreover, the NHSP 2016-2025 recognizes that impacts of climate change have already been felt in the sector with shifting patterns on vector-borne diseases.

In Grenada's NCCAP 2017, the Government of Grenada prioritized establishing a climate-sensitive surveillance and control system, which is also one of the outcomes of this programme.

This programme is also aligned with Grenada's second NDC with the inclusion of low-carbon technologies and the best available technologies to help mitigate factors that could affect the respiratory health of Grenadians as pledged in the NDC submission to the UNFCCC.

The Government of Grenada will extensively engage in the preparation of the programme plans for each component through the MoHSS and with guidance from the 5Cs (**Accredited Entity**) which will liaise as the implementing partner. Further information related to the engagement and consultation of key stakeholders for the preparation of this concept note can be found in section B.4.

Efficiency and Effectiveness

Preliminary estimates indicate a cost of 967 USD per tonne of CO₂eq including the costs of adaptation interventions, however total costs for developing the appropriate plans to undertake the activities established in the programme are still estimates with the need of a proper project preparation and budgeting of allocated resources.

Princess Alice Hospital, which has already been retrofitted to SMART, shows that the efficiency and effectiveness of the SMART concept can be replicable and scalable.

B.4. Engagement among the NDA, AE, and/or other relevant stakeholders in the country (max ½ page)

The concept note was developed with extensive engagement from the MoHSS and revised via a consultation organised by Climate Analytics with relevant health sector stakeholders, including attendees from the Government of Grenada including the MoHSS, PAHO, and regional development partners.

C. Indicative Financing/Cost Information (max. 3 pages)

C.1. Financing by components (max ½ page)

Please provide an estimate of the total cost per component/output and disaggregate by source of financing.

Component/Output	Indicative cost (USD)	GCF financing		Co-financing		
		Amount (USD)	Financial Instrument	Amount (USD)	Financial Instrument	Name of Institutions
Component 1: Build capacity on the healthcare system disease surveillance, research, monitoring	3.4M	2.1M	Grant	0.9M	In Kind	Government of Grenada
				0.4	Grant	EU/CARIFORUM Climate Change and

and assessment of climate change health risks and diseases						Health Project (PAHO)
Component 2: Strengthen the regulatory and operational framework for mainstreaming the impacts of climate change into national health plans and policies	1M	1M	Grant			
Component 3 Output 3.1: SMART Healthcare Facilities	17.9M	17.9M	Grant + Loan			
Component 3 Output 3.2: Low-carbon technologies to mitigate Health sector emissions	7.6M	7.6M	Grant+ Loan			
Component 4: Improve primary health care structure and reduce the impact of climate events on food and nutrition security.	2.5M	2.5M	Grant			
Component 5: Knowledge management and exchange	1.1M	1.1M	Grant			
Project Management	3.0M	3.0M	Grant			
Indicative total cost (USD)	36.6M	35.3M		1.3M		

C.2. Justification of GCF funding request (max. 1 page)

As noted in section B3 Needs of Recipient, Grenada is in a dire situation financially with the lasting effects of COVID-19. Figure 5, which shows Grenada's government gross debts as a percentage of GDP. It can be seen that Grenada had been making efforts to reduce the debt burden from over 100% in 2013 to around 60% by 2019; however, due to the COVID-19 pandemic, the government had to increase its debt burden again to around 70%, according to estimations from the IMF, the debt burden will peak again in 2021 to around 72% of GDP and then start decreasing in the years after to a level of around 55% by 2026.

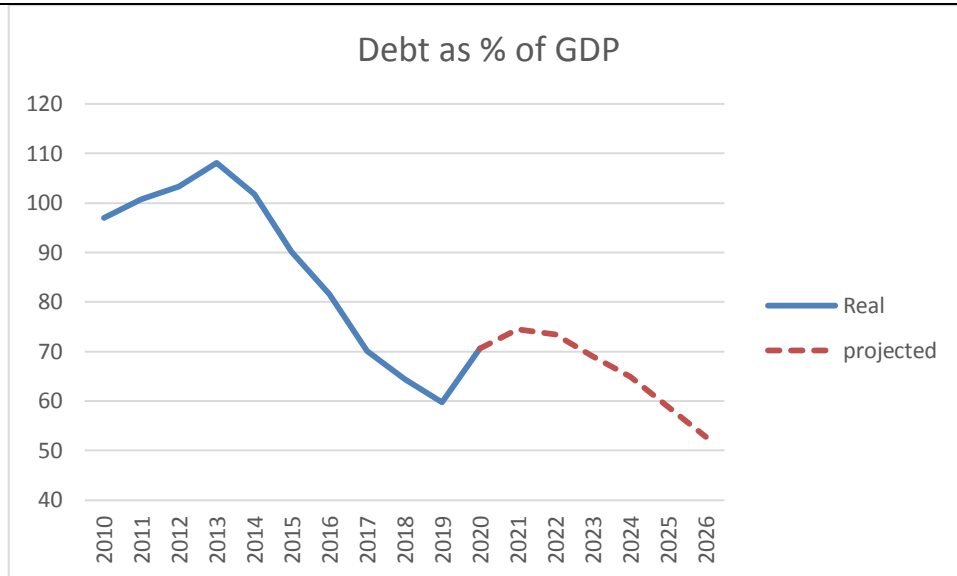


Figure 5 – Grenada's Debt as percentage of GDP 2010-2026 (IMF, 2021)

This situation makes it complicated for the government to compromise the sectoral budgets before assigning these resources to debt repayments. Extreme weather events can also exacerbate this as it keeps obliging the government in acquiring more debt as has happened already with COVID-19.

C.3. Sustainability and replicability of the project (exit strategy) (max. 1 page)

Monitoring during the development stages of the programme with established indicators for and after the implementation with help from the implementing agency.

The activities will continue with the development of research and data gathering for the surveillance system, sensitisation campaigns, knowledge, and information exchange. Each component of the programme should include developing the complete plans for the implementation evaluation and monitoring indicators to track the progress and milestones while identifying gaps that could be further addressed.

D. Supporting documents submitted (OPTIONAL)

- Map indicating the location of the project/programme
- Diagram of the theory of change
- Economic and financial model with key assumptions and potential stressed scenarios
- Pre-feasibility study
- Evaluation report of previous project
- Results of environmental and social risk screening

Self-awareness check boxes

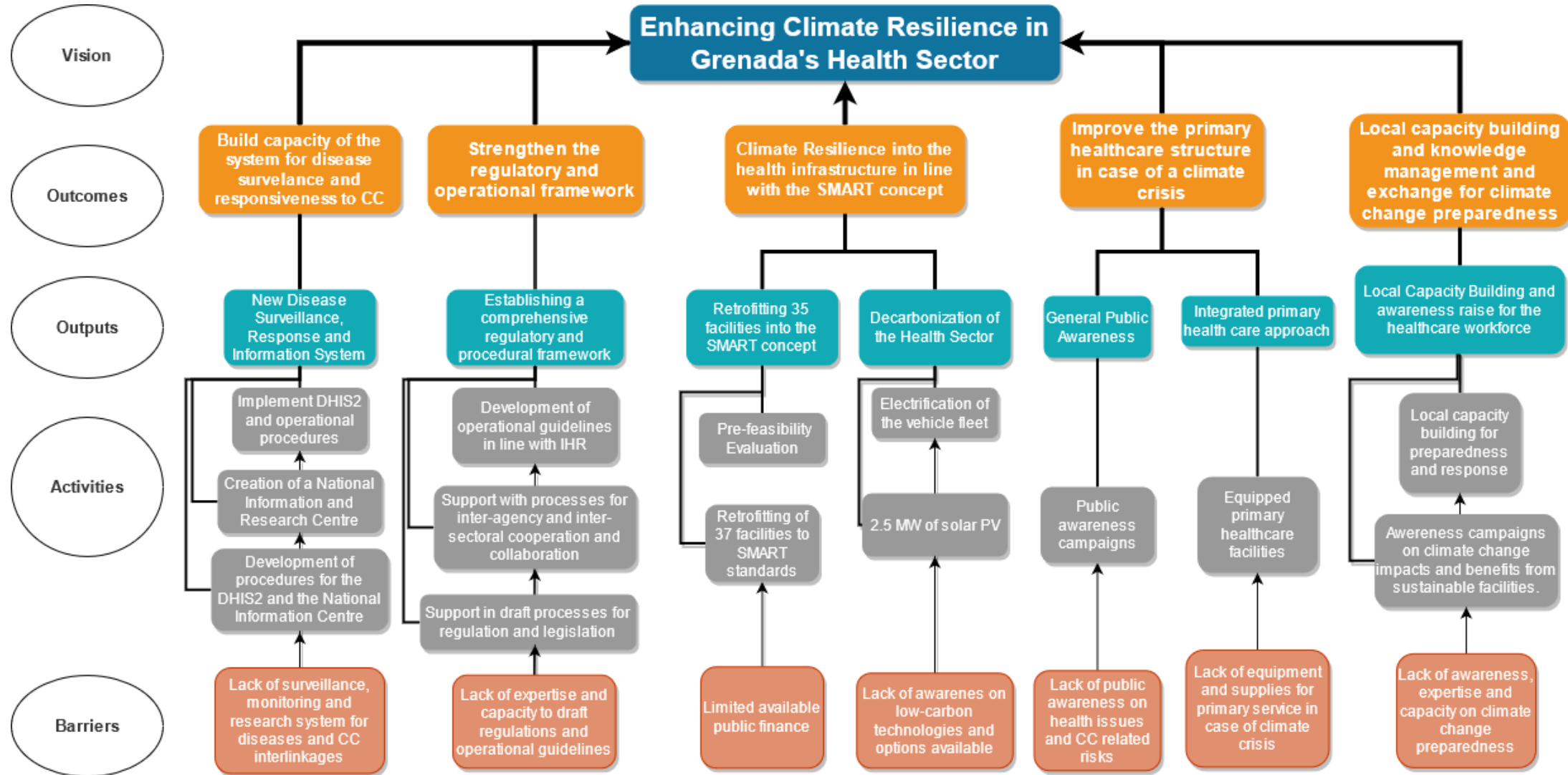
Are you aware that the full Funding Proposal and Annexes will require these documents? Yes No

- Feasibility Study
- Environmental and social impact assessment or environmental and social management framework
- Stakeholder consultations at national and project level implementation including with indigenous people if relevant
- Gender assessment and action plan
- Operations and maintenance plan if relevant

- Loan or grant operation manual as appropriate
- Co-financing commitment letters

Are you aware that a funding proposal from an accredited entity without a signed AMA will be reviewed but not sent to the Board for Fconsideration? Yes No

Figure 4 – Theory of Change diagram for the programme concept



Bibliography

- EURODAD. (2020). *A tale of two emergencies: The interplay of sovereign debt and climate crises in the global south*. European Network on Debt and Development.
- CA. (2021). *Grenada Climate Change Vulnerability Assessment: Health ,Energy, Tourism and Transport* . Climate Analytics.
- GFDRR. (2012). *Disaster Risk Management in Latin America and the Caribbean Region: GFDRR Country Notes*. Global Facilitz For Disaster Reduction and Recovery.
- GIZ. (2017). *Grenada climate change and health vulnerability and adaptation assessment*. Bonn: Deutsche Gessellschaft für Internationale Zusammenarbeit (GIZ) GmbH.
- GoG. (2017). *National Climate Change Adaptation Plan (NAP) for Grenada, Carriacou and Petite Martinique 2017-2021*. Government of Grenada.
- GoG. (2017). *Second National Communication to the United Nations Framework Convention on Climate Change*. Government of Grenada.
- GoG. (2019). *Grenada Drought Management Plan*. St. George's: Government of Grenada.
- IMF. (2021). *World Economic Outlook Database 2021*. Retrieved from <https://www.imf.org/en/Publications/WEO/weo-database/2021/April>
- MoHSS. (2014). *Corporate Plan 2015-2017*. St. George's: Ministry of Health and Social Security Government of Grenada.
- MoHSS. (2015). *National Strategic Plan for Health 2016-2025*. Ministry of Health & Social Security Government of Grenada.
- MoHSS. (2021). *eHealthMAP*. Retrieved from <http://healthmap.opixels.net>
- PAHO. (2018). *PAHO Director participates in inauguration ceremony of Princess Alice Smart Hospital, Grenada*. Retrieved from Pan-American Health Organization: https://www3.paho.org/hq/index.php?option=com_content&view=article&id=14735:paho-director-participates-in-inauguration-ceremony-of-princess-alice-smart-hospital-grenada&Itemid=135&lang=en
- PAHO. (2019). *Rapid Assessment and Trend Analysis: Strenghtening Health Care Facilities in The Caribbean Project*. Pan American Health Organization.
- PAHO/WHO. (2017). *SMART Hospitals Toolkit*. Pan American Health Organization.
- WHO. (2020). *WHO guidance for climate-resilient and environmentally sustainable health care facilities*. Geneva: World Health Organization (WHO).
- WHO/HCWH. (2009). *Healthy Hospitals, Healthy Planet, Healthy People - Addressing climate change in health care settings*. World Health Organization & Health Care Without Harm.
- WHO/PAHO. (2019). *Hospital Safety Index Guide for Evaluators*. Washington D.C.: World Health Organization and Pan American Health Organization.
- World Bank. (2021). *Grenada COVID-19 Crisis Response and Fiscal Management DPC*. Retrieved from The World Bank: <https://projects.worldbank.org/en/projects-operations/project-detail/P174527>